Decision impact analysis statement

Independent onboard monitoring in Queensland trawl fisheries

December 2025

DELIVERING FOR QUEENSLAND

Queensland Government

This publication has been compiled by Fisheries Queensland, Department of Primary Industries.

The Department of Primary Industries proudly acknowledges Aboriginal people and Torres Strait Islander people as the Traditional Custodians of the Country. We recognise their continuing connection to land, sea, waters and sky. We pay our respect to them, their cultures and to their Elders past and present and commit to ongoing reconciliation.

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Executive summary

Background

Commercial fishing plays a vital role in Queensland's economy, supporting coastal communities and ensuring a steady supply of fresh seafood to domestic and international markets. Promoting sustainable fisheries management is essential to maintaining this industry's economic and environmental viability. Accurate and reliable data is a cornerstone of the sustainable management of fisheries resources (1).

Independent monitoring and validation of commercial fishing data is critical to ensure that accurate information is available to inform evidence-based management decisions and provides confidence to all stakeholders that the data is reliable and unbiased.

While existing Fisheries Queensland processes support the independent monitoring and validation of some commercial fishing activities and data (such as vessel tracking), there are still challenges with the ongoing validation of data related to the reporting of threatened, endangered and protected (TEP) species interactions. This is because the interactions occur at sea and the TEP species must be returned to the water immediately. There are also no mechanisms currently in place to independently gain a better understanding of other non-target catch (bycatch), as this product is also discarded at sea.

The primary tools available to independently validate commercial fishing interactions with TEP species and independently monitor bycatch are onboard camera systems – also known as electronic monitoring (e-monitoring) systems – and independent onboard observers. In Queensland, the use of these 2 tools is described as independent onboard monitoring (IOM).

Evidence from the implementation of improved independent monitoring and validation methods in other commercial fisheries (such as Fisheries New Zealand) suggests that self-reporting of TEP species interactions was underestimated before establishment of IOM (2).

The Queensland east coast otter trawl fishery (ECOTF) – T1, T2, M1 and M2 symbols – and commercial fin fish trawl fishery (CFFTF) – T4 symbol – are priority fisheries for IOM due to their associated risk with:

- the collection of non-target (bycatch) species
- TEP species interactions
- the need to satisfy time-bound *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) approval conditions to maintain export approvals.

The ECOTF and CFFTF are important contributors to the Queensland economy, contributing an estimated $127.85 million (indexed to beginning of 2025) in gross value of production (GVP) to the state and employing 1,170 full-time equivalents (direct and indirect).

Consultation impact analysis statement

A consultation impact analysis statement (IAS) was prepared to investigate options to implement improved monitoring and independent data validation methods across priority trawl fisheries. Public consultation and engagement activities were conducted over an 8-week period, with feedback sought on the options and recommendations presented in the consultation IAS. The following option was recommended:

- Introduce a regulatory framework supporting the establishment of an IOM program across 100% of CFFTF vessels and ECOTF vessels that account for 90% of fishing effort.

The consultation IAS sought feedback on several other project components, including program objectives, proposed implementation timeframe, mandatory electronic reporting and funding.

Feeback on the options and recommendations in the consultation IAS differed across key stakeholder groups. Commercial fishers voiced strong concerns about the potential financial burden, privacy risks and perceptions of over-regulation associated with the proposed IOM program. They advocated for improved education, simplified reporting requirements, more targeted monitoring and a slower implementation timeframe. Conversely, environmental non-government organisations (NGOs) expressed support for an extensive IOM program, with shorter implementation timeframes.

Objective of government action

This decision IAS considers the objective of government action to maximise the social, economic and ecological value of Queensland's fisheries resources – both now and for future generations. Achieving this requires balancing competing uses in a fair way, guided by the principles of ecologically sustainable development and underpinned by holistic process models, robust ecosystem monitoring, and valid commercial and recreational fishing data.

Other considerations that informed this decision IAS included:

- feedback received from stakeholders during consultation and engagement activities after the release of the consultation IAS
- Australian Government EPBC Act approval conditions (export approvals) and the *Reef 2050 long-term sustainability plan: 2021–2025* commitments and the United Nations Educational,
- key learnings and recommendations from the 18-month onboard camera field trial (3)
- approaches taken in other jurisdictions and programs, such as the Australian Fisheries Management Authority (AFMA), Fisheries New Zealand and the Queensland NX IOM program.

Options explored

Based on stakeholder feedback, alternative options were explored and are discussed in this decision IAS, including:

1. the use of onboard observers instead of e-monitoring systems
2. an industry-owned and delivered IOM program model
3. an education-only campaign
4. a compliance-only campaign.

Among other reasons explained in this decision IAS, the use of onboard observers was determined not to be feasible, due to the inability to scale the program across the ECOTF and deliver a representative program. Safety concerns presented another significant issue when considering the use of onboard observers.

While an industry-owned model was presented as another option, it was expected to face challenges in delivering a program that was representative, risk-based and implemented within the timeframes required to meet the government objective.

Finally, both options 3 and 4 would not be enough to satisfy the objectives on their own. Their effectiveness to support monitoring and achieve accurate reporting would remain uncertain without the independent validation provided by IOM.

Final options presented

This decision IAS presents the implications of implementing regulations that support an IOM program across the ECOTF and the CFFTF, versus maintaining the status quo (i.e. no IOM program):

Option 1: Maintain status quo

Option 2: Introduce an IOM program consisting of e-monitoring systems on all active CFFTF vessels and ECOTF vessels that account for 90% of fishing effort.

Implementation of option 2 would occur over a 6-year period. It would be fully funded by government, with installation on the CFFTF vessel in the first year, and on the highest effort ECOTF vessels across the northern, central, southern onshore and southern offshore management regions in the first two years. Subsequent years will involve installation on the remaining highest effort vessels across the ECOTF.

Additional commitments to support the IOM program include:

- mandatory electronic reporting using the Qld eFisher app (government also commits to developing a desktop app if it can be proven to be secure)
- 2-yearly performance reviews to help support the continued rollout and ensure program principles and objectives are maintained
- an education plan to support the co-development of resources and information to improve TEP species identification, reporting and handling
- a data retention and privacy policy to provide transparency regarding how footage and data from the IOM program will be collected, stored and accessed
- a risk-based approach to footage review, with a strong commitment to invest in, and leverage, advanced technology, aiming to maximise and create efficiencies.

Impact analysis

The risks of not implementing IOM in Queensland trawl fisheries are considered significant due to the loss of Australian Government export approvals and potential loss of access to fishing grounds in the Great Barrier Reef World Heritage Area, valued at $60 million in GVP annually. Further, it threatens to disrupt domestic supply chains and impact fishery profits, employment and the industry's long-term viability.

Impact analysis of the options is quantified using a cost-benefit analysis, and those that cannot be monetised are qualitatively presented and discussed. The total cost (present value) of the program over a 10-year period is $20.7 million. This comprises $12.4 million for the establishment stage (years 1–6), and $8.3 million for the ongoing period (years 7–10).

Two different benefit measures were analysed. When using net economic return, the benefit of the program over 10 years is estimated at $5.8 million. However, when using GVP the benefit is much higher at $454 million.

Overall, the cost-benefit analysis shows that the net benefit of the program is -$14.9 million when using net economic return as the measure for benefit, and $433.7 million when using GVP.

Given the government commitment to fund the initial 6 years of implementation, the introduction of an IOM program is not expected to result in any additional costs to enterprises during this period. Ongoing reviews will be undertaken during implementation to inform future management arrangements and subsequent ongoing costs.

An analysis was carried out to determine what the cost per licence would be to pay for the IOM program in the ongoing period. It was estimated at $3,069 per licence per year. This annual IOM cost may be affordable on average across the whole industry; however, it will likely affect the ability of all but the most profitable 25% of ECOTF businesses to continue to operate. Ongoing program reviews will be used to inform future costs, but no decisions have been made about who will pay for the ongoing costs of the IOM program after the initial 6-year period.

Conclusion

An IOM program using e-monitoring systems for Queensland's high priority trawl fisheries has been designed to be fit for purpose and strike a balance between conflicting stakeholder interests. The IOM program was based on results of an 18-month field trial to test e-monitoring systems and the feedback from the consultation IAS process, including concerns raised by industry regarding the practicalities and ongoing costs of an IOM program. It has also been designed based on program principles and program objectives that aim to meet Commonwealth EPBC Act approval conditions to maintain export approvals. The program design principles focus on the IOM program being independent, risk-based, representative, accurate and robust.

Any legislative changes required to introduce an IOM program across trawl fisheries would be made according to the regulatory assessment requirements with respect to competitive impacts, fundamental legislative principles, and human rights considerations.

The introduction of a regulated IOM program in Queensland's trawl fisheries is deemed essential to achieve the objective of government action.

Purpose of this decision IAS

What is an IAS?

An IAS is an assessment of the potential impacts of a regulatory proposal. An IAS must be completed for new and amendment regulatory proposals, with the level of information, analysis, and consultation proportionate to the likely impact of the proposal.

For more information on the IAS process, visit **qpc.qld.gov.au**.

This decision IAS is about introducing a regulatory framework under the Fisheries (Commercial Fisheries) Regulation 2019 to support the establishment and delivery of an IOM program across the ECOTF and CFFTF.

It builds on the options presented in the consultation IAS and outlines the final government decision, considering the costs and benefits of each option.

This decision IAS:

- identifies the government's final policy position in relation to the introduction of a mandatory IOM program across priority trawl fisheries
- assesses the impacts associated with introduction of a mandatory IOM program across high-priority trawl fisheries, compared to the base case of maintaining the status quo
- identifies where the impacts of introducing these new regulations may have a cost or benefit to commercial fishers, fishing businesses, the broader commercial fishing industry, the general public, and Queensland and Australian governments.

Next steps

A regulatory framework will be developed to support implementation of an IOM program. Regulations will be consistent with the proposed program and timelines outlined in this decision IAS.

More information

Web: dpi.engagementhub.com.au
Email: datavalidation@dpi.qld.gov.au
Call: 13 25 23

How to use this document

References to information used to compile this decision IAS are marked with number – e.g. (1) – which correspond to the reference list at the end of the document.

A series of coloured boxes are used to highlight the questions we asked in the consultation IAS survey (orange), government decisions or commitments (green) and other important and supporting information (blue).

Questions asked

Government decision / commitment

Important / supporting information

1 Introduction

1.1 Background

Independent data validation is the process of verifying that the catch and effort information provided by commercial fishers is accurate and can be relied upon to make evidence-based management decisions. Independent data validation achieves this by comparing data from 2 different sources – for example, data provided by fishers (e.g. logbook records) and data provided by a third party or another independent source (e.g. observer records or observations from the review of onboard camera footage). The independent validation of commercial fishing data enhances the ability to detect any errors or biases in the data, subsequently improving confidence in the information being reported and used for scientific assessments to support management decisions.

While daily catch and effort data has been provided by Queensland's commercial fishers for more than 30 years, there are limited mechanisms for confirming the accuracy and reliability of data related to non-retained catch and TEP species interactions as they are returned to the sea immediately. In contrast, retained catch can be validated when the fishing vessel returns to shore via port inspections and other reporting measures, while effort data can be validated using vessel tracking data or 'effort signatures' derived from this data.

Independent data collection programs have been used in commercial fishing fleets for close to 20 years, with the Australian Government using e-monitoring systems in some of their commercial fisheries since 2015. E-monitoring systems have been installed on approximately 2,000 commercial fishing vessels worldwide and is now considered to be the standard for good fisheries management.

In Queensland, the independent collection of data from onboard commercial vessels using e-monitoring and or onboard observers is referred to as independent onboard monitoring (IOM).

1.2 East coast trawl fisheries

Queensland's commercial trawl fisheries include the east coast otter trawl fishery (ECOTF) and the commercial fin fish trawl fishery (CFFTF). The ECOTF operates under the T1, T2, M1 and M2 fishery symbols and a section of the ECOTF includes river and inshore beam trawl that operates under T5, T6, T7, T8 and T9 fishery symbols. The CFFTF operates under the T4 fishery symbol.

Over the years, Queensland's trawl fisheries have undergone significant changes, exhibiting commitment to sustainability and responsible fishing practices. Starting in the 1980s with 1,400 licensed vessels, the industry has adopted a series of reforms aimed at reducing environmental impacts and improving resource management. Key changes include the introduction of the Fisheries (East Coast Trawl) Management Plan 1999, which reduced the number of licensed vessels to 800 and implemented turtle excluder devices and bycatch reduction devices to minimise the collection of bycatch. Seasonal closures, such as those introduced in 1991 and expanded in 2001, have further protected vulnerable marine ecosystems.

Satellite tracking (vessel tracking) was introduced in 1996 and increased position reporting was implemented in 2019 (4). The Representative Areas Program in 2004 rezoned the Great Barrier Reef (closing additional areas to trawling), while government buyback schemes have reduced fishing effort and vessel numbers (with only 527 vessels remaining by 2004).

More recently, the introduction of regional harvest strategies, management regions and effort caps have been put in place to tailor management to specific zones (5). There are now 364 licences in the fishery as of the date of this report.

Additional management arrangements such as federal and state marine park zones restrict the areas in which trawl vessels can operate, reducing the overall footprint of the fishery.

A statutory data collection program for the trawl fishery has been in place since 1988, requiring commercial fishers to complete and submit logbooks with daily catch and effort records. Since 2000, commercial fishers have also been required to report the number and fate of any interactions with TEP species as a requirement of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

A risk assessment was undertaken as part of developing the consultation IAS, which resulted in the ECOTF (T1, T2, M1 and M2 symbols) being classes as intermediate to high risk and the CFFTF (T4 symbol) as intermediate risk (Appendix 1: Priority risk assessment). As such, they have both been prioritised for improved monitoring and independent validation due to:

- a higher likelihood of interacting with bycatch, TEP species and/or other ecological communities identified through ecological risk assessment processes
- operating under EPBC Act approvals with conditions requiring the independent validation of TEP species and bycatch (6)
- significant spatial fishing overlap with regions of the GBRWHA, which contributes a significant proportion of the fisheries annual harvest.

Government decision

➡ Prioritise the establishment of an independent onboard monitoring program across the East Coast Otter Trawl Fishery and the Commercial Fin Fish Trawl Fishery.

1.3 E-monitoring systems

The use of e-monitoring systems began around 20 years ago on Canada's west coast (7). There are now around 2,000 e-monitoring systems in use in fisheries around the world on vessels large and small.

E-monitoring systems involve the use of onboard camera systems to monitor and record fishing activities. The systems used across fisheries differ based on vessel size, the availability of permanent power to operate the equipment and the length of fishing trips (i.e. single or multi-day trips).

E-monitoring systems for smaller vessels often only consist of a small battery powered camera with limited integration into vessel components. For large vessels, systems often include a central control unit, video monitor, several cameras, GPS aerials, and winch and hydraulic sensors.

Video footage is captured during at-sea fishing operations, generally during the times when fishing gear is being used and any interactions with TEP species or bycatch can be observed. The recorded footage is later reviewed for any interactions and compared to the reported logbook information, which ideally is entered and submitted electronically. The comparison of observations made during the review of footage with the information reported by the fisher supports the independent validation of commercial data.

1.4 Onboard observers

Onboard observers are trained personnel with fishing experience and/or fisheries management or environmental science qualifications. Observers are deployed on commercial fishing vessels to observe fishing practices and document information about catch (both target and non-target species) and effort (i.e. the amount and type of gear used, fishing location and duration).

They work according to standard methods and protocols to ensure data collected by different operators is consistent and comparable. Observers may also collect biological information such as the length and sex of fish, or otoliths (fish ear bones) that can be examined later under a microscope to determine age.

Observers have been used in fisheries worldwide for several decades. They provide fisheries managers with reliable, verified and independent data and information on fishing practices that can be used to validate logbooks, inform fisheries management decisions and provide greater confidence in fisheries data.

Onboard observers are only suitable for larger boats that can safely accommodate an additional person.

1.5 How IOM validates commercial fishing data

Logbook data is validated in slightly different ways, depending on the IOM method used.

Onboard observers record data on catch, effort and fishing methodology while they are on board the vessel. They generally record the information on paper or digital equipment such as iPads or tablets. After the fishing trip is complete, the observer records are uploaded to a database and compared against the logbook records.

E-monitoring systems automatically collect camera footage and other sensor data while the vessel is fishing. Recorded video footage and sensor data is encrypted by the e-monitoring systems once recorded (meaning it is protected from being accessed by others) and saved to the onboard systems internal memory. When a vessel returns to port following the end of a fishing operation, the camera footage and data can be transferred wirelessly via satellite or the 4G network, or physically transferred by ejecting and posting hard drives.

Once the independent reviewer receives the camera footage, they use specialised computer software that de-encrypts the files and supports the review of data. The independent reviewer records their observations while watching the footage and then compares their observations with the logbook records. Following the end of the review, some files are saved for educational purposes (such as species identification or machine learning training), which are deleted following mandatory retention timeframes. An example of the independent logbook validation process using e-monitoring systems is provided in **Figure 1** below**.**

The proportion of e-monitoring footage reviewed or observer trips undertaken will vary according to the objectives and management of an IOM program. However, both of these methods are a critical way of ensuring the accuracy of commercial fishing logbooks. By comparing independent monitoring data with logbook entries, fisheries managers can detect discrepancies, assess compliance and improve data reliability. This helps ensure that fishing quotas, stock assessments and sustainability measures are based on accurate and verifiable data.

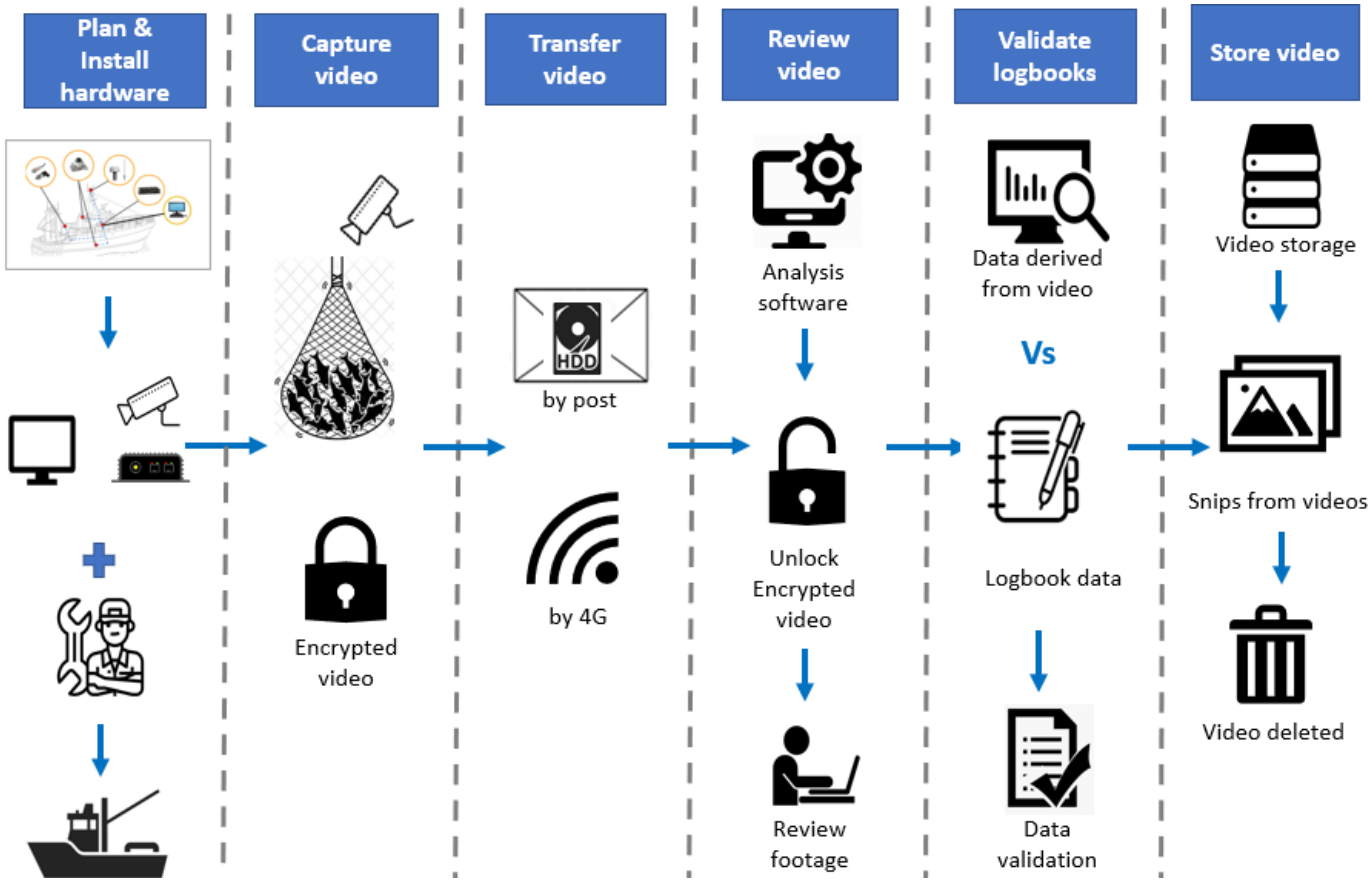


Figure 1: Data validation process using e-monitoring systems

1.6 IOM program services

IOM programs are comprised of several operational and administrative components that differ between each validation method (i.e. onboard observers or e-monitoring systems).

Onboard observer programs require:

- coordination and deployment of observers onto vessels
- onboard collection of structured data
- review and validation of that data against logbook records.

E-monitoring system programs involve:

- installation and refinement of onboard hardware
- training of fishers to use and operate the onboard equipment
- IT infrastructure to support the transfer, storage and access of camera footage and other data
- review and validation of footage using dedicated e-monitoring software
- ongoing troubleshooting and customer support.

When considering an IOM program that involves the use of e-monitoring systems, there are several providers that might be able to provide the required services. A detailed description of the goods and services required for an IOM program focusing on the use of e-monitoring systems is provided in **Table 1** below.

Table 1: Overview of goods and services required as part of an IOM program using an e-monitoring system

Goods/services	Description
E-monitoring hardware and onboard software	All hardware components installed onboard the vessel to record at-sea fishing operations. Includes, but is not limited to, cameras, central control units, satellite/GPS aerials, inductive and/or hydraulic sensors, firmware licencing, cabling and brackets.
Data transfer, storage and access	Infrastructure required to support the transfer, storage and access of captured video footage, including the wireless transfer of video footage from onboard hardware and remote access into system central control units for troubleshooting services.
E-monitoring review software	Computer application or cloud-based software/programs to support the transfer, storage and review of onboard camera footage and validation of commercial fishing data.
Installation and maintenance services	Electrical marine contractors and fabricators to install e-monitoring hardware on vessels and undertake maintenance of e-monitoring hardware and onboard systems post-installation.
Troubleshooting support and customer support services	Support services for the troubleshooting of e-monitoring systems.
E-monitoring review services	Supply of personnel to manage data transfer, review footage and record derived data.

1.7 IOM program design principles

Overarching principles have been developed to guide the design and establishment of an IOM program (8).

These 6 design principles are considered essential to meet the objectives of an IOM program:

1. **Independent** – that independence and transparency underpin the design and operation of the program, and the program is conducted by persons with no material interest in the fishery.
2. **Robust** – that information is provided from the program that is defensible and representative.
3. **Risk-based** – that the design and implementation of the monitoring program applies an appropriate level of fleet coverage and data validation appropriate to the risk to the environment (including target species, bycatch species, and ecological values).
4. **Accurate** – that the information provided from the program is accurate and current.
5. **Integrated** – that the findings from the program are integrated into the fisheries management cycle to support responsive and adaptive fisheries management.
6. **Collaborative** – that the program is collaborative and engages with funding partners and industry.

These design principles serve as a foundation for evaluating the options considered in this decision IAS and incorporating the feedback gathered through consultation (Appendix 2 – consultation results).

2 Identification of the problem

2.1 Context of the problem

Like any primary industry, there are ecological and environmental risks that need to be considered, particularly given Queensland's unique marine environment and stewardship of the GBRWHA.

One of the key risks associated with commercial fishing is the impact of interacting with non-target catch, including TEP and bycatch species. Unfortunately, some level of non-target catch is difficult to avoid in some commercial fisheries. This can be damaging to marine animals and the wider environment (9; 10; 11), especially if it is unmonitored or unregulated.

Accurate data on bycatch and TEP species interactions is critical to understanding the sustainability of fishing operations and making good, evidence-based management decisions.

Although reporting commercial fishing catch, effort and TEP species interactions is generally mandatory in most commercial fisheries, studies within Australia and overseas have shown that commercial fishing logbooks can be subject a number of biases and errors, which diminishes the quality of the data they provide and affects the fisheries management decisions based on the data.

Discards recorded in fishing logbooks are often under-reported (2; 12; 13), by as much as 90% in some cases (14). Under-reporting of catch is likely to occur if discarding catch is illegal (e.g. high-grading in quota-managed fisheries) or if it is known that collecting high levels of non-target species or interactions with TEP species may have negative consequences (including tighter management controls or loss of fishing access rights). On other occasions, under-reporting may occur due to the inability to identify non-target species correctly.

For some species, fisheries managers and scientists have found ways to improve the quality of the data or supplement it to provide more reliable data for management decisions. For example, retained catch can be verified using port inspections, at-sea inspections or improved reporting processes, and cross-checked with sales documents and other evidence (**Table 2** below).

While it is possible to estimate the catch of some non-target species by using information about retained catch population models and data collected from fishery-independent surveys, this information is difficult to validate without accurate data from real at-sea fishing observations.

Table 2 below shows that e-monitoring systems and onboard observers are the 2 methods commonly used to independently validate all aspects of commercial catch (i.e. target species and byproduct, non-retained catch and interactions with TEP species).

Table 2: Different methods of independent monitoring and the data to which they apply

Independent monitoring method	Catch			Effort		
	Target species & byproduct	Non-retained catch	TEP species interactions	Fishing location	Fishing duration	Type and amount of gear used
Vessel tracking				◐	◒	
Effort signatures*				●	●	◒
E-monitoring systems	●	●	●	●	●	●
Onboard observers	●	●	●	●	●	●
Port inspections	◐					◒
Forensic audits**	◐					

Notes:

- ◐ Direct monitoring
- ◒ Inferred information
- ◐ Methods currently in use
- ● Methods being considered

* Effort signatures are algorithms that use vessel tracking data in conjunction with detailed knowledge of fishing practices and vessel speed rules to identify patterns that typify fishing activity. Originally developed for trawl fisheries they also show promise for use in other fisheries (e.g. line, net, trap).

** Forensic auditing involves the comparison of catch disposal records with sales dockets to independently confirm the catch weight of quota-managed species.

These potential data deficiencies can have serious consequences. Decisions based on poor data poses a risk to the sustainability of individual fish stocks, TEP species populations and the broader marine ecosystem.

Without accurate and reliable data, fisheries managers may lean towards taking a precautionary approach and introduce heavier restrictions until more data is available. This includes precautionary decisions in response to unknown sustainability impacts to target, bycatch or TEP species. Other management authorities responsible for conservation of regions or habitats accessed by commercial fishers may also be required to act under the precautionary approach and review access arrangements.

A lack of data may also lead to non-action and the continuation of unsustainable practices, with long-term consequences for fisheries resources, the marine ecosystem and the profitability of the fishing industry. Many issues of sustainability are better addressed as early as possible, as any delay in action due to data deficiencies may lead to harsher restrictions. Sustainability concerns in the community can lead to loss of public confidence in the sustainability and ethics of fishing practices, lower demand for seafood and further pressure to implement restrictions on fishing.

There is currently limited capacity in Queensland to support the independent monitoring and validation of commercial fishing operations, specifically with regards to TEP species interactions and bycatch as they are returned to the sea while fishing.

Overall, the lack of mechanisms to independently monitor and validate commercial fishing interactions with TEP and bycatch species falls short of Australian Government requirements (15) and the community's desire for best practice fisheries management (16).

Commercial fisheries that pose a risk to ecological communities, such as ECOTF and CFFTF, are also under increasing scrutiny from Commonwealth Government agencies, environmental organisations and the wider community to provide transparency about their operations and verified data on the risks they present.

In particular, IOM is required to meet conditions under EPBC Act approvals and commitments under the *Reef 2050 long-term sustainability plan: 2021–2025*. The key drivers and impacts associated with not meeting these commitments are detailed below.

2.2 Key drivers to implement IOM

There are several drivers behind the need to introduce IOM programs across some of Queensland's commercial fisheries, including:

- conditions of EPBC Act approvals, specifically Wildlife Trade Operation (WTO) approvals
- commitments in the *Reef 2050 long-term sustainability plan: 2021–2025*
- recommendation 7 of the UNESCO 2023 *Report on the reactive monitoring mission to the Great Barrier Reef (Australia), 21–30 March 2022*
- TEP species recovery and access to fishing grounds.

2.2.1 EPBC Act approvals

The EPBC Act requires the Australian Government to assess the environmental performance of fisheries and promote ecologically sustainable fisheries management (17).

All Australian fisheries that export product or have the potential to interact with TEP species in Commonwealth areas must be assessed and approved under the EPBC Act.

To demonstrate this, the management arrangements of each fishery are assessed against the Australian Government *Guidelines for ecological sustainable management of fisheries* (18). These guidelines outline specific principles and objectives for evaluating the ecological sustainability of fishery management arrangements.

An export approval granted under the EPBC Act is generally a 3-year WTO approval under Part 13A, while the Part 13 (TEP species interactions) accreditation does not have an end date.

Any outstanding risks to target stocks, bycatch or the ecosystem identified in the assessment may be addressed as the conditions of approval. Conditions can be applied to the Part 13A export approval, the Part 13 accreditation, or both.

A WTO approval may be revoked if approval conditions have not been achieved within the specified timeframe.

The revocation of, or failure to obtain, EPBC Act approvals can have significant implications for commercial fisheries:

- A WTO approval under Part 13A of the EPBC Act permits export of product harvested from the fishery. Without this approval, no product from the fishery can be exported. This can have significant implications for fisheries or individual commercial fishing businesses that rely on the export of product. In some circumstances, access to export markets can also improve the domestic price of products, with less stock sold on local markets.
- Part 13 accreditation provides commercial fishers protection from prosecution under the EPBC Act for any unintentional interactions with TEP species while legally fishing in Commonwealth waters. Deliberate interactions with TEP species or interactions that occur without Part 13 accreditation are subject to serious penalties (fines of up to $330,000 or 2 years imprisonment) (17).

Apart from direct costs to fishers and the broader seafood industry from the loss of exports, the loss of EPBC Act approvals and the ability to demonstrate the sustainable management of commercial fisheries could also reduce public support and community acceptance of commercial fishing activities.

Currently, there are 13 commercial fisheries within Queensland that have export approvals under the EPBC Act, 8 others have expired and 4 have been revoked (19). For example, since September 2020 the east coast inshore fishery, Gulf of Carpentaria inshore fishery and blue swimmer and mud crab fisheries have all had their export approvals revoked by the Australian Government due to not meeting their conditions (19).

For details of all EPBC Act approvals for Queensland fisheries, visit dcceew.gov.au.

Under some of the existing EPBC Act export approvals for Queensland commercial fisheries, there are timebound conditions relating to the design, commencement and/or delivery of improved monitoring and data validation programs. These fisheries include the ECOTF and the CFFTF – both of which export product:

- ECOTF (approx. $8 million in exports per annum) – requires independent data collection and validation of TEP species interactions to commence by 15 June 2026 (details below)
- CFFTF (estimated to be approx. $2 million in exports per annum; however, no economic statistics are available to support this assumption) – required independent data collection and validation to commence from 31 August 2024 (in the short term, this requirement is being addressed through the voluntary use of onboard observers).

Current data validation methods in these fisheries only address retained catch (through port inspections) and fishing location (using vessel tracking). There is no regulated mechanism to independently monitor and validate bycatch and TEP species interactions and effectively address the approval conditions, which could in turn jeopardise Part 13 approvals.

Failure to produce an implementation plan to introduce IOM by 15 January 2026 and failure to commence implementation by 15 June 2026 may result in the loss of export approvals for the ECOTF. Any loss of export approval for this fishery is expected to significantly impact profits, jobs and industry's long-term viability.

EPBC Act approval conditions

The following conditions relate to the need to implement IOM programs (2). For more information, visit dcceew.gov.au.

East coast otter trawl fishery

In December 2024, the ECOTF had its EPBC Act approval renewed by the Australian Government with included conditions related to IOM. A subsequent amendment to the delivery timeframes of the IOM related conditions was also approved on 6 June 2025. The IOM related conditions include:

Condition 7, repeated in Condition A (Part 13 accreditation) – The Queensland Department of Primary Industries must:

a) By 15 January 2026, provide an implementation plan to the Department for the establishment of an ongoing independent monitoring and validation program across the East Coast Otter Trawl Fishery. The plan must demonstrate how the ongoing program will:

   i) provide independent data that is reliable and representative across all regions of the fishery; and

   ii) independently monitor and validate data collected via protected species logbooks, with a particular focus on protected species interactions demonstrated within this Wildlife Trade Operation approval period.

b) By 15 June 2026 commence implementation of the independent monitoring and validation program, this may involve the use of electronic monitoring, independent onboard observers, or other means.

c) As part of annual reporting under Wildlife Trade Operation Condition 4, provide a summary of the level of independent monitoring coverage across the fishery, protected species interactions and the validation of protected species logbooks with independent data.

Commercial fin fish trawl fishery

In August 2023, the CFFTF had its WTO approval renewed by the Australian Government, which includes the following condition related to IOM:

Condition 6 – by 31 August 2024, the Department of Primary Industries must develop and implement an annual robust, independent, quantitative, and validated monitoring and data collection program in the Queensland Commercial Trawl (Fin Fish) Fishery. This may involve the use of electronic monitoring, onboard observers, or other means.

The information collected must be sufficient to reliably demonstrate the accuracy of all reported catch, effort and protected species interaction data collected via logbooks. This program needs to gather suitable data on the level of catch, discards and interactions in the fishery to inform the sustainable management of target, byproduct and bycatch species (including protected species).

Performance of the program, including comparative analyses of fishery dependent and independent data sources must be included in annual reports provided to the Department of Climate Change, Energy, the Environment and Water as part of condition 4.

2.2.2 Reef 2050 long-term sustainability plan

The purpose of the *Great Barrier Reef Marine Park Act 1975* (20) is the long-term protection, ecologically sustainable use, understanding and enjoyment of the Great Barrier Reef. Fisheries that operate in a World Heritage Area have a special responsibility to reduce the impact of fishing on the ecosystem, which must be acknowledged and reflected in their management arrangements. Similarly, all fishing activities within the Reef should be reflective of the unique opportunity and obligation associated with operating in a World Heritage Area.

There is concern that some commercial fishing activities pose a threat to non-target and TEP species, and this is considered to be a sustainability issue within the GBRWHA (21). The Great Barrier Reef Marine Park Authority (GBRMPA) 2024 fishing position statement (22) identifies that some fishing activities and practices can damage habitats and impact species, threatening the values of the Reef. Minimising adverse impacts on the ecosystem is vital, particularly as the climate continues to change.

> **Excerpt from GBRMPA statement on 'what needs to be done'**
>
> "5. Interactions between commercial fishing activities and threatened and protected species are:
>
> a. Avoided to the greatest extent possible and do not threaten the long-term protection and conservation of the species in question.
>
> b. Are fully reported, including as per requirements under relevant legislation.
>
> 6. Independent data validation of fishing activities is implemented, including for target, bycatch, and protected species. Large-mesh net and trawl gear are the highest priority."

The Queensland Government has committed to a range of strategic actions under the *Reef 2050 long-term sustainability plan: 2021–2025* (23) to ensure any threats to the Reef associated with legal and illegal fishing are reduced. The actions include implementing measures that reduce impacts from fishing activities, verify data and improve understanding to strengthen management of fishing activities:

- Develop and implement robust systems of independent data validation for the mesh net and trawl fisheries, including independent verification of levels of interaction with species of conservation concern (potentially e-monitoring).
- Complete a proof-of-concept trial for IOM, including e-monitoring, for commercial mesh net and trawl fisheries.
- Improve data and understanding of recreational and commercial fishing catch and effort, and broader ecosystem impacts, to inform management arrangements and protection of Reef values.
- Support development and encourage the adoption of new technologies that improve understanding and reduce the ecological impact of fishing activities.
- Develop and encourage responsible commercial and recreational fishing practices in partnership with fishers.

Without progressing implementation of IOM for commercial fisheries that operate within the GBRWHA, GBRMPA may consider other spatial or temporal restrictions to reduce ecological risks.

2.2.3 UNESCO reactive mission recommendations

Protecting the Great Barrier Reef is a priority for the Queensland and Australian governments. The Reef contributes $6.4 billion to the Australian economy every year and supports more than 64,000 full-time jobs (24). About 90% (or about $5.7 billion) of this contribution is from tourism.

On 28 November 2022, the International Union for Conservation of Nature and UNESCO released the *Report on the reactive monitoring mission to the Great Barrier Reef (Australia), 21–30 March 2022* (25). The report recommended the Reef be added to the list of 'World Heritage in Danger' and identified 10 priority and 12 additional recommendations for urgent implementation. Commercial fishing impacts on TEP species is a key consideration for UNESCO when determining whether to list as 'in danger'. Such a listing is likely to have economic and reputational impacts on the Queensland tourism industry. A priority recommendation from the report relating to IOM was:

> Recommendation O7: Develop and implement appropriate mandatory independent mechanisms for discard and bycatch monitoring, such as e-monitoring via vessel-based cameras, on all gill-net and trawl vessels within the property (GBRWHA).

To address this priority recommendation and additional recommendations, the Queensland Government made 6 key commitments, including legislating the requirement for mandatory IOM (26). The World Heritage Committee's decision not to list the Reef on the 'in-danger' list was adopted during its July 2025 meeting (47 COM 7B.2) in recognition of the Australian and Queensland governments' actions to protect the Reef. The committee welcomed ongoing efforts to increase the sustainability of fishing in, and adjacent to, the Reef and requested that Australia ensure monitoring of trawl fisheries includes comprehensive transparency and accountability mechanisms, based on adequate data. A State of Conservation Report is due to be submitted by 1 February 2026 for consideration at the July 2026 committee meeting.

2.2.4 TEP species recovery and access to fishing grounds

The EPBC Act (17) provides for the identification and listing of key threatening processes, which is a process that threatens or may threaten the survival, abundance or evolutionary development of a native species or ecological community. For example, incidental catch (or bycatch) of listed species during fishing operations may be listed as a key threatening process. A fish species may also be listed under subsection 179(6) of the EPBC Act as 'conservation dependent' if it is the 'focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so its chances of long-term survival in nature are maximised' (17). Listing in this category is dependent on jurisdictions implementing additional measures recommended by the Threatened Species Scientific Committee to ensure sustainability in Australian waters.

Without progressing the implementation of IOM for commercial fisheries that interact with TEP or conservation-dependent species, there is a risk that other restrictions may be imposed on fishing activities (e.g. additional area or seasonal closures, additional no-take species or restrictions on processing or filleting at sea). More accurate information on the risk and rate of interactions with TEP species provided by IOM would enable targeted fishing rules to be developed rather than introducing precautionary broadscale limitations or restrictions on fishing activities.

> Recently, the Australian Government's Threatened Species Scientific Committee reassessed the conservation status of scalloped hammerhead shark under the EPBC Act and decided it will be retained in the 'conservation dependent' category (27).

2.3 Benefits of IOM

Independent validation of commercial fisheries data is an important aspect of best practice fisheries management and has the potential to provide a range of benefits to sustainable fisheries management, commercial fishers and the Queensland community, including:

- more accurate and reliable data for ecological risk assessment, harvest strategies, stock assessments and protected species management strategies, which would improve confidence in the data and decisions based on the data
- improved data on bycatch composition and volume to support the development of bycatch strategies
- improved understanding and management of higher risk fishing activities and their effect on the wider marine ecosystem
- improved knowledge of, and the ability to, mitigate interactions with TEP species
- satisfying the requirements of the EPBC Act and WTO approvals, resulting in ongoing access to export markets
- supporting the sustainable management of the GBRWHA and maintaining access to fishing grounds
- supporting third-party sustainability certifications and opportunities to improve seafood traceability and demonstrate provenance
- strengthening the reputation of Queensland's fisheries and increase community confidence in commercial fishing.

Without IOM in Queensland, particularly in high-priority commercial fisheries, it will be increasingly difficult to demonstrate environmental performance and sustainability.

This is inconsistent with best management practice principles and is likely to result in lost export approvals, changes to fishing access, and precautionary fisheries management if there is insufficient evidence to develop targeted approaches.

3 Progress to date

3.1 Data validation plan

The *Fisheries data validation plan* (28) was established in 2018 as part of the *Queensland Sustainable Fisheries Strategy: 2017–2027*. Since the plan's publication, Queensland fisheries legislation has undergone significant reforms, resulting in numerous changes to commercial fishing reporting requirements – including mandating vessel tracking for all major fisheries, the introduction of additional quotas, updates to the quota reporting process, and new and revised catch and effort logbooks. With the launch of the commercial fishing app (Qld eFisher) in 2021, reporting systems also evolved to support more electronic data submissions.

In response to these substantial changes, a comprehensive review of the plan was conducted in 2023, which led to the development of an updated plan in 2025. The 2025 plan outlines current data validation processes and priority action items for commercial catch and effort data. Key strategies in the 2025 plan include:

- enhancing data submission by providing ongoing training and support for commercial fishers, with a focus on TEP species interaction reporting
- minimising errors by updating and improving the processes of checking and analysing incoming data
- independent validation of TEP species interactions with IOM methods.

The 2025 plan serves as a dynamic framework for ongoing data validation improvements, ensuring reliable commercial fishing data to support sustainable fisheries management in Queensland.

Fisheries Queensland has made progress in implementing several strategies to enhance the accuracy and validation of commercial fishing data as detailed below.

3.1.1 Education

Education plays a critical role in ensuring the accuracy of data by equipping commercial fishers with the knowledge and skills needed to provide reliable and timely data. Fisheries Queensland is committed to supporting and educating industry on current reporting information. Current education resources and activities specific to TEP species interactions include:

- workshops and video resources for fishers on species identification, handling and safety
- fact sheets for fishers with key information about TEP species reporting and easy, step-by-step instructions for reporting interactions
- clear and simple identification information to help fishers correctly identifying TEP species
- Queensland Boating and Fisheries Patrol (QBFP) staff providing education and support for fishers to understand and undertake the required TEP species interaction reporting
- customised support and training activities based on fishers' interests and expressed needs.

3.1.2 Electronic logbooks

The Qld eFisher app (which includes electronic logbooks) is available for most fisheries, including the ECOTF and CFFTF. This app offers a modern alternative to paper logbooks, helping to reduce errors by simplifying data entry. The app allows for direct data input by fishers, minimising double handling and input errors. It also includes built-in validation checks to ensure data quality and facilitates timely data submission through cellular networks. Reporting via Qld eFisher is mandatory for the east coast inshore gillnet (NX) fishery, while all other fisheries can choose between using the app or paper logbooks. The app provides rapid availability to check data, resolve errors and access validation processes and other business needs (e.g. stock assessment and compliance).

Since the app's release in 2021, Fisheries Queensland staff have provided onboarding support to 370 commercial fishers and their support people to transition to the app. This has been achieved through over 200 training and information sessions, delivered primarily face-to-face, but also via videoconferencing platforms and phone calls. Ongoing support remains a key focus, with Fisheries Queensland staff continuing to help fishers as they begin using the app, addressing any challenges they face and offering additional help to ensure continued use.

3.1.3 Data checks

A variety of ranges and cross-checks (e.g. checks for outliers and incomplete records) are currently applied during data entry. These checks focus on parameters such as fishing methods, catch weights or quantities, fishing location and effort. To further identify data entry errors, additional checks are incorporated into automated post-data entry validation reports.

3.1.4 Inspections

QBFP also conducts in-port inspections to verify the accuracy and completeness of logbook, quota and vessel tracking data. These inspections and compliance actions are also an important deterrent to reporting false or misleading information.

Although most commercial fishers strive to operate in a way that minimises ecological impacts on the marine environment, reports of untoward behaviour and non-compliance with regulations are often received or observed.

For the 2024–2025 period, a total of 73 offences were detected resulting in caution and infringement notices being issued within the ECOTF. This included 23 logbook offences, 2 of which were TEP species reporting related, 7 fishing gear offences and one relating to vessel tracking equipment. There was also one court prosecution involving a charge for failing to complete logbooks as required. While these statistics provide an official record of compliance issues, QBFP also educate fishers in respect of requirements under relevant legislation.

3.2 Onboard camera field trial

The trawl fishery onboard camera field trial was conducted over 18 months on board vessels of volunteer commercial trawl fishers, finishing in December 2024. The trial was undertaken on vessels from the ECOTF and CFFTF. The trial involved testing 5 dedicated e-monitoring systems and one 'off the shelf CCTV system. The objectives of the trial were to test the performance of onboard e-monitoring systems to independently validate TEP species interactions and record bycatch, as well as provide an understanding of e-monitoring installation costs and maintenance requirements (3).

The trial was a collaborative project funded by the Queensland and Commonwealth Governments. A technical focus group was established (including field trial participants and officers from both funding agencies), which allowed the participants to provide feedback and seek troubleshooting advice during the trial.

E-monitoring systems were successfully deployed and tested during fishing operations on board 11 vessels across each management region of the ECOTF and across several gear types and target species. Participating vessels were highly diverse in terms of vessel configuration, the fishing gear used, catch composition and fishing areas/times. This meant that e-monitoring systems were tested across a range of different operational conditions and vessel types typically encountered in the ECOTF.

Over the course of the trial, 66 hard drives containing e-monitoring footage were collected from participating vessels, with an additional 7 nights of fishing footage collected using electronic transfer (e-transfer). In total:

- 266 catch-sorting events across 75 fishing nights were reviewed for TEP species interactions
- fishing effort was estimated for 365 trawl shots occurring over 100 nights
- bycatch reviews were completed for 25 catch-sorting events across 11 fishing nights.

The 2 methods tested for transferring camera footage collected at sea to the reviewer were physically swapping hard drives and e-transfer. E-transfer enabled the reviewer to select the specific video footage for review and send a request to the system on the vessel. The requested data was then securely transmitted from the vessel to the reviewer via the 4G data network when the vessel was within range. If vessels were operating outside 4G range, footage was captured and stored onto the system's internal hard drive and transmitted from the vessel once it returned to 4G range.

The field trial provided proof of concept regarding the deployment and use of e-monitoring systems as independent data validation tools on board vessels in the ECOTF and CFFTF, and identified the following key learnings:

- E-monitoring systems easily detected interactions with large-bodied TEP species; however, identifying smaller TEP species and observing their release condition and fate was more challenging.
- Robust monitoring of full bycatch composition is only likely to be feasible for vessels with conveyor sorting systems and those sectors of the fishery with low relative diversity and volume of bycatch. However, achieving more targeted bycatch monitoring objectives may be feasible.
- The installation of systems must account for the unique layout and fish-handling processes of each individual vessel, and consider the objectives of the monitoring program, to determine camera placement options.

- The deployment of systems involves a 'settling in' period, during which systems and processes are established, personnel receive training and fishers familiarise themselves with the technology.
- The review and validation processes were enhanced with dedicated systems that included data from GPS and winch sensors, and customised review software.
- Compared to physically swapping hard drives, the e-transfer of video footage and sensor data significantly reduced program management time and data management tasks for the reviewer and streamlined the review process. It also limited the amount of footage requiring access, transfer and storage.
- Regular cleaning of camera lenses during fishing operations ensured good quality video footage was recorded and available to monitor catch-processing activities.

An objective of the trial was to compare data collected by independent observers with data derived from camera footage to evaluate the ability of cameras to provide accurate estimates of bycatch. Due to unforeseen complications and compliance with national safety standards, onboard observers were not able to be deployed on participating vessels during the trial period. As such, the trial was unable to compare the performance of IOM methods (e-monitoring vs onboard observers) to monitor bycatch.

The trial provided valuable insights to support the design and establishment of an e-monitoring program across the ECOTF and CFFTF, and informed the following recommendations:

- Clear objectives and scope would be required to support program design and establishment.
- Increased support and resourcing would be required during the 'settling in' period and a risk-based, staged implementation would be recommended across a large fleet of vessels such as the ECOTF.
- The e-transfer of video footage and sensor data should be used, rather than the physical delivery of hard drives.
- Increased uptake of electronic reporting of commercial fishing logbook data by operators should be prioritised to support a timely and responsive monitoring program.
- While trialling multiple systems proved highly valuable in testing relative strengths and weaknesses, the trial showed that using multiple e-monitoring providers would add layers of complexity to the design, management and larger rollout of a program.
- Extensive and ongoing engagement between industry, Fisheries Queensland and e-monitoring providers would be essential to support effective establishment and ongoing delivery of a program.

These key learnings and recommendations from the trial have been used to inform the design and establishment of an IOM program across Queensland's trawl fisheries.

> The field trial report and webinar provide detailed explanations of the key learnings and recommendations – visit **dpi.engagementhub.com.au**.

3.3 East coast inshore gillnet (NX) fishery IOM program

An IOM program across Queensland's east coast inshore gillnet fishery (NX symbol) was successfully established in 2024. It is now a requirement of NX licence conditions, issued under section 61 of the *Fisheries Act 1994*, that e-monitoring systems are installed on each authorised vessel and operated to record each 'monitored fishing event'. All authority holders are required to report catch, effort and TEP species interactions electronically via the Qld eFisher app (29).

Axon Body Worn 3 camera equipment was deployed across the fleet of 28 licence holders operating 45 individual tender vessels. Cameras are used by fishers during each fishing trip and footage is wirelessly transferred to secure servers via the fisher's home Wi-Fi. Cameras on board each vessel are aimed at the areas where fishing gear is deployed and retrieved, and retained catch, bycatch and TEP species are handled and/or discarded.

Fisheries Queensland review the camera footage and compare it with the logbook data. The online Axon evidence.com platform is used to review the footage, with derived data recorded in an IOM database through a custom-built data entry application.

The primary focus of the NX IOM program during the 2024 fishing season was to independently validate TEP species interactions. This included the review of camera footage to validate:

- TEP species interactions reported by NX fishers – including the validation of species identification, number, interaction type and release condition
- a random 10% of monthly fishing effort per fisher.

High priority events are also prioritised for review and validation, and fisher compliance with the IOM NX conditions is monitored and recorded, with follow-up compliance actions undertaken if required. Comprehensive review and validation procedures have been developed and documented to support the delivery of consistent processes during review of footage, data entry and delivery of program outputs.

For more information on the NX IOM program, visit **business.qld.gov.au**

3.4 Legislative amendments

In April 2024, the *Agriculture, Fisheries and Other Legislation Amendment Act 2024* (30) approved amendments to the *Fisheries Act 1994* to support the design, establishment and ongoing management of an IOM program across high-priority fisheries.

Among other things, the amendments introduced the following changes:

- a head of power to introduce a regulatory framework supporting the establishment of an IOM program involving the deployment of e-monitoring and/or onboard observers to validate interactions with TEP species and monitor bycatch
- chief executive powers to amend, and impose conditions on, a fishing licence in response to repeated interactions with TEP species.

These amendments represent significant progress towards the establishment of an IOM program across high-priority fisheries and support the delivery of key protected species management arrangements under protected species management strategies.

In general, the regulatory framework of an IOM program to support these Act amendments would need to include the following key components:

- identification of the fisheries that require onboard monitoring and/or onboard observers
- times when e-monitoring systems must be operating to record a commercial fishing operation
- e-monitoring system installation requirements, including the position and way in which e-monitoring must be installed
- e-monitoring maintenance requirements (i.e. functioning, cleaning)
- camera footage transfer timeframes and requirements
- process to be followed in the event of a system malfunction.

4 Consultation impact analysis statement feedback

To read the full consultation results, see Appendix 2: Consultation re.

For regulatory proposals that are expected to have significant impacts, a full IAS process is required, which includes a consultation IAS and decision IAS (31).

To support the development of the final options presented in this decision IAS, a consultation IAS was released to seek public feedback on options to introduce improved monitoring and independent data validation across the ECOTF and CFFTF. Several options were presented for further consideration and feedback from stakeholders, including the use of fishery observers, increased education and reporting, compliance monitoring and vessel tracking.

The main options presented in the consultation IAS were to:

- Implement IOM across vessels in the ECOTF and CFFTF with varying coverage options considered, including:
    a. 100% of CFFTF and ECOTF vessels
    or
    b. 100% of CFFTF vessels and ECOTF vessels that account for 90% of fishing effort (**recommended**)
    or
    c. 100% CFFTF vessels and ECOTF vessels that account for 25% of fishing effort

The recommended IOM program included several other components that stakeholder feedback was sought on, including draft program objectives, a 4-year risk-based implementation timeframe, mandatory electronic reporting and proposed government funding of implementation.

Public feedback was sought on all recommendations in the consultation IAS. Public submissions were open for an 8-week period between 11 July 2025 and 7 September 2025. A range of communication and engagement activities were undertaken to seek feedback, including 3 large port meetings in Cairns, Townsville and Moreton Bay, smaller group face-to-face engagement sessions across major ports and online material that included a webinar with moderated Q&A session accessible for all trawl licence holders, fact sheets and an information video (**Figure 2** below).

Over 10,000 submissions were received through survey responses, eHub submissions, emails, verbal feedback and public responses driven by online campaigns (**Figure 2** below). Key stakeholder groups that submitted surveys included commercial fishers, recreational fishers, seafood wholesalers, a Traditional Owner and several interested community members. A large number of public responses also reflected support for online campaigns led by the Queensland Seafood Industry Association (QSIA) and the Australian Marine Conservation Society (AMCS).

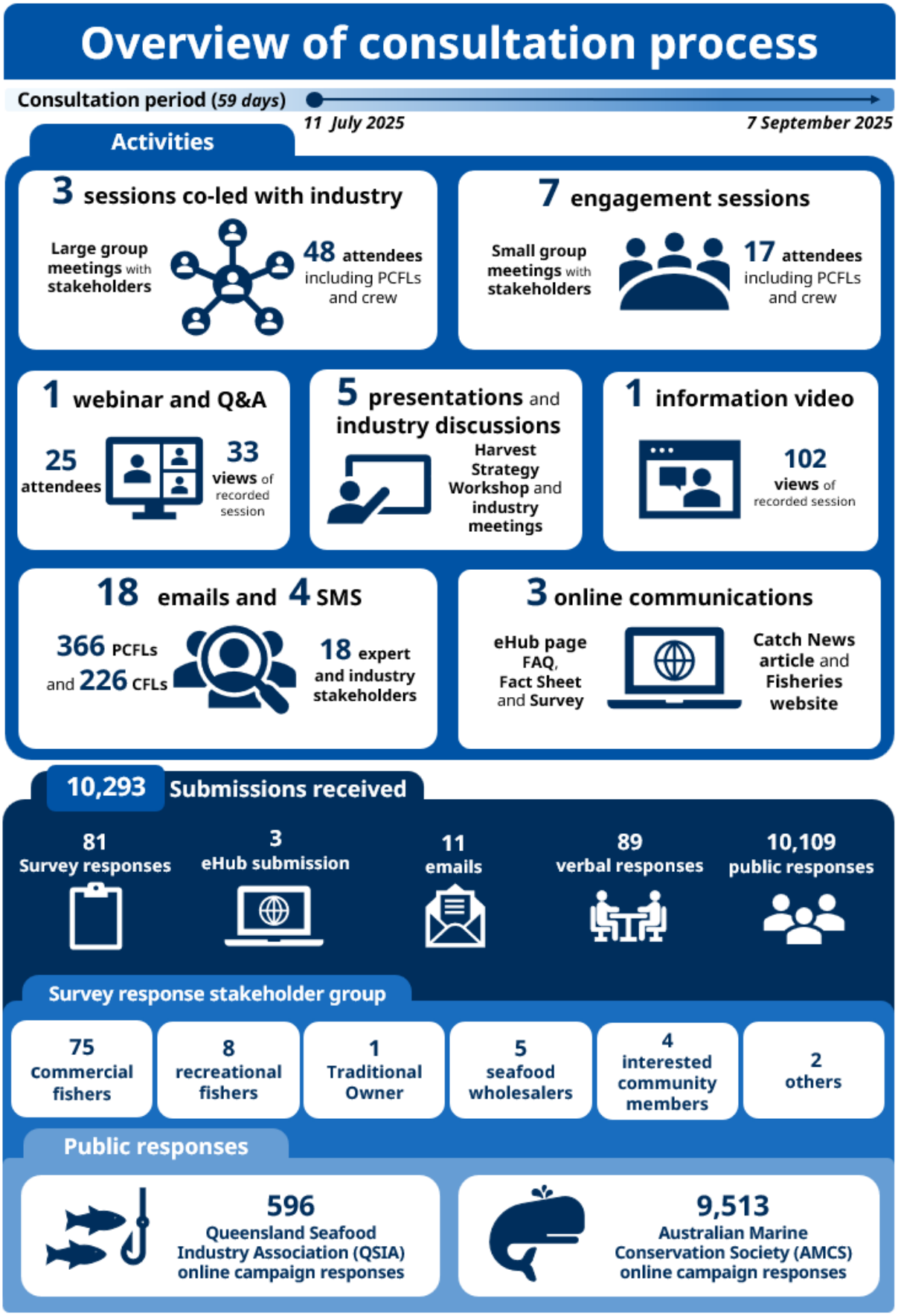


Figure 2: Overview of the consultation IAS campaign

4.1 Summary of feedback and recommendations

A full version of the consultation results can be found in Appendix 2: Consultation reresults, which includes a comprehensive analysis of survey results, feedback and recommendations received.

Across verbal and written feedback received, many commercial fishers, including the QSIA, supported the need for better independent validation of commercial fishing data. However, many fishers strongly opposed the proposed recommendation to introduce an IOM program, raising concerns about the scale, implementation timeframe, costs, privacy and practicality of a program across the ECOTF.

Recommendations received from industry stakeholders focused on alternative approaches, such as improved training for skippers and crew, voluntary participation in future programs, co-designed solutions, and targeted monitoring for high-priority vessels or regions. They also emphasised the need for privacy protections, equitable implementation processes and voluntary structural adjustment packages to support fishers who are financially unable or unwilling to address the impact of the program. Some commercial fishers highlighted the importance of allowing fishers to own their e-monitoring systems and access their footage, particularly to meet third-party sustainability programs, such as the Marine Stewardship Council (MSC) certification.

The AMCS and World-Wide Fund for Nature Australia (WWF-Australia) strongly supported the program, emphasising its importance for enhancing sustainability and maintaining the social licence of the fishery. Submissions received from AMCS and its supporters and WWF-Australia recommended mandating IOM for all active vessels, prioritising high-priority areas (particularly those overlapping with the GBRWHA), completing the implementation of a program within 2 and a half years, conducting a minimum 20% review of available camera footage and investing in artificial intelligence (AI) technology to improve efficiency and reduce costs.

4.2 Consideration of feeback and recommendations

Consultation is a key driver of regulatory quality. It allows agencies to obtain information to better understand how current regulations could be improved and also how those regulated would respond to a change in policy (31).

Sections 5–9 present a summary of feedback and recommendations that were received to provide context about specific stakeholder issues, concerns or support for the recommendations in the consultation IAS.

The final recommendation in this decision IAS takes into consideration all stakeholder feedback and recommendations provided during the consultation process.

5 Objective of government action

5.1 Feedback on proposed objective of government action

The proposed objective of government action in the consultation IAS was:

> The objective of government action is to maximise the social, economic and ecological values of Queensland's fisheries resources through improved monitoring and independent validation of commercial fishing data, which requires balancing between competing uses both now and through the future.
>
> The government recognises that there are wider interests in the management of Queensland's fisheries resources, which are reflected in the institutional arrangements performed by the Commonwealth through EPBC Act approval conditions and management of the GBRWHA, and internationally by UNESCO in respect of the World Heritage status of the Reef.

Submissions received from fishers that were coordinated by QSIA during the consultation period opposed this proposed objective, claiming it was too prescriptive and narrowed the options that could be considered viable.

Some commercial fishers also expressed this perspective through the consultation survey, emphasising the need for the objective of government action to align with ecologically sustainable development principles (32).

5.2 Final objective of government action

In response to feedback received from stakeholders, the final objective of government action has been amended to:

> The objective of government action is to maximise the social, economic and ecological value of Queensland's fisheries resources, both now and for future generations. Achieving this requires balancing competing uses in a fair way, guided by the principles of ecological sustainable development and underpinned by holistic process models, robust ecosystem monitoring, and valid commercial and recreational fishing data.
>
> The government recognises that there are wider interests in the management of Queensland's fisheries resources, which are reflected in the institutional arrangements performed by the Commonwealth Government through EPBC Act approval conditions and management of the GBRWHA.

6 Options considered

6.1 Feedback on options considered

Question asked

- Are there other monitoring or independent data validation methods that should be included in an IOM program?

As part of the consultation survey, stakeholders were asked if there were other monitoring or independent data validation methods that should be considered over e-monitoring systems.

Survey responders were asked to select from a list that included the following options:

- improved education
- electronic logbooks
- observers
- compliance monitoring
- 'other' (free text field).

Improved education was the most frequently selected method. Electronic logbooks was the next most popular method, while observers and compliance monitoring received comparatively fewer selections. Notably, all survey respondents who selected the observer method were commercial fishers. Suggestions provided for 'other' suitable methods included improved bycatch reduction devices, utilisation of drone technology, fishery-independent TEP species monitoring surveys and the use of electronic monitoring systems that have already been purchased by fishers (i.e. CCTV). An optional buyout of licences was also mentioned in responses.

Industry feedback from general submissions recommended alternative options that could better support improved validation or better data, including existing logbooks, fishery observers, protected species management plans, improved education, electronic reporting and more targeted monitoring or 'checks'.

Another key option included an industry owned model, where industry own the data and oversee implementation and management of a program.

Conversely, feedback from NGOs supported the options analysis consultation IAS, agreeing that the use of e-monitoring systems was the most viable option. They also identified other options they considered not to be viable, including Crew-Member Observer programs and voluntary or industry led/owned programs.

6.2 Options considered but not viable

Several options were considered but deemed unsuitable for implementation as they do not align with the 6 design principles outlined in section 1 and, used alone, would not achieve the objective of government action. This included onboard observers, an industry-owned option, compliance monitoring and programs focused solely on improved and continuing education.

6.2.1 Onboard observers

> The use of onboard observers is not proposed as a viable option under an IOM program. While not considered feasible as part of this impact analysis process, there may still be a requirement for the future use of onboard observers to support the collection of information consistent with other management needs of the fishery.

As outlined in **Table 2** above, IOM methods consisting of e-monitoring systems and onboard observers are the primary methods available to monitor and independently validate bycatch and interactions with TEP species.

Onboard observers are a well-known and widely used method to monitor and validate commercial fishing data. Other jurisdictions, such as AFMA and Fisheries New Zealand, continue to operate onboard observer programs in conjunction with e-monitoring. Both agencies require fishers to carry observers when requested. AFMA's observer coverage is proportional to fishing effort within and between fisheries (33), while Fisheries New Zealand revises their 'seadays' plan annually according to management priorities.

Onboard observers and e-monitoring systems each have distinct advantages and limitations. In terms of cost, onboard observers are more cost-effective for short-term monitoring, but e-monitoring proves to be more economical in the medium and long term due to reduced labour costs and the ability to scale across fleets. For example, e-monitoring programs in regions like British Columbia and Alaska have demonstrated significant cost savings compared to human observation (34). Scalability is a key strength of e-monitoring.

Safety is a critical consideration for the implementation of monitoring programs. Onboard observers face inherent risks associated with working at sea, including exposure to slippery and unstable surfaces that requires careful management to ensure personnel safety. In contrast, e-monitoring, when properly installed and maintained, eliminates these risks.

Onboard observers are best suited to large vessels where they can be legally and safely accommodated, while e-monitoring is suitable for boats of all sizes, provided there is a reliable power source.

A significant limitation of onboard observers is their unsuitability for most of Queensland's commercial trawl fishing fleet due to national safety standards. It is the responsibility of each commercial skipper to ensure their commercial fishing vessel complies with national safety standards, as outlined in the *Marine Safety (Domestic Commercial Vessel) National Law Act 2012*, administered by the Australian Maritime Safety Authority (35)

Under current national safety standards, vessels must be certified to carry an observer or require a vessel to be formally surveyed to carry an onboard observer (35). Within Queensland, specifically the ECOTF, many vessels are not expected to be certified or have been surveyed under these requirements. These limitations make onboard observers unsuitable for a mandatory program, as requiring them on a large scale would be costly and potentially unachievable due to survey requirements.

The primary benefit of onboard observers, when compared to e-monitoring, is their ability to collect additional biological information on catch data and provide improved validation of species release condition. They are also more cost-effective than e-monitoring systems if used as a validation method over a short period of time ($1,200 – $1,500 per day).

Compared to onboard observers, e-monitoring is generally more cost-effective. While there may be significant upfront costs for hardware, analysis of operational costs obtained from the onboard camera field trial identified that once e-monitoring systems were installed and operational, they are more than 3 times more affordable than using onboard observers to validate TEP species interactions when 10% of all fishing effort was independently validated (**Table 3**).

Table 3: Comparison of estimated onboard observer and e-monitoring footage review costs to validate 10% of annual fishing effort for the ECOTF (for TEP species interactions)

Validation method	Annual estimated cost ($)
Onboard observer	$5,400,000
E-monitoring	$1,600,000

Note: Cost estimates do not include the establishment costs of e-monitoring systems, but do include general program management and reporting costs (a detailed overview of the IOM cost analysis is provided in section 10.2).

While observers provide advantages over e-monitoring systems in regards to the monitoring and estimation of bycatch (such as improved species identification and the ability to collect additional biological information), it is important to address the primary need for IOM, which is the validation of interactions with TEP species on a scale that is representative of the fishery – and e-monitoring supports this.

In addition, the onboard camera field trial has demonstrated that e-monitoring systems can be used to monitor and estimate bycatch in some sectors of the fishery (3).

6.2.2 Industry-owned model

An industry-owned IOM program model may include a fully owned industry model or a model in which industry manages some parts of the program and government manages or facilitates other parts of the program.

While there is evidence that this model can work on a small scale (e.g. one ECOTF business operating their own e-monitoring systems and independent data review, or smaller size trawl fleets operating IOM programs in other commercial fisheries), applying such a model across a large, diverse fleet like the ECOTF presents challenges.

Survey responses and industry feedback during the consultation IAS process generally showed strong opposition to the use of e-monitoring systems for several reasons. Because there is such a low level of

support from industry, this would likely limit the number of vessels that would be willing to install and operate e-monitoring systems, or establish other programs or processes, that would support the monitoring and independent validation of their fishing operations under an industry-owned or voluntary model.

While industry adoption of IOM may improve overtime, through early adopters and industry championing of program benefits, timeframes of this occurring are not known. Failure to show progress with implementation, and assurance program adoption and ongoing management will continue, would risk meeting Commonwealth EPBC act approval conditions and the GBRMPA expectations.

Additionally, with the low level of industry support for IOM, it would be challenging to ensure that a representative and risk-based program could be implemented. Volunteers or early adopters as part of an industry owned model may not provide the spatial and temporal coverage required to meet expectations of Commonwealth EPBC act approval conditions and the GBRMPA.

This highlights the important role government must play in legislating components of an IOM program that can demonstrate the implementation timelines and ongoing management arrangements of a program that are risk-based, representative and provide long-term assurance of the program's direction and fleet coverage.

Other benefits of a government-led IOM program include the establishment of stringent procurement processes and ongoing investment in secure infrastructure and hosting environments to protect sensitive data and information.

6.2.3 Compliance-only monitoring program

The Queensland Boating and Fisheries Patrol (QBFP) is a business unit within Fisheries Queensland that delivers compliance and enforcement functions. Compliance with fisheries laws not only ensures the sustainability of Queensland's fisheries but also the safe use of Queensland's waterways.

Compliance monitoring can be undertaken while at sea, which provides compliance officers the opportunity to observe and validate catch, bycatch and protected species interactions before they are returned to the water. At present, QBFP employ several monitoring strategies that would support the monitoring and validation of bycatch and TEP species, including at-sea boarding inspections and the use of drones.

Drones can be flown above active vessels to monitor a fishing operation, with the footage later reviewed and validated against the logbook. At-sea inspections also allow catch, bycatch and TEP species interactions to be monitored if the officers are on vessels at the time catch is hauled onboard and sorted.

However, these activities can only be undertaken on a limited basis and significant costs would be associated with employing these measures at the scale required for the IOM program to be representative. For example, in 2023 there were 243 active ECOTF vessels fishing more than 27,000 days – a representative compliance monitoring program for this fleet would require extensive resourcing.

The use of drones is also limited by the range and length of time they can be deployed. The majority of at-sea fishing occurs offshore and deployment of drones would be required from other at-sea vessels. Their flight times are limited by battery life and a single drone is not likely to be able to monitor an entire night's fishing. Drones also introduce safety risks if flying in and around active commercial fishing vessels with large nets being hauled and deployed. The majority of ECOTF vessels operate at night, introducing further complications for drone pilots.

Due to the extensive resource implications and limitations of providing a representative program, these options are not considered to be feasible.

6.2.4 Education-only campaign

Section 3.1.1 discussed the existing education programs aimed at improving logbook reporting, which include workshops, fact sheets and targeted training for fishers. While these initiatives are valuable in building awareness and capacity within the industry, their ability to support monitoring and compliance, and achieve accurate reporting, would remain uncertain without the independent validation provided by IOM.

Education is a critical component of an IOM program, as it helps fishers understand and meet reporting requirements. However, education alone cannot fulfill the program's broader objectives, such as ensuring accurate data collection, validating interactions with TEP species or addressing non-compliance.

Without IOM, there would be no mechanism to independently verify the accuracy of reported data or detect unreported incidents, leaving significant gaps in monitoring and management efforts.

While education is essential, it must be complemented by robust monitoring systems to ensure the program's objectives are met and to maintain public confidence in the in the accuracy and reliability of fisheries data collection.

7 Summary of feasible options presented

The **2 feasible options** presented in this decision IAS are:

- **Option 1** – Maintain status quo (not implement IOM) – **not supported**
- **Option 2** – Implement an IOM program across the CFFTF and ECOTF – **government decision**

7.1.1 Option 1: Maintain status quo

Maintaining status quo means that no new laws or regulations would be introduced that require an IOM program to support the monitoring and validation of commercial fishing data.

However, all existing processes and strategies that support improved monitoring and independent validation would continue, such as education, training and awareness, the *Fisheries data validation plan* and existing compliance monitoring.

Establishing a non-regulatory approach would rely on fishers voluntarily opting in to an IOM program or taking up processes and strategies that would support improved monitoring and independent validation of data.

This option is a standard 'baseline' option included in all impact assessment statements, against which other options can be compared.

As this option does not achieve the objectives of government action, it is **not supported**.

7.1.2 Option 2: Implement an IOM program across the CFFTF and ECOTF

Government decision

- Establish a regulatory framework that introduces a mandatory IOM program consisting of e-monitoring systems on all CFFTF vessels and ECOTF vessels that account for 90% of effort.

While other options that support the monitoring and validation of commercial data exist, the use of e-monitoring systems presents as the most effective method to support the ongoing independent monitoring and validation of bycatch and TEP species interactions at a scale that meets the objective of government action.

The IOM program will be supported by several key project components and broader commitments. These are presented in section 8 and 9 below, along with further information regarding stakeholder feedback and recommendations received, and justification and rationale behind the final program components.

8 Core IOM program

This section outlines the government decisions regarding the core components of the IOM program, as well as additional government commitments. Each section includes a summary of stakeholder feedback and the considerations that informed the final decisions and commitments.

Development of the IOM program was guided by:

- EPBC Act approval conditions and *Reef 2050 long-term sustainability plan: 2021–2025* (section 2.22.2)
- key learnings and recommendations from the onboard camera field trial (3)
- approaches taken in other jurisdictions, such as AFMA and Fisheries New Zealand (Appendix 3: Case studies from other jurisdictions), and the NX fishery IOM program (section 0)
- feedback received from stakeholders during consultation and engagement activities (sections 4 and 11)
- established program design principles (section 1).

8.1 Program objectives

Clear program objectives not only support program design and rollout but also ensure effective ongoing management and delivery.

They enhance transparency by informing commercial fishers, key stakeholder groups and the community about how the program is being managed and the information is being used.

Experience from the onboard camera field trial highlighted the need for clear program objectives to guide the design and establishment of any future program.

8.1.1 Feedback on program objectives

Questions asked

- Do you support the IOM program objectives?
- Are there changes or other objectives that should be considered?

Mixed views about the program objectives were received during the consultation. Key stakeholder feedback and recommendations included the following:

- **Accuracy of e-monitoring systems** – All stakeholders raised concerns about the ability of e-monitoring systems to accurately identify TEP species and the overall value of the program to fisheries management. Some commercial fishers suggested simplifying reporting requirements to genus groups and validating e-monitoring data with onboard observers.
- **Compliance monitoring** – QSIA and commercial fishers more broadly called for compliance monitoring to be excluded from the IOM program.
- **Ownership of e-monitoring systems** – Commercial fishers expressed interest in purchasing and managing their own systems, provided they meet approval standards (similar to VMS). QSIA and some commercial fishers proposed an industry-owned model (such as the Spencer Gulf fishery model) with a multi-stakeholder steering committee.
- **Sustainability certification** – QSIA recommended that a program should support MSC accreditation.
- **Expanded scope** – Environmental NGOs (including AMCS and WWF-Australia) supported the IOM program (Appendix 2: Consultation re) and recommended expanding its scope to include data on non-retained catch (e.g. bycatch) if feasible.

QSIA largely agreed with most objectives of the IOM program, however raised the importance that program scope remain focused on the validation of TEP species interactions. QSIA did not agree with the objective covering use of e-monitoring systems for compliance purposes. Their response recommended changes to draft objectives to account for industry ownership of data, referencing data deletion timeframes and also recommended a new objective be included that focused on supporting industry leadership and co-management of a future program.

AMCS and WWF-Australia supported the draft objectives but proposed several changes and additions. These included modifying conditions to include bycatch monitoring, adding an explicit condition to investigate and apply AI, and prioritising certain objectives over others, such as TEP species validation.

8.1.2 Final program objectives

Government decision

IOM program objectives:

- **Monitoring and validation** – Support monitoring of commercial fishing activities and validation of commercial fishing data, with a primary focus on interactions with TEP species.
- **Improved reporting and confidence in logbook data** – Provide accurate and reliable data to support the sustainable management of the fishery through ecological risk assessments, harvest strategies, stock assessments and protected species management strategies.
- **Sustainable management of the fishery** – Increase the accuracy of commercial fishing data and support fisher improvements in the identification, reporting and handling of TEP species.
- **Enhanced compliance** – Focus on using e-monitoring to ensure compliance with IOM program requirements and monitor for actions that would have perverse outcomes for the sustainable management of catch, bycatch or TEP species.
- **Foster industry engagement and co-development –** Ensure the co-design and development of processes and strategies that support the ongoing delivery and management of an IOM program through ongoing engagement and consultation with industry stakeholders
- **Community confidence and industry improvements** – Increase community confidence in commercial fishing practices and help improve the economic performance of commercial fishing businesses.

Further detail on each objective is provided below.

8.1.2.1 Monitoring and validation

E-monitoring systems can validate various aspects of commercial fishing data, including retained catch, fishing effort, bycatch and interactions with TEP species. However, reviewing and validating each component of an operation increases both time and program operating costs. Therefore, it is essential to clearly define the program's data validation priorities to ensure resources are allocated effectively.

The onboard camera field trial demonstrated that the tested e-monitoring systems could validate TEP species interactions. The IOM program will align with the objectives recommended by the field trial, with its primary focus on the monitoring and validation of interactions with TEP species. Bycatch monitoring will be targeted to specific regions of the fishery or tailored to meet specific monitoring objectives based on the management needs of the fishery. While feedback from AMCS and WWF-Australia recommended bycatch monitoring be included as in individual objective, this objective does not limit a future program exploring the boarded use of e-monitoring systems to validate bycatch.

Prioritising the validation of TEP species is consistent with the requirements under the EPBC Act approval conditions for the ECOTF, which specifically reference independent validation of TEP species interactions.

Validation of other commercial fishing data components will only be undertaken if operationally feasible and within the program's budget constraints.

8.1.2.2 Improved reporting and confidence in logbook data

An IOM program will not only support the independent validation of commercial fishing data but will also play a critical role in improving fisher reporting, particularly TEP species interactions. Accurate reporting, including precise species identification and counts, is essential for building confidence in the logbook data provided by fishers.

To achieve this, training and education on species identification, reporting and best practice handling techniques are vital. These efforts will increase the likelihood of TEP species being reported correctly and released alive and unharmed, further supporting conservation outcomes.

Program objectives will prioritise:

- enhancing the accuracy of commercial fishing reporting, particularly TEP species
- improving species identification skills among industry, including skippers and crew
- providing education on best practice handling techniques for TEP species.

These measures will not only improve the reliability of logbook data but also strengthen industry practices and support sustainable management. High quality logbook information reduces the need for precautionary management decisions, enabling more informed and balanced approaches to fishery regulation.

8.1.2.3 Sustainable management of the fishery

The IOM program will improve the accuracy of commercial fishing data being reported and subsequently improve confidence in the use of the information when undertaking ecological risk assessments and implementing key fishery management tools, such as harvest strategies and protected species management strategies.

A key objective of any independent data validation program should relate to the use of the information to support improved management of the fishery.

8.1.2.4 Enhanced compliance

Several best practice management measures are regulated to minimise impacts on catch, bycatch and TEP species during general fishing operations. In the ECOTF this includes a combination of input and output controls such as spatial and temporal closures, gear restrictions and the use of turtle excluder and bycatch reduction devices.

The deployment of e-monitoring systems will introduce the ability to monitor general compliance with other best practice management measures developed to mitigate impacts.

For this reason, it is considered appropriate for the objectives of the program to include monitoring for compliance with best practice management measures that achieve beneficial ecological outcomes. This program objective is consistent with those under national and international e-monitoring programs managed by AFMA (36) and Fisheries New Zealand (37).

Government commitment

- Implement a risk-back compliance approach.

To support improved compliance, Fisheries Queensland will implement a risk-based compliance strategy under the IOM program. This strategy focuses on addressing non-compliance with IOM program requirements through education, risk assessment and targeted actions to safeguard the conservation of TEP species, improve reporting accuracy and maintain the integrity of the IOM program.

Key components of this compliance approach will include:

- **Risk matrix**: A risk matrix will categorise non-compliance actions or events as low, medium and high risk. This matrix will guide the prioritisation of compliance efforts, ensuring that high-risk actions, such as improper handling of TEP species, are addressed promptly.
- **IOM compliance procedure**: A detailed procedure will outline how each risk level is managed, with a focus on mitigating high-risk behaviours that threaten TEP species or the broader ecological community.
- **Educational intervention**: For low-risk and medium-risk non-compliance, voluntary behaviour change will be encouraged through targeted education and support. This may include personalised guidance to help fishers adopt best practices and comply with program requirements.
- **Escalation for repeat or high-risk non-compliance**: In cases of repeated non-compliance or actions with significant ecological impacts, Fisheries Queensland will implement measures to prevent future occurrences. These may include increased monitoring, formal warnings or enforcement actions consistent with QBFP compliance policies (38).

Recognising the diversity of Queensland's commercial fishing industry, the compliance approach will be tailored to address the unique challenges faced by fishers. This includes providing clear guidance on compliance expectations, ensuring transparency in how non-compliance is assessed and managed, and aligning compliance efforts with industry feedback.

By focusing on education and risk-based management, Fisheries Queensland aims to foster a culture of stewardship and accountability within the industry. This approach not only supports fishers in meeting their obligations but also strengthens the sustainability and reputation of Queensland's fisheries.

8.1.2.5 Foster industry engagement and co-development

Feedback from stakeholders identified the need for ongoing engagement through implementation and management of a program. Several processes and strategies will be developed to support a program and industry engagement and input into their design, implementation and ongoing management will be required to ensure they are fit for purpose and deliver on the needs of stakeholder.

Co-designing and developing strategies with fishers will support industry leadership and better co-management outcomes.

8.1.2.6 Community confidence and industry improvements

The introduction of an IOM program offers benefits for the commercial fishing industry. A key advantage is improved confidence in logbook data, which can be used to promote and strengthen the industry's reputation. Additionally, IOM systems can enhance operational efficiencies, such as supporting third-party sustainability certifications to improve market access and economic outcomes (34). E-monitoring systems also have the capability to automate reporting processes, reducing administrative burdens and improving operational capabilities. These benefits will also be prioritised to ensure the program supports industry needs and delivers tangible outputs.

8.2 Implementation schedule

8.2.1 Feedback on implementation schedule

Questions asked

- Do you agree with a risk-based approach to the implementation of IOM across priority vessels from the northern, central, southern inshore and southern offshore management regions of the ECOTF?
- Do you agree with the staged implementation of IOM across vessels that represent the highest fishing effort within each management region?
- Should any of the following criteria be used to support the implementation of IOM? (Select all that apply)
    a. Interactions with threatened, endangered, and protected species
    b. Geographic location fished (including the Great Barrier Reef)
    c. Compliance history
    d. Type of fishing gear used
    e. Size of vessel
    f. Other – please specify
- Do you agree with the staged implementation of IOM over 4 years?
- Should any other criteria or implementation timeframes be considered in the rollout of an IOM program?

Feedback was sought on the proposed implementation timeframe and methods for prioritising vessels for e-monitoring systems. In the consultation IAS it was proposed to implement an IOM program over 4 years, prioritising the highest effort vessels and priority management regions across the ECOTF.

Stakeholder feedback included several alternative methods for accounting for potential risk and the subsequent prioritisation of vessels, and there were differing views on the staged and risk-based components of implementing an IOM program:

- **Speed and scale** – There was mixed feedback on the implementation timeframe and scale of a proposed program. Commercial fishers generally recommended a slower implementation with less coverage, while environmental NGOs recommended faster implementation and 100% coverage.
- **Fairness concerns** – Commercial fishers raised concerns about prioritising implementation on fishing effort, suggesting exemptions should be considered for small vessels, low-effort operators and low-risk operators.
- **Multiple metrics** – Stakeholders suggested using a combination of factors (such as vessel size, gear type, location, seasonality and compliance history) rather than relying on a single metric. The use of historical fishing effort data was also widely questioned, as it may not accurately reflect current or future fishing practices or risks to TEP species.

- **Random selection** – Some stakeholders proposed a random selection process to ensure fairness and representative coverage across the fleet.
- **Representative coverage** – Questions were asked regarding the level of coverage that was required to be representative, stating that current risks are largely unknown and applying a high proportion of fleet coverage may not be required to deliver a representative program.
- **Environmental NGO input** – AMCS and WWF-Australia supported a risk-based, staged implementation and recommended including new entrants to the fishery and vessels increasing their fishing effort to prevent monitoring gaps. AMCS and WWF-Australia also recommended a faster implementation.

Feedback from key stakeholder groups:

- **Commercial fishers** – Significant concerns were raised about the 4-year timeframe. Many commercial fishers thought that for a complex and fleetwide program, a 4-year implementation timeframe was not achievable. Some submissions drew comparisons to the quick, fleetwide implementation of vessel tracking and the consequential impacts this posed for industry. For example, fishers were unable to go fishing as a result of technical malfunctions outside their control (39).

  Others raised concerns about fairness in prioritising specific vessel or management regions, recommended a slower implementation timeframe of up to 8 years and raised concerns about the geographic challenges of the ECOTF, with some vessels also operating from other states (e.g. New South Wales).

  Significant concerns about the availability of suitability qualified tradespeople to install the systems within the proposed 4-year timeframe and maintain them following installation on board a large proportion of the fleet.

  QSIA recommended a phased approach to implementation beginning with voluntary participation in priority areas, rather than prioritising based on fishing effort. They also recommended that a program should be expanded gradually, with milestone-based reviews to address challenges and ensure the program is performing.
- **Environmental NGOs** – AMCS and WWF-Australia suggested that the 4-year timeframe was too slow to address sustainability concerns and meet external obligations. They recommended that implementation occur within 2 and a half years across 100% of the fleet.

  AMCS and WWF-Australia supported the risk-based implementation of a program based on fishing effort in the first year, followed by reprioritisation using additional risk factors such as gear type, fisher behaviour and seasonality. They also emphasised prioritising regions overlapping the GBRWHA over lower risk areas like Moreton Bay, given the higher environmental risks. Their submission also noted the importance of e-monitoring systems driving behaviour change in reporting, with these benefits lost should some vessels not have systems installed under a 90% scenario.

8.2.2 Final implementation schedule

Government decision

- Implement IOM across al CFFTF vessel and across ECOTF vessels that account for 90% of annual fishing effort:
  - ✓ Prioritise highest effort vessels across priority management regions.
  - ✓ Implement across CFFTF and ECOTF vessels over 6 years, commencing June 2026.
  - ✓ Risk-based approach applied to review and validation of camera footage.
  - ✓ Ongoing 2-yearly performance reviews to evaluate program performance, costs and management.

IOM will be implemented over a 6-year period, commencing June 2026 (**Table 4** below):

- on the single active vessel in the CFFTF during the first year
- across the highest effort ECOTF vessels in the priority management regions during the first 2 years – northern, central, southern inshore and southern offshore management regions are considered the priority regions due to the likelihood of interactions with TEP species and overlap with the GBRWHA
- across the remaining highest effort ECOTF vessels during years 3–6, with program reviews used to inform any changes to implementation that might better achieve program objectives, once better data and information is available.

A risk-based approach will be applied to the review and validation of camera footage, with investment in machine learning and AI to help prioritise footage to be manually reviewed and investigate automated footage review processes. The first 2 years of the program will focus on the collection of a robust and representative baseline of validated information on TEP species interactions.

Ongoing program reviews will occur every 2 years to evaluate program performance, costs and management arrangements.

Table 4: Overview of the proposed implementation timeframe to install e-monitoring systems across the CFFTF and ECOTF

	Year 1	Year 2	Year 3*	Year 4*	Year 5*	Year 6*
CFFTF	1					
ECOTF Northern management region	6	6	26	28	30	30
ECOTF Central management region	6	6				
ECOTF Southern inshore management region	6	6				
ECOTF Southern offshore management region	7	7				
ECOTF Moreton Bay management region						
TOTAL^	25	25	26	28	30	30

* Implementation across highest effort vessels (ongoing program reviews may result in changes to implementation that better meet program objectives and support implementation of a risk-based and representative program)
^ CFFTF not included in totals

8.2.2.1 Justification and rationale for final implementation schedule

Prioritisation of ECOTF vessels

Prioritisation of vessels in the CFFTF is more straightforward than the ECOTF as there is now only one active fishing licence. In comparison, there were 243 active fishing licences across the ECOTF in 2023 (**Table 5**).

Table 5: Summary of symbols and licences in the ECOTF and CFFTF (2023)

Fishery	Fishery symbols	TOTAL no. of licences with fishery symbols	No. of ACTIVE licences with fishery symbols	No. of INACTIVE fishery licences
ECOTF	T1, T2, M1, M2	364	243	121
CFFTF	T4	5	2*	3

*The number of active CFFTF licences reduced to 1 in 2024

Implementing e-monitoring systems across all 243 active ECOTF vessels would be unprecedented due to the combination of scale and complexity, raising serious concerns about feasibility, cost and practicality.

The total number of vessels installed with e-monitoring systems and the proportion of camera footage that is reviewed represent the 2 most significant factors that impact program costs. The more vessels installed with e-monitoring systems, the more hardware, installation, maintenance and troubleshooting support services that are required. The review of more video footage requires additional data transfer, storage, review and management costs.

Effort is a commonly used method for monitoring and reporting commercial fishing activities. While estimated fishing days presents as a simple way to understand fishing effort, the ECOTF also uses effort units, which are calculated based on the vessels size and engine capacity. The use of effort units provides a clear indication of the amount of fishing a vessel is undertaking. While it is possible to apply several measures, effort days is consistently used to monitor and manage fisheries and presents as the most appropriate way to prioritise vessels for IOM.

Further analysis of fishing effort across the ECOTF fleet indicates that a smaller proportion of active fishing vessels are responsible for the majority of the fisheries effort (**Figure 3** below). For example, only 68% of active fishing vessels were responsible for 90% of the fisheries effort in 2023.

Other fisheries management agencies, such as AFMA, have established programs that prioritise e-monitoring for vessels that are responsible for the greatest effort to address the highest risk.

The cost-benefit analysis in the consultation IAS investigated program costs at various effort coverage levels. The total program costs (present value) to cover 100% of the ECOTF and 90% of the ECOTF were calculated to be $33,361,275 and $25,071,972 respectively. This indicates that to cover those vessels that account for only 10% of the fishery's annual effort, the program costs increase by 33% (compared to costs for the 90% effort coverage scenario).

For these reasons, and in alignment with the program principles, it is appropriate to focus on a more risk-based approach to program design and implementation. Prioritising the highest effort vessels that account for 90% of the effort provides good spatial representation across the fishery and addresses risk while ensuring program costs are not prohibitive – particularly in the long term when funding may no longer be available.

In support of the 90% coverage proposal, analysis of spatial fishing effort across the ECOTF supports that the top 90% of effort vessels provide good representative coverage across all management regions, further supporting the delivery of risk-based and representative program principles.

While there is a risk that not targeting 100% or vessels may lose the associated behaviour change benefit for vessels not fitted with e-monitoring systems, such as improved reporting of TEP species interactions, reviews into program performance and TEP species interaction reporting across the fleet would support evaluation of any reporting discrepancies to inform ongoing program management (i.e. comparison of reported TEP interactions between vessel with e-monitoring systems and those without).

The 2-year reviews will provide an opportunity to analyse the data collected and reassess the risks to ensure the program remains in line with the risk-based and representative program principles.

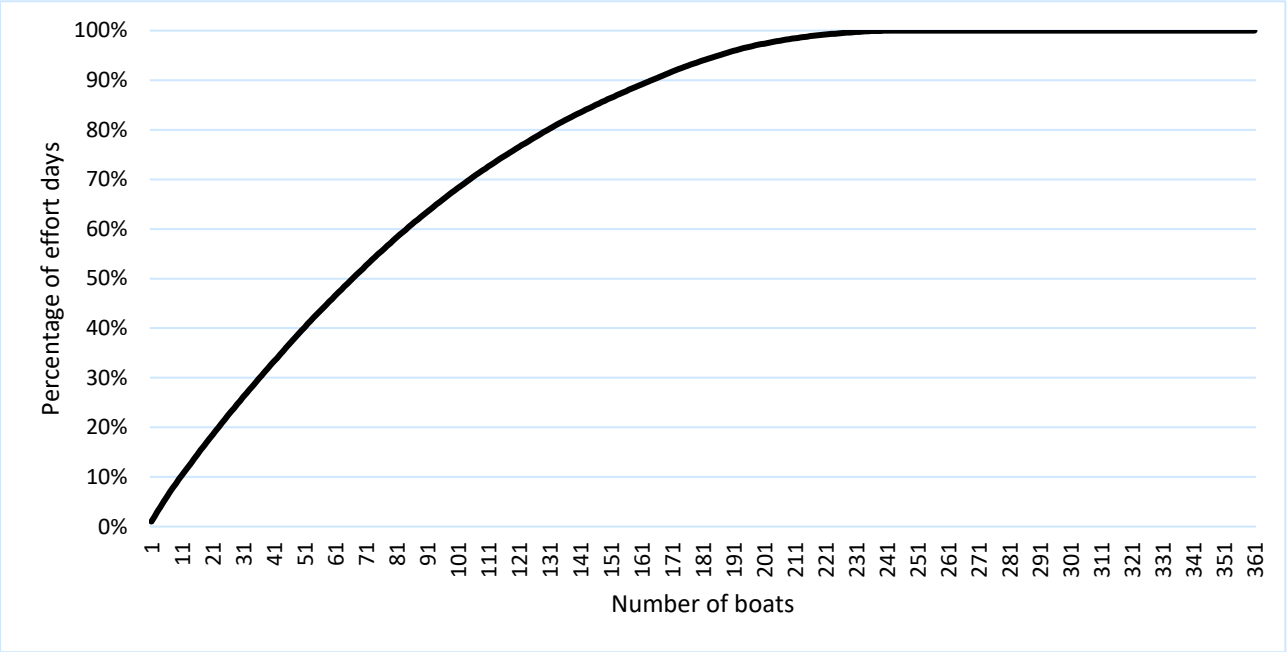


Figure 3 : Fishing effort across trawl vessels in the ECOTF (boats sorted from those with the highest effort to those with the lowest)

Prioritisation of management regions

Prioritising the rollout of an IOM program across the CFFTF is straightforward as there is only one active vessel. However, the ECOTF is extremely diverse, operating across a large spatial and temporal range with different target species and gear types used across the fishery – so different risk profiles need to be considered.

Recent reforms implemented across the ECOTF involved the introduction of regional management arrangements and harvest strategies for the northern, central, southern inshore, southern offshore (A and B) and Moreton Bay management regions (40; 41; 42; 43; 44). The harvest strategies, among other things, establish regional effort limits, define decision rules/trigger limits for the sustainable management of harvested species and provide mechanisms for the ongoing monitoring and management of ecological risk. The spatial separation of the various regions allows the application of individual management arrangements that are more appropriate to the risk profile of each region.

The prioritisation of e-monitoring installation on ECOTF vessels first was based on several components across the fishery's individual management regions. These included risks to TEP and bycatch species identified through regional ecological risk assessments (45), fishing effort within and between regions, and the spatial overlap of the management regions with the GBRWHA. **Table 6** below provides a comparison summary of the results. The comparison across management regions identified that the northern, central, southern inshore and southern offshore management regions sustain the largest fleets, overlap with the GBRMP and represent a higher risk to TEP and bycatch species (**Table 6**). In contrast, the Moreton Bay management region is located outside the marine park and supports the smallest fleet, accounting for only 5% of the total fishing effort.

Fishing activity varies among vessels within the fleet in area and number of days fished. During the 2023 fishing year, there were 243 active vessels of which 98 (39.5%) fished in more than one management region and 35 (14%) fished in 3 or more regions.

Given the even spread of risk across the ECOTF management regions, the rollout of e-monitoring will prioritise vessels from the northern, central, southern inshore and southern offshore management regions first. With a small spatial footprint and the lowest risk rating to TEP species, the Moreton Bay region is the lowest priority for implementing e-monitoring systems.

An alternative to the prioritisation of several management regions could include the prioritisation of an individual management region. This option would mean all vessels within that region, and over the proposed effort threshold, would have e-monitoring systems installed first. This would be advantageous from an operational perspective at the time of installation, with more vessels likely to be located in or nearby similar ports. However, it would not provide valuable spatial representation.

While approximately 40% of vessels fish within 2 management regions, which provides some level of representative coverage across the fishery, this alternative option could also result in operators avoiding a specific management region for the following season to avoid installing an e-monitoring system. This would cause effort shift to other regions, which may increase risks to TEP and bycatch species in those regions and impact other operators.

Although the northern, central, southern inshore and southern offshore regions are a high priority based on their risk factors (**Table 6**), the central region could be prioritised first as it has the most significant and largest spatial footprint of fishing effort and the highest (equal) TEP species risk score, and 66% of the area is within the GBRMP. Under this alternative approach, the central region would receive cameras first, then the northern, and southern inshore/offshore regions, with Moreton Bay (the lowest risk) last.

Table 6: Risk factors assessed for each trawl management region

Management region	Fishery symbol	GBRMP overlap	TEP species risk score	No. of vessels	% of ECOTF fishing effort	Additional reasons
Northern	T1	89.94%	72	73	16%	Highest overlap with GBRMP
Central	T1	66.06%	93	88	19%	Risk ratings for sea snake complex higher in central region where fishers target reef species like red spot king prawns
Southern inshore	T1	84.83%	78	100	11%	Batoid (ray) complex and carpet shark (Colcough's shark) higher average risk rating in more southern trawl regions

						due partly to fishers interacting with more diverse range of species
Southern offshore	T1, T2	27.94%	93	159	50%	Batoid (ray) complex higher average risk rating in more southern trawl regions partly due to fishers interacting with more diverse range of species
Moreton Bay	M1, M2	–	56	50	4%	Small area, spatial footprint and fishing effort, and outside the Great Barrier Reef – therefore lowest risk to TEP species

Implementation timeframe

Implementation of an IOM program must strike a balance between ensuring that e-monitoring systems are installed and operational as soon as possible, but in a way that ensures minimal disruptions to operators. They must also be installed in a way that ensures successful system performance, which requires adequate time to test their performance post-installation.

Feedback provided by industry during the consultation period highlighted important operational concerns and complexities with rolling out a significant program over the proposed 4-year timeframe.

In addition, prior experience with the implementation of vessel tracking revealed that, despite initial pre-trials, unexpected technological challenges negatively impacted the industry, particularly for those in regional areas with limited access to technical support and postage services. Given the geographical spread of the fishery, significant resource coordination will be essential to ensure the program's timely delivery and success.

Additional factors that could present challenges when installing a large number of vessels within a given year include supply and build times for e-monitoring systems, competition with other state regulators who are also implementing onboard monitoring programs during the same period and the availability of qualified electricians amid current national shortages (3).

During the onboard camera field trial, installing each camera system and its components required 18 hours over 2 days (3). In addition, a pre-installation inspection took 2–4 hours, along with pre-planning time, which varied depending on the vessel's layout, power availability and design. Post-installation refinement often required extensive coordination between the footage reviewer, system provider, service technicians, Fisheries Queensland and the fisher. In total, it is estimated that installation of an e-monitoring system can take around 7 days per vessel (**Table 7**).

Table 7: Average installation time requirements per vessel

Installation process step	Average time required per vessel
Planning – coordinate vessel and skipper availability, tradespeople and materials, including transport	2 days
Pre-inspection – inspect vessel before installation to identify installation requirements	1 day
Installation	2 days
Follow-up troubleshooting and final system refinement	2 days
Total	**7 days**

Considering the program will be implemented on the highest effort vessels in each region first, this presents a timing challenge for installations, as these vessels spend most of the fishing season at sea and minimal time in port.

To minimise disruption to commercial operators and avoid significant vessel downtime, the preference is to carry out installations while vessels are in port for other maintenance or are between fishing trips, and maximising installations during closed seasons for each trawl management region.

There is a total of 170 days to support installations across the annual closed seasons in the northern, central, southern offshore and southern inshore management regions, noting that the northern and central management regions share the same closure period (**Table 8**).

Table 8: Available installation days within annual closed seasons for the ECOTF trawl management regions

	Annual closed seasons	Annual closure days suitable for installation
Northern and central regions	15 December to 1 March	75
Southern offshore	Midday 20 September to midday 1 November	42
Southern inshore	Midday 20 September to midday 1 November Midday on 23 December to midday 3 January	53
Moreton Bay	Closed to fishing on weekends	(weekends only) 104

If installations were completed during the active fishing season, it would likely cause vessel downtime and a potential loss of revenue for business owners (who would otherwise be actively using their vessels).

During the fishing season, vessel downtime between each trip varies greatly depending on the maintenance needs of the vessel, market price of catch, catch rates and availability of crew. For some operators, crew are employed on rotation, resulting in short periods (<12 hours) of available time in port. Therefore, attempting to install a large number of camera systems across a fleet at during the active fishing season would likely result in disruptions to operators and delays in planned fishing operations.

Based on the installation rate of 7 days per vessel and 170 days of seasonal closures across the northern, central, southern offshore and southern inshore management regions, approximately 24 e-monitoring systems could be installed across these priority regions during the first year. This provides allowance to reduce impacts on operators' ability to fish, accounts for unexpected operational issues such as availability of hardware and technicians, potential rewiring and installing infrastructure to support appropriate placement of cameras.

It is estimated that e-monitoring could be installed on approximately 51 ECOTF vessels during the first 2 years and before the first review occurs. A phased implementation, underpinned by strong resource planning, timely program reviews and stakeholder engagement will be essential to the program's success.

8.3 Cost contributions

8.3.1 Feedback on cost contributions

Question asked

- Do you support the proposal for all IOM program costs to be covered by government for the first 4 years?

In the consultation IAS, it was proposed that government would fund implementation of an IOM program for the first 4 years, which was the proposed implementation timeframe.

Stakeholders shared varied views on funding and cost-recovery options for the IOM program. Commercial fishers and QSIA raised concerns about ongoing costs (including maintenance, internet, and vessel wear and tear) after the initial 4 years of government funding. Many called for continued government support until the industry's economic performance improves.

Recommendations included allowing fishers to manage their own approved e-monitoring systems, partnering with internet providers (e.g. Starlink) to reduce connectivity costs, and introducing structural adjustment packages, particularly for operators in the GBRWHA. Voluntary exit pathways were also proposed to support those unwilling to adopt e-monitoring.

Both commercial fishers and QSIA emphasised the need to develop recruitment and retention programs, including pathways for training and professional development, to address workforce challenges and ensure long-term industry sustainability.

QSIA further recommended concessional loans, tax concessions and fair compensation for early voluntary participants to support fleet modernisation and IOM adoption. They also called for disaster relief funding and investment in shore-based infrastructure, such as cold storage and safe harbours, to improve resilience and efficiency.

Environmental NGOs supported government funding for the first 4 years. They advocated for a cost-recovery model with the fishing industry covering a significant portion of ongoing costs to encourage stewardship. They stressed equity by recommending all active vessels be included to avoid compliance disparities and suggested using GVP to better quantify the program's benefits over the net economic return method.

8.3.2 Final cost contributions

Government decision

- Government to fund implementation and management of the IOM program for the first 6 years.
  - ✓ Ongoing performance reviews – 2-year reviews to evaluate program performance, costs and management.

The Queensland and Australian governments have committed funding to support implementation of the IOM program across priority fisheries, which includes the ECOTF and CFFTF (46).

While this funding is available to support implementation, no funding has been committed to support the ongoing management of a program post-implementation or expenditure of these funds.

With the current funding available, all IOM program costs associated with implementation and ongoing management would be covered by government for the first 6 years.

This includes all components of the IOM program, including hardware purchase and installation, operating software, system maintenance, troubleshooting support, data connectivity, review of camera footage, and general support and educational services.

There would be no direct costs to, or impacts on, industry through the establishment stage of the IOM program. Funding for the ongoing management of the program after 6 years is yet to be determined, with ongoing costs to be guided by the 2-yearly reviews.

8.4 Program responsibilities and operational requirements

8.4.1 Feedback on program responsibilities and operational requirements

Questions asked

- Do you agree with the proposed responsibilities of government and licence holders to support delivery of an independent onboard monitoring program?
- Should any other responsibilities, program components or operational requirements be considered in the design, implementation or delivery of an IOM program?

The consultation IAS listed several program components and outlined which were proposed to be delivered by government and which would be the responsibility of commercial fishers:

- Government would be responsible for installation and maintenance of systems, data storage, footage review and validation, general program management, implementation, and investment in AI and other research development.
- Commercial fishers would be responsible for operating the systems during a fishing operation and ensuing the camera footage was provided for review.

Fishers expressed significant concerns about the potential loss of fishing time due to e-monitoring system malfunctions, highlighting the economic and operational impacts of interruptions caused by equipment breakdowns or technical faults. They emphasised that malfunctions outside their control should not unfairly prevent them from continuing their fishing operations.

Survey respondents identified that there were other responsibilities, components and requirements that an IOM program should consider, including:

- extra installation costs for vessels that require additional power for IOM systems
- compensation for damage to vessels and time lost due to malfunctions, as well as no time restrictions on fishers for IOM system maintenance
- use of existing IOM systems on vessels if they sufficiently meet IOM program objectives
- consistent and reliable means of data transfer
- education on IOM systems for fishers
- improved eFisher application usability if electronic logbooks are mandated
- commercial fishers owning their own footage and consideration of intellectual property rights.

8.4.2 Final program responsibilities and operational requirements

Government decisions

- Government is responsible for the establishment of the IOM program, the review and validation of data, and general program management and delivery.
- Commercial fishers are responsible for operating e-monitoring systems during all fishing events, making video footage available for review and ensuring systems are operating properly.
- Provisions will be developed that support fishers to continue fishing in the event of equipment malfunction that is outside their control.

The majority of IOM program components will be managed by government, including:

- installation and maintenance of e-monitoring systems
- reviewing camera footage and validating data
- reporting and using validated data
- ongoing program improvement.

Commercial fishers will have limited responsibilities, including:

- reporting electronically via the Qld eFisher app
- ensuring e-monitoring systems are operational during fishing events
- transferring camera footage for review (either physically via a hard drive or electronically).

While fisher responsibilities are limited, they will need to undertake some operational requirements to support the program. **Table 9** provides an overview of key program components and responsibilities across government and industry. A detailed list of the proposed fisher requirements is provided in **Table 10** below.

Table 9: Overview of IOM program responsibilities.

Program components	Government	Industry
Installation and maintenance of e-monitoring systems	✓	–
Operation of systems during fishing events	–	✓
Submission of footage and data	–	✓
Data storage	✓	–
Footage review, validation and reporting	✓	–
Fisheries management, science and data management	✓	–
AI research and development	✓	–
Project implementation	✓	–
Other	✓	–

Table 10: Summary of commercial fisher requirements under the IOM program

	Commercial fisher requirements
Installation	• Provide Fisheries Queensland and licensed technicians access to the vessel for planning and installation at a nominated location, date and time. • Provide formal notification if nominated location, date and time cannot be met.
Camera operation	• Ensure camera systems and hardware components (including winch sensors) are operational and systems are recording during all fishing events.
Footage storage and transfer	• Monitor storage space on memory hard drives before and during fishing trips. • Physically post hard drives with camera footage consistent with required timelines and operational processes. • If possible, enable the electronic upload of footage when returning to port to unload between trips and ensure footage has completely uploaded prior to leaving port on your next trip.
Ongoing system maintenance	• Perform regular function testing before starting a new trip, after periods of inactivity, and if there are any suspected issues with the system. • Report technical issues to the designated equipment provider and/or Fisheries Queensland. • Clean camera lenses regularly to provide a clear vision of the field of view. • Ensure camera views of fishing gear retrieval and catch-handling are clear of obstructions and well lit (adequate lighting), and cameras are in good working order. • Do not tamper or interfere with any equipment or data.
Malfunction provisions	• Troubleshoot system issues using operational guides provided. • Report any system issues or malfunctions as soon as possible, particularly during active fishing operations, and follow process to report and repair equipment that is not working.
Privacy	• Comply with all relevant privacy obligations outlined in legislation and program policies and operational guides.
Reporting	• Report catch and effort (including TEP species interactions) electronically via Qld eFisher.
General	• Keep contact details up to date with Fisheries Queensland and future program suppliers to support installations, maintenance and troubleshooting services.

	Commercial fisher requirements
	• If required, ensure ability to electronically upload footage when returning to port to unload between trips.

8.4.2.1 Fisher support

Fishers play a critical role in ensuring e-monitoring systems function effectively. Active support is required during installation, as well as before, during and after fishing trips to address any issues promptly (3; 47; 48).

Key responsibilities for fishers:

- **During installation** – Engage with licensed tradespeople to plan and install the system and providing vessel access.
- **Before fishing trips** – Conduct system health checks and ensure e-monitoring systems are operational.
- **During fishing trips** – Periodically clean camera lenses, troubleshoot issues and ensure the e-monitoring system is function properly.
- **After fishing trips** – Transfer camera footage for review upon returning to port, or ensure video footage is available for electronic transfer.

As highlighted in the field trial, effective technical support and feedback between reviewers, fishers and technicians are essential for addressing and troubleshooting issues.

8.4.2.2 Camera positioning and operation

To ensure the program's effectiveness, e-monitoring systems must be recording and operational during all aspects of a fishing operation that could potentially involve interactions with TEP or bycatch species.

Cameras must be installed and positioned to capture all locations where interactions with TEP and bycatch species are likely to occur.

While the field trial identified that the installation of cameras on each vessel is unique, a typical ECOTF vessel would require up to 3 cameras to capture all areas of the fish-handling and processing areas where TEP species and bycatch interactions may occur.

8.4.2.3 Malfunction provisions

Experience from the onboard camera field trial and the NX fishery IOM program suggests that e-monitoring system malfunctions occur for several reasons (3).

Previous experience with the implementation of vessel tracking (which is a similar monitoring and data validation program) found that it is important to have appropriate exemption processes to allow fishers to operate in the event of a malfunction or other circumstances, such as not having stock of a particular system component (39).

Malfunction provisions are in place for NX fishers as part of their IOM program to address this particular issue when malfunctions occur in port and during fishing operations (49). Under the NX IOM program malfunction procedure, fishers are able to commence or continue a planned fishing operation provided they have followed the required processes and procedures, and any malfunction is outside their control.

Preventing fishers from commencing or continuing a fishing operation due to a unit malfunction outside their control is unfair and unreasonable, as it would impose additional economic impacts and burdens on business profitability by restricting access to catch.

If fishers follow the required processes and procedures to ensure their systems are working properly, they will not be prevented from fishing if a malfunction occurs that is outside their control. This includes any limitation of a vessel commencing a new fishing operation should a current malfunction exist.

In response to feedback from fishers and concerns with malfunctions impacting planned fishing operations, a malfunction procedure will be incorporated in the final program design, which will:

- ensure fishers are not unfairly impacted by malfunctions outside their control
- outline clear steps for troubleshooting when in port or at sea
- provide a pathway for temporary exemptions where necessary.

Support mechanisms will include, but not limited to, the following:

- Well-designed e-monitoring systems that enable remote oversight, configuration and electronic transfer of footage to facilitate remote troubleshooting and investigations.
- Clear expectations and responsibilities of fishers, supported by operational and troubleshooting guides that are clear and have reasonable steps fishers can take to troubleshoot malfunctioning systems.
- A transparent and timely process for approving temporary exemptions if troubleshooting cannot resolve a system malfunction after reasonable steps have been taken.

9 Additional IOM program elements

This section outlines the government decisions and commitments regarding additional elements to support the core IOM program. Each section includes a summary of stakeholder feedback and the considerations that informed the final decisions and commitments.

9.1 Mandatory electronic reporting

9.1.1 Feedback on mandatory electronic reporting

Question asked

- Do you agree with the introduction of mandatory e-reporting via the Qld eFisher application?

In the consultation IAS it was proposed to mandate electronic logbook reporting through the eFisher application as part of an IOM program. Support for electronic reporting (e-reporting) was mixed across stakeholder groups. QSIA's submission recommended the development of a desktop version, so fishers could submit records on a computer, rather than needing to use small phones or tablets. Additional feedback suggested general improvements to operation and usability of the Qld eFisher app should occur before reporting is made mandatory.

9.1.2 Mandatory e-reporting implementation

Government decisions

- E- reporting will be mandated across all ECOTF and CFFTF vessels (including those not required to install e-monitoring systems).
- Transition to e-reporting will be staged:
  - ✓ From 15 June 2026 – CFFTF and ECOTF vessels receiving e-monitoring systems in the first 12 months of the IOM program
  - ✓ From 1 November 2026 – Southern inshore and southern offshore management regions
  - ✓ From 1 March 2027 – Northern and central management regions
  - ✓ From 1 July 2027 – Moreton Bay trawl region

Government commitment

- Investigate the development of a desktop reporting app.

The commercial fishing app, Qld eFisher, released in December 2021 (29), was developed to improve the timeliness of data delivery and help with the accuracy of reported commercial fishing data. Currently, the use of the Qld eFisher app is voluntary, with uptake steadily increasing. As of September 2025, 24% of the ECOTF and 100% of the CFFTF were using the platform. Considerable improvements would be realised if the Qld eFisher app was made mandatory and its use is essential to support the IOM program, particularly timely validation. The mandatory use of the Qld eFisher app is consistent with requirements in the new NX gillnet fishery on the east coast and other national and international fisheries jurisdictions.

The rapid availability of reported catch and effort information, in particular interactions with TEP species, combined with rapid availability of onboard camera footage uploaded regularly (mostly daily), enables data availability for responsive reporting, monitoring, compliance, assessment and management. A key principle of an IOM program is the provision and validation of accurate and current logbook data. The field trial demonstrated that the validation of logbook data was much faster for vessels that submitted their logbook data using the Qld eFisher app compared to paper logbooks.

Consistent with the recommendations of the onboard camera field trial, all logbook reporting in the ECOTF will transition to e-reporting. The single operator in the CFFTF is already using e-reporting and it will be compulsory for existing operators and new entrants to the fishery.

In consultation with the trawl fishery working group, a review of the otter trawl logbook and its data fields has been undertaken to support the removal of onerous or complex data fields. The removal of these fields (such as number of containers, some grade information and shot times) aims to increase accuracy and simplify reporting in the Qld eFisher app.

Based on feedback received during the consultation process, a tailored training and support package will be introduced to address educational gaps and help fishers adapt to the technology for electronic logbook reporting. Government has also committed to exploring the development of a desktop version of the Qld eFisher app to assist with ease of use; however. it's contingent on ensuring it can securely manage fishers' data.

The transition to mandatory reporting will occur over a 12-month period. This phased rollout ensures fishers have ample time to prepare and access training, supporting a smooth transition to the Qld eFisher app. The transition to mandatory e-reporting has been guided by fishing seasons for each management region and will occur as follows:

- **FROM 15 JUNE 2026 – CFFTF and ECOTF vessels receiving e-monitoring systems in the first 12 months of the IOM program**
    - These vessels will be onboarded to the Qld eFisher app simultaneously with the installation of e-monitoring equipment.
    - Training sessions for the Qld eFisher app are also available now and will remain accessible to support an earlier transition.
- **FROM 1 NOVEMBER 2026 (start of the fishing season) – Remaining ECOTF vessels in the southern inshore and southern offshore trawl regions**
    - Face-to-face training sessions will be available during the pre-season period from 1 October to 31 October 2026.
    - Training sessions are also available anytime from now to assist with an earlier transition.
- **FROM 1 MARCH 2027 (start of the fishing season) – Remaining ECOTF vessels in the northern and central trawl regions**
    - Face-to-face training sessions will be available during the pre-season period from 1 February to 28 February 2027.
    - Training sessions are also available anytime from now to assist with an earlier transition.
- **FROM 1 JULY 2027 – All ECOTF vessels operating exclusively in the Moreton Bay trawl region**
    - Face-to-face training sessions will be available during the period from 1 June to 30 June 2027.
    - Training sessions are also available anytime from now to assist with an earlier transition.

9.2 Program review

9.2.1 Feedback on program review

Question asked

- Do you agree that a review of the IOM program should commence after 2 years of implementation?

In the consultation IAS it was proposed that a 2-year review be undertaken to support the evaluation of program performance, review new information generated from the program and consider the ongoing program costs and management arrangements.

Feedback received from QSIA recommended that ongoing milestone program reviews take place to ensure the program is meeting its objectives.

9.2.2 Program review schedule

Government decisions

- Ongoing reviews of IOM program performance will occur every 2-years.
- Reviews will support the ongoing risk-based management of the IOM program.

The IOM program will undergo formal reviews every 2 years after implementation commences. The first review will commence after the first two years of implementation and data collection. These reviews will ensure the program remains effective, affordable and aligned with key policy principles and program objectives.

A key focus of ongoing reviews will be to analyse the outcomes of data validation efforts, particularly for TEP species interactions, to improve understanding of interaction rates and associated risks across the fishery's operating regions. This will provide an opportunity to ensure the program remains risk-based and representative.

Review protocols and priorities may also be adjusted based on the 2-yearly reviews. For example vessels operating in areas with frequent TEP species interactions or using gear types associated with higher bycatch risks may require more footage review, while lower risk operators or regions could be subject to less frequent or less resource-intensive oversight.

The review will also provide an opportunity to improve operational practices and procedures to ensure further installations and troubleshooting processes run smoothly.

The initial analysis of the IOM program costs and benefits has been based on the best available information, including field trial results, which was an economic survey conducted in 2021–22 by BDO with a limited number of non-monetisable benefits. While these estimates have informed the program's design, the 2-yearly review will provide an opportunity to incorporate improved data and insights to inform ongoing program costs and benefits.

9.3 Education plan

9.3.1 Feedback on education plan

Questions asked

- Should any other factors be considered to evaluate the options?
- Do you have any other comments, questions or concerns about the proposed IOM program?

Feedback received from stakeholders highlighted the need to support fishers to not only learn how to operate e-monitoring systems and understand their use, but to support them with educational material that will help with TEP species identification, handling and reporting.

Industry raised concerns that, while there has been an expectation to report TEP species interactions, very few dedicated training programs, materials or information has been provided to support fishers with reporting. Concerns were also raised about the knowledge and TEP species identification capabilities of crew, who are often hard to find and may be employed with little experience and knowledge of TEP species.

Consistent feedback from the fishing industry has highlighted the need for greater education and support to ensure the successful implementation of the IOM program and general improvements in the accuracy of commercial fishing data. Stakeholders emphasised the importance of a co-designed approach, with program components developed in collaboration with a technical working group.

9.3.2 Education plan implementation

Government commitment

- Co-develop educational material and strategies with industry to support identification and reporting of TEP species and uptake of new digital technologies, including:
  - ✓ workshops and video resources on species identification, handling and safety
  - ✓ identification guides, fact sheets and posters to assist with the identification and reporting of TEP species
  - ✓ digital literacy support, including onboarding for the Qld eFisher app, troubleshooting and personalised one-on-one training to address accessibility and individual needs.

Research has shown that educational approaches such as species identification guides, redesigned logbooks, educational videos, training courses and at-sea education via observer programs can have a positive impact on the accuracy of commercial fishing data (50). While improved education, reporting and awareness is not specifically an independent monitoring or validation method, these strategies can play an important role in improving reporting practices and fostering a culture of stewardship within the commercial fishing industry.

Strategies that can improve the accuracy of reporting will ensure more accurate information is available to inform management and provide confidence to the community that the information reported is trustworthy and reliable.

To support improved reporting and help fishers meet their reporting obligations, Fisheries Queensland is committed to designing, implementing and continually improving educational strategies for commercial fishers. These strategies aim to enhance reporting accuracy and address the educational and training needs for the implementation of IOM, including mandatory e-reporting via the Qld eFisher app.

While only a portion of the fleet will have e-monitoring installed as part of the IOM program, the education program will provide general training for all fishers to ensure consistent understanding and application of reporting requirements.

These educational materials and strategies will include:

- workshops and video resources on species identification, handling and safety
- fact sheets and posters to assist with the correct identification and reporting of TEP species
- identification guides and resources to support fishers in accurately identifying TEP species
- digital literacy support, including onboarding for the Qld eFisher app, troubleshooting and personalised one-on-one training to address accessibility and individual needs.

The Qld eFisher app has recently been enhanced to include TEP species identification tools and a self-guided workflow to assist fishers when interactions occur. Mandating the use of the Qld eFisher app will ensure these features, along with other educational resources, are accessible to all fishers, supporting consistent reporting practices and improving data accuracy across the industry.

Recognising the diversity of Queensland's commercial fishing industry, along with stakeholder feedback and insights gained from supporting fishers during the Qld eFisher app onboarding process, the education program will also include support crew, such as staff and family members, to ensure a holistic approach to capacity building. Training will be tailored to individual needs, offering options such as face-to-face sessions, personalised onboarding and ongoing support to configure in-app preferences and address troubleshooting challenges.

To maximise participation and address industry feedback on minimising downtime, education will align with pre-season preparations, with targeted rollouts planned for October in the southern region and January to February in the northern and central regions. This approach ensures that fishers are equipped with the necessary skills and resources before the start of their fishing operations, minimising disruptions and reducing impacts on their fishing activities.

9.4 Data retention and privacy policy

9.4.1 Feedback on data retention and privacy policy

Question asked

- Should government or licence holders be responsible for other program components

Stakeholders expressed significant concerns regarding privacy and data security in the implementation of the IOM program. Commercial fishers, supported by QSIA, raised several concerns regarding the use of onboard footage, particularly around privacy, data security and the potential misuse of recordings. They highlighted past incidents that have eroded trust in authorities and expressed fears about the broader implications for their industry.

Key concerns included:

- privacy issues, as many operators live aboard their vessels, often with minors present
- fear of footage being misused, accessed by external parties or weaponised against fishers
- lack of trust in authorities to securely manage sensitive data
- cybersecurity risks associated with storing and managing footage
- uncertainty about how footage would be policed, particularly for fishers operating across state borders (e.g., Queensland and New South Wales)
- potential negative impacts on crew recruitment, retention and mental health.

To address these concerns, stakeholders proposed a range of measures aimed at safeguarding privacy, enhancing trust and ensuring fair use of the footage.

Their suggestions included:

- implementing strict legislative timeframes for footage retention and disposal (e.g. 90 days)
- establishing robust data security protocols to protect sensitive information
- introducing independent third-party reviews of footage to enhance transparency and build trust
- allowing industry ownership of footage and exempting it from right to information laws, similar to proposed reforms in New Zealand
- using mandatory face-blurring technology to protect crew privacy and prevent footage misuse
- ensuring fishers have access to their footage for third-party accreditation (e.g. MSC certification) or additional review purposes.

9.4.2 Data retention and privacy policy development

Government commitment

- Publication of a data retention and privacy policy to outline the use, access and disclosure of camera footage and data from the IOM program.

Under a mandatory IOM program, regulated under fisheries legislation, all camera footage and data will be subject to the *Right to Information Act 2009* and *Information Privacy Act 2009*.

Fisheries Queensland acknowledges the significant privacy and data security concerns raised by stakeholders and is committed to addressing these issues through a clear and transparent data retention and privacy policy. This policy will ensure the implementation of the IOM program upholds the highest standards of privacy, data security and fairness.

The policy will include the following key components:

- **Secure management of camera system information** – Fisheries Queensland will ensure that all camera footage and associated data are securely managed through robust systems, including encryption, restricted access and compliance with Queensland Government information security standards.
- **Public release of aggregated information** – Only aggregated and de-identified data, such as TEP species interaction reports, will be made publicly available to protect individual privacy and commercial confidentiality.
- **Right to information (RTI) processes** – Camera footage will not be released unless required by law, and any release will be subject to strict assessment processes to ensure compliance with privacy and confidentiality obligations.
- **Sharing information with other government agencies** – Information sharing will only occur when legally required, and measures such as redaction will be applied to protect sensitive data.
- **Retention and disposal of camera information** – Camera footage will be retained for a minimum of 90 days, in line with the *Public Records Act 2002*, and securely disposed of once it is no longer required for business or legal purposes.

Any service provider used as part of the IOM program will need to meet strict information security protocols, including end-to-end encryption of video footage, secure storage within Australia and controlled access to authorised personnel only.

A conceptual model showing the data security controls and chain of custody as part of an IOM program is provided in **Figure 4** below. These measures are designed to safeguard personal and commercial information collected by e-monitoring systems, minimise risks of third-party access and maintain the trust of stakeholders.

Fishers expressed a desire to own the footage collected through the IOM program. However, under Queensland law, all data collected through a legislated program will be considered a Queensland Government record. This classification ensures the data is managed in accordance with the *Public Records Act 2002*, which mandates secure storage, retention, and disposal processes (51).

While fishers will not own the footage, access will be supported for legitimate purposes, such as meeting third-party accreditation requirements (e.g. MSC certification). This approach ensures that the data remains secure, consistent with legislative requirements, and available for broader fisheries management and compliance purposes. Further details on the data retention and privacy policy will be made publicly available to ensure transparency and accountability in the management of IOM data.

Fishers also requested that camera footage be exempt from Queensland's RTI laws. However, the Queensland Government cannot exempt this footage for several reasons:

- The RTI Act is designed to promote transparency and accountability in government operations.
- Exempting IOM footage would undermine these principles and could erode public trust in the program and fisheries management.
- The RTI Act applies to all public records held by the Queensland Government, and creating exemptions for specific datasets would set a precedent that could conflict with the broader intent of the legislation.
- The RTI Act includes provisions to protect personal and commercial information. Requests for footage will be carefully assessed, and personal and sensitive information will be redacted or withheld where necessary to ensure compliance with privacy and confidentiality obligations.
- Exempting IOM footage from RTI laws could conflict with existing Queensland Government policies on information access and management, potentially creating inconsistencies across departments and programs.

While the Queensland Government cannot exempt IOM footage from RTI laws, it is committed to ensuring that any requests for access are handled with the utmost care to protect the privacy of individuals and the confidentiality of commercial operations. This includes consulting with affected parties and applying redactions where necessary to safeguard sensitive information.

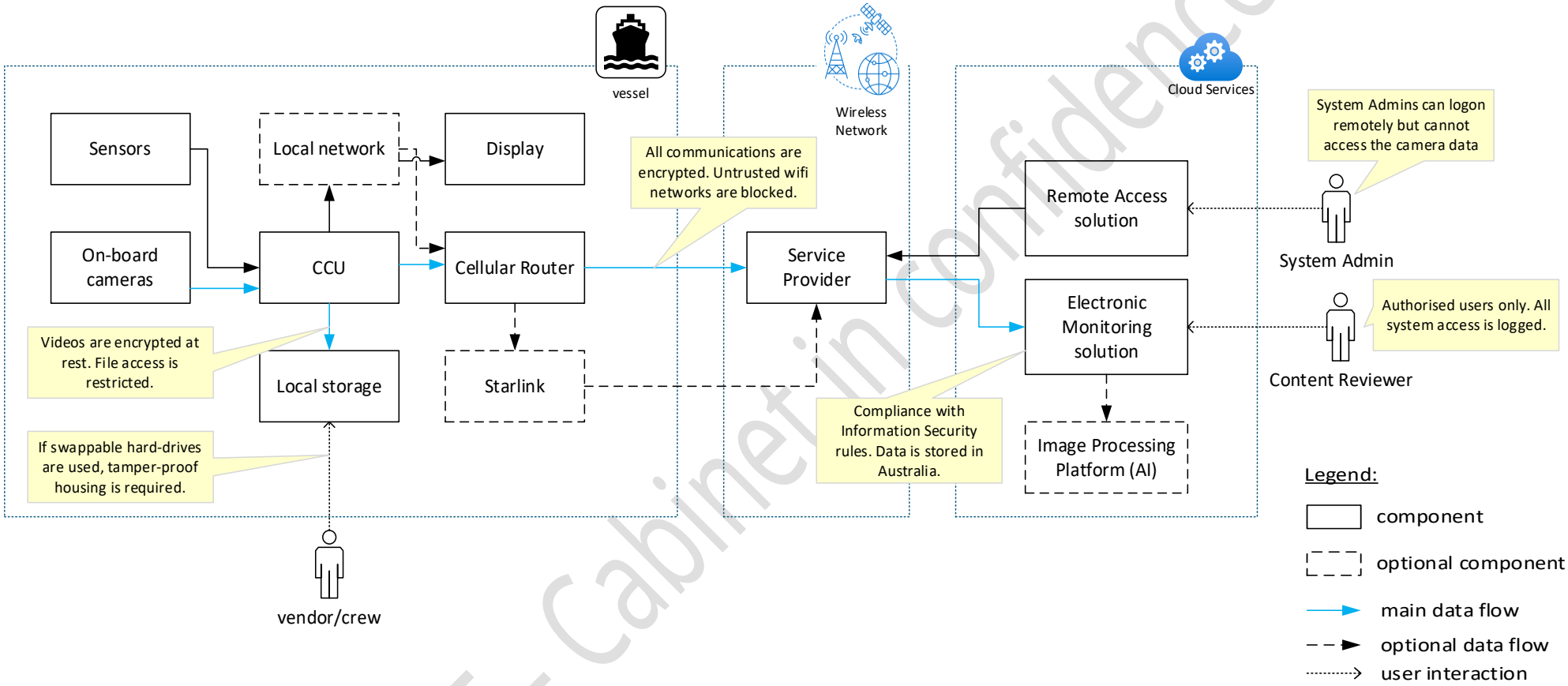


Figure 4 : Diagram of the high-level view of the primary data security controls (yellow boxes) for onboard camera footage under the IOM program through the chain of custody (Note: CCU is the central control unit on board the vessel)

9.5 Footage review and advanced technology investment

9.5.1 Feedback on footage review and advanced technology investment

Questions asked

- Should any other factors be considered to evaluate the options?
- Do you have any other comments, questions or concerns about the proposed IOM program?

Varied feedback on the manual review rates of camera footage was received. Environmental NGO, AMCS, recommended a minimum footage review rate of 20%. They stated this rate more aptly addressed the objective of validating TEP interactions as:

- interactions could occur at rates as low as 0-25% of shots, thus requiring higher rates of review (10-100%) to capture a representative number of interactions (52).
- the rollout of e-monitoring in the New Zealand inshore fishery has been and plans to continue using a review rate of 30% (53).
- other e-monitoring programs internationally use higher review rates, such as the Northeast Multispecies Fishery (United States), which has a minimum review rate of 35% (54).

While most stakeholders who submitted feedback via the consultation survey did not agree with the implementation of an IOM program in the ECOTF, some provided feedback regarding footage review rates. Some suggested raising the review rate to 100% of footage if program coverage is representative, while others suggested a review rate of 10% was sufficient.

Submissions from the QSIA and the Central & Northern Zone Entitlement Holders Group specified the review of footage should be statistically robust, efficient, transparent and meet international standards. They also highlighted the need to consider footage review rates during the 2-year review process.

Across all stakeholder groups, the inclusion of AI in the design, implementation and management of an IOM program was viewed as key to increasing efficiency and reducing resource requirements long term.

9.5.2 Footage review and advance technology investment implementation

Government commitments

- A risk-based approach will be applied to the review and validation of camera footage.
- Rapid investment in advance technologies, including AI, to automate review and reporting processes of the IOM program.
- Ongoing performance reviews of footage review rates every 2 years.

Government is committed to investing in advanced technology, such as AI and machine learning, to enhance the effectiveness and efficiency of the IOM program. During the initial implementation period, development and application of machine-learning models to attempt to analyse 100% of the footage collected will be prioritised.

Initially, models that investigate the ability to identify high-risk footage requiring human review will be investigated. By analysing parameters such as date, location, time and operator history, and detecting interruptions in recording, camera blocking, unclear footage or other signs of potential tampering, the technology will help streamline the review process and ensure that human resources for review are directed where they are most needed.

As the program progresses, the department will use the growing volume of human-reviewed and validated footage to continually refine and improve machine learning and AI models. Over time, this iterative process will enhance the system's ability to detect and validate interactions with TEP species.

9.6 Technical focus group

9.6.1 Feedback on a technical focus group

Questions asked

- Should any other factors be considered to evaluate the options?
- Do you have any other comments, questions or concerns about the proposed IOM program?

Commercial fishers and QSIA recommended a multi-stakeholder steering committee to co-design the program and support milestone-based reviews to assess program performance and effectiveness.

9.6.2 Technical focus group establishment

Government commitment

- Prepare terms of reference and establish a technical focus group with key stakeholder representatives to:
  - ✓ provide advice and recommendations to government regarding implementation and management of the program, consistent with approved policy principles and additional commitments
  - ✓ support the ongoing review and evaluation of program performance every 2-years
  - ✓ support the development and review of administrative and operational material.

To ensure the IOM program incorporates feedback from stakeholders and to support implementation of the program, a technical focus group will be established to provide a formalised consultation structure.

This will ensure oversight of, and feedback on, mechanisms about operational activities – such as design, field implementation, data analysis and reporting of outcomes to inform decision-making. Terms of reference and appointment process will be prepared to support establishment of the group.

The purpose of the group will be to evaluate and advise on the design and implementation of the program, and to validate its performance or milestone requirements. Members will also provide guidance and recommendations to support continuous improvement of the IOM program.

Technical advice and recommendations from key stakeholder groups will be critical in applying field trial outcomes and informing final application of program policy principles to support the delivery of a robust and fit-for-purpose IOM program.

9.7 Third-party sustainability certifications

9.7.1 Feedback on third-party sustainability certifications

Questions asked

- Should any other factors be considered to evaluate the options?
- Do you have any other comments, questions or concerns about the proposed IOM program?

Commercial fishers and QSIA recommended that, should an IOM program be implemented, data and information from the program should be available to support third-party sustainability certifications.

9.7.2 Third-party sustainability certification implementation

Government commitment

- Support industry with third-party sustainability certifications through the IOM program.

Validated information from the IOM program will be available to support assessment under third-party sustainability frameworks, such as the MSC or their associated fishery improvement plans.

If the objectives or risk-based review and validation measures implemented as part of the government's IOM program differ to those required for certification (e.g. if monitoring of specific bycatch species is required), access to camera footage and information will be facilitated to support analysis and assessment to meet third-party frameworks.

If any camera footage or information is shared, all parties involved would be required to provide consent, and sharing and access would need to comply with the Information Privacy Act key principles.

9.8 Protected species management

9.8.1 Feedback on protected species management

Questions asked

- Should any other factors be considered to evaluate the options?
- Do you have any other comments, questions or concerns about the proposed IOM program?

Industry raised concerns that there was no ECOTF protected species management strategy that defines what constitutes an 'acceptable' TEP species interaction, sets measurable targets and provides clear guidance for fishers regarding actions in the event of an interaction.

9.8.2 Protected species management strategy

Government commitment

- Develop a protected species management strategy for the ECOTF.

Government will develop a protected species management strategy for the ECOTF, which will begin in 2026. This strategy will be guided by the ECOTF regional risk assessments (published in November 2024) and relevant information (including scientific literature).

Regionalised consultation on the draft will be conducted prior to publication and implementation.

Proposed key principles of the strategy will include:

- reduce interactions and the ecological risk of fishing where possible
- develop management actions proportionate to the risk to protected species from fishing
- promote best practice and stewardship
- work with industry to provide opportunities to innovate and improve their practices.

The overarching principle will be for Fisheries Queensland and commercial fishers to work together in a continual improvement process to take all reasonable steps to minimise interactions with protected species. The development and implementation of the strategy will be supported through ongoing engagement with relevant working groups and workshops.

10 Impact analysis of options

This part of the decision IAS builds on the options analysis presented in the consultation IAS. It includes an updated and revised analysis incorporating the results of consultation and applying the core program design components.

To help government invest in the most effective action, this decision IAS explores the comparative risks, costs and benefits of each option (where possible to estimate), including potential changes in fishing activity. This analysis has informed government's final decision.

10.1 Option 1: Maintain status quo

Impacts of maintaining the status quo (not implementing an IOM program) are the same as presented in the consultation IAS.

While this option would not see any legislation intervention or regulatory change, some fishers may take voluntary action to establish IOM in order to maintain export approvals or improve market access opportunities. This approach may become more common and attractive as fishers seek industry certification, access to export markets, a higher price for their products and to improve their public image. Evidence of this has already occurred in the ECOTF, with one business with a fleet of vessels installing their own e-monitoring systems to support accreditation under a third-party sustainability framework (55). Other assessments are also underway across other regions of the fishery.

Others may choose to make their fishing operations more transparent to the public, providing a way to further validate their catch. There are examples outside Queensland of commercial fishers voluntarily 'livestreaming' their fishing operations to build public confidence in their commitment to sustainability and ethical practices (56). There are reports these fishers have achieved a markedly higher price for their product.

While it is preferable that IOM is voluntarily adopted by industry, it is unlikely due to the costs involved and privacy concerns of fishers. While a select number of individuals across the industry have introduced IOM, and others have started to explore the introduction of e-monitoring, voluntary uptake is likely to be too slow to satisfy EPBC Act approvals. Also, EPBC Act approvals, including WTO and Part 13 approvals, apply to a whole fishery and are not allocated on a business-by-business basis, so the approval would not be maintained if only a select number of fishers (such as only those operators who export) adopt IOM methods. Further, a review of access arrangements to the Great Barrier Reef is also expected to apply to the entire fishery.

Maintaining the status quo would result in a financial cost relating to the loss of export markets, valued at $8 million and $2 million annually for the ECOTF and CFFTF respectively. The emphasis placed on non-regulatory approaches, such as educational programs and improvements to the commercial fishing app under this option, would potentially see modest improvements to the accuracy of catch data, but would fail to address any of the incentives for under-reporting of catch, specifically interactions with TEP species.

While there are existing stock assessment outputs and ecological risk assessments, improvements in the accuracy and confidence of commercial fishing data used for these assessments would not be realised or improved, and associated actions would still be based on the precautionary principle. There would also be no improvement in the ability to monitor bycatch in some components of the fishery.

The need to implement an IOM program that supports the independent validation of commercial fishing data, specifically TEP species interactions, is a time-bound condition of EPBC Act approval conditions and the Australian Government has demonstrated a willingness to revoke existing approvals if such conditions are not met. Similarly, GBRMPA issued a position statement on fishing that raises concerns about the potential impacts of higher risk fisheries in the GBRWHA (22).

For these reasons, maintaining the status quo will not meet the expectations of Australian Government agencies and is unlikely to meet the requirements of some non-government organisations or the broader community, so the pressure to introduce independent data validation would likely increase. It is difficult to know what impact the loss of defence against prosecution for unintentional TEP species actions might have on fishers' ability to operate or access fishing grounds.

Maintaining the status quo is likely to result in the loss of EPBC act export approvals, which would have a direct financial impact on those fishers that export product. While these operators could seek alternative domestic buyers, domestic prices may not be as high as those of export markets and such occurrences are likely to disrupt the domestic supply chain.

Maintaining the status quo means that no new laws would be introduced that require the independent validation of commercial catch data. Independently validated catch data would not be available to underpin evidence-based fishery management decisions, satisfy the conditions of export approvals, support industry certification, demonstrate sustainable fishing practices to the wider public or gain any of the other benefits of IOM. Maintaining the status quo may also result in an Australian Government review of access to valuable fishing grounds in the GBRWHA.

Approximately 44% of the total ECOTF catch is accessed within the GBRMP boundaries and is valued at $60.3 million, including the value of external exports to the marine park (apportioned midpoint from total exports). While CFFTF fishers do not operate in the marine park, they do export their product. Due to privacy concerns, there is no data on the amount of CFFTF catch that is exported.

10.1.1 Assessment against objectives of government action

Option 1 is not considered feasible for the following reasons:

- **A voluntary approach would not satisfy the time-bound conditions associated with EPBC Act approval for the ECOTF fishery**. Establishment of a representative IOM program focusing on the validation of TEP species is required to commence by 15 June 2026. The Australian Government issues WTO approvals on a whole-of-fishery basis, so unless a sufficient number of fishers across the fishery opted in, this option would not satisfy the export approval condition requirements and fishers could not export product. Loss of the ECOTF export approval (Part 13A) would also jeopardise the Part 13 approval, which protects commercial fishers from prosecution under the EPBC Act for unintentional interactions with TEP species.
- **Fishers are unlikely to opt into a program.** As witnessed throughout the field trial (3), there were concerns regarding information privacy and data security. This would mean the fishery management benefits associated with more accurate and reliable data, and improved data confidence, would not be achieved. Fishery management decisions could not ensure ecologically sustainable outcomes with

the same level of confidence as they could if all, or a high number of, fishers participated in an IOM program. Also, opportunities would be missed to improve fisheries management through a broader understanding of fishery operations at sea.

- **Fishers who may be inclined to under-report interactions with TEP species are not likely to opt in.** This would mean data derived from the program would not be truly representative and management decisions could be based on skewed data.
- **Fishers who opt in may only provide footage some of the time**. For example, they may not submit footage of a rare encounter with a TEP species for fear it may result in changes to fisheries management policy. This is likely to result in fisheries management decisions being based on data that is not complete or accurate.

Although some individual businesses and fisheries in other jurisdictions have voluntarily implemented IOM methods, their size and scope differ to that of the ECOTF, which operates across a large spatial range (with more than 240 active vessels operating in 2023). For such a large fishery, it is not operationally viable to design and deliver a voluntary program that would ensure independent and representative data across the entire fishery, and within the timeframes outlined under WTO approval conditions.

Finally, such an approach is unlikely to allay concerns about the unintended impacts of commercial fishing in the GBRWHA, and it would not satisfy the requirements of the Australian Government's Threatened Species Scientific Committee, which is seeking independently validated data on protected species interactions from higher risk commercial fishing operations.

Under this option, methods to support monitoring and validation of TEP and bycatch species would not be introduced, and **independently validated data would not be available** to:

- satisfy the conditions of WTO approvals
- support continued access to Great Barrier Reef fishing grounds
- underpin evidence-based fishery management decisions
- help mitigate catches of non-target species or protected species interactions
- support fishers to obtain third-party industry certification (e.g. sustainable fisheries accreditation)
- demonstrate sustainable fishing practices to the wider public
- gain any of the other benefits of IOM.

This option relies on accurate and improved self-reporting of all aspects of commercial catch, which is difficult to enforce or evaluate without independent validation. As such, this option would place a greater emphasis on non-regulatory approaches such as educational programs and improvements to the Qld eFisher app.

Maintaining the status quo would not satisfy WTO approval requirements and is unlikely to satisfy the unique obligation and responsibility associated with operating in a World Heritage Area. Failure to implement IOM is expected to result in the loss of export approvals and an Australian Government review of access to the GBRMP, which could significantly impact fishery profits, jobs and industry viability.

➡ A 'status quo' approach would not satisfy the objectives of government action and has not been considered further in this decision IAS.

10.2 Option 2: Implement IOM across the ECOTF and CFFTF

The consultation IAS presented a cost-benefit analysis that explored the implementation of an IOM program across various effort-based (days fished) scenarios.

This final cost-benefit analysis has been completed to compare option 2 (implement IOM) with option 1 (maintain status quo).

Following feedback and engagement activities, the following key changes were made to the updated analysis presented in this decision IAS:

- A 6-year rollout (establishment period) was modelled.
- GVP was updated to include an updated estimate of exports outside the GBRMP.
- All 100% and 25% scenarios were removed.

A summary of the final cost-benefit analysis assumptions, methods and results are provided in the following sections. Additional information is provided in Appendix 4: Cost-benefit analysis of Option 2.

The following sections present an overview of the cost-benefit analysis presented in the consultation IAS, along with the outcomes of the final cost-benefit analysis that compares the 2 options presented in this decision IAS.

While the cost-benefit analysis outcomes are a key consideration, the introduction of IOM includes several other benefits that are not easily monetised. However, it is important they are considered, so these other benefits have been assessed qualitatively (and monetised if possible) in section 10.2.2.

10.2.1 Feedback on consultation IAS cost-benefit analysis

Question asked

- Do you agree that the identified benefits and costs for the IOM program options cover all the factors that should be considered in making a decision?

The cost-benefit analysis presented in the consultation IAS investigated a number of scenarios that covered different levels of fleet coverage:

- Level 1 – 100% of CFFTF and ECOTF vessels
    a. Level 1A – all active and inactive vessels included
    b. Level 1B – only active vessels included (inactive vessels excluded)
- Level 2 – 100% of CFFTF vessels and ECOTF vessels responsible for 90% of fishing effort (**recommended option**)
- Level 3 – 100% of CFFTF vessels and ECOTF vessels responsible for 25% of fishing effort.

Key model assumptions also included a 4-year implementation timeframe and a minimum 10% review of camera footage.

Industry feedback on the cost-benefit analysis included:

- comments that the consultation IAS overstated benefits and downplayed costs
- comments that no compliance costs were included in the model, such as time for installations, cleaning and general operation of the system
- concerns about the 4-year replacement timeframe of systems, suggesting e-monitoring systems and their components will not last long in the marine environment before needing replacement
- concerns about practical constraints with the speed of the rollout modelled
- comments that the consultation IAS ignored long-term affordability once government funding ends
- suggestion that departmental management costs appeared considerable
- concerns that installation costs for vessels may be undervalued, suggesting that some vessels may require significant power and rewiring upgrades to provide the power required to operate the onboard systems.

Environmental NGO feedback on the cost-benefit analysis included:

- recommendation to implement option 1B (100% active vessels), but with a higher review rate and faster implementation timeframe
- recommendation that cameras shouldn't be installed on inactive vessels to reduce unnecessary costs
- comment that, though difficult to quantify, the cost-benefit analysis:
  - did not capture the benefits of improved data collection and knowledge of TEP species interactions to science and research
  - did not quantify the societal benefit to having accurate and transparent data that is likely to improve the social licence of the fishery and potentially demand for its product.

10.2.2 Final cost-benefit analysis

Government decision

➡ Establish a regulatory framework that introduces a mandatory IOM program consisting of e-monitoring systems on all CFFTF vessels and ECOTF vessels that account for 90% of effort.

10.2.2.1 Updates to cost-benefit analysis

Updates to the cost-benefit analysis were based on feedback from the consultation IAS:

- **REMOVED – Level 1A (100% of active and inactive vessels):** Inactive vessels do not pose a risk to TEP species or bycatch.
- **REMOVED – Level 1B (100% of active vessels):** With a 4-year rollout, the program would cost $33 million (present value over 10 years). Following consultation, further analysis showed that a 6-year rollout would be $27.5 million (present value over 10 years). Both costs were determined to be too high.
- **REMOVED – Level 3 (100% of CFFTF vessels and ECOTF vessels responsible for 25% of effort):** Unlikely to achieve the objectives of government action (as discussed in the consultation IAS) (57).
- **EXTENDED – Establishment period:** Increased implementation timeframe from 4 to 6 years. The ongoing period was modelled on 4 years to complete the 10-year model. Establishment costs will still be paid by government and there are no changes to hardware replacement timeframes.
- **UPDATED – GVP contribution of exports outside GBRMP:** Account for an extra $4 million that was previously excluded from the analysis in error.

10.2.2.2 Methodology

A cost-benefit analysis was undertaken using the latest available data. Cost estimates generated from the onboard camera field trial were used to support the analysis, along with economic figures from BDO surveys (58) used to quantify benefits and profitability measures.

The cost-benefit analysis methodology incorporated a discounted cash flow framework over a 10-year period (2026–2035). This approach estimates the cost of the investment in IOM (using 2025 prices) to identify whether the impact to the fishery and fishing businesses outweighs the benefits of undertaking the investment. This method is applied when analysing program options.

The economic modelling calculated the net present value (NPV) of the future stream of costs and benefits using the compound interest method. The discount rate was used to calculate the NPV. The difference between costs and benefits generates a net benefit, which is the standard method of comparing costs and benefits that occur at different times (over 10 years in this instance), and assumes that a dollar today is worth more than a dollar tomorrow. This approach reduces a future stream of costs or benefits to an equivalent amount in a specific price year – the year the dollar units all represent the same purchasing power. It is the same as the base year, which is the year for which the evaluation is conducted. For the purpose of this modelling exercise, the discount rate was set at 7% as per the Queensland Government cost-benefit analysis guidelines (59). Sensitivity analysis using 4% and 10% was also carried out in accordance with the guidelines.

Benefits

GVP represents the total value of production, including exports, and is a straightforward measure of the economic contribution of the industry. In Queensland, the GVP for ECOTF catch taken within the GBRMP plus estimated exports outside the GBRMP is estimated at $60.32 million annually. The rationale for including GVP in this analysis is that the successful rollout of the IOM program would help maintain continued access to the marine park for fishing purposes and avoid revocation of EPBC Act export approvals. This would allow the ECOTF to maintain access to this value and continue exporting products.

While GVP is a useful measure, NER may be a more appropriate metric for fisheries value, given that the ocean is a public resource. NER reflects the long-term profitability of the industry and accounts for the costs of operating the fishery, including labour (both paid and unpaid), materials, services, fishery management costs, depreciation and the opportunity cost of capital, which is set at 10%. For this analysis, NER has been adjusted to exclude the management cost component, as these costs will be incorporated into the IOM program. NER provides insight into the overall performance of the fishery, recognising that it extracts private benefit from a public resource and should be maximised to ensure the community receives the greatest economic benefit from managing the resource.

An additional quantified benefit is the introduction of e-reporting. Currently, the majority of fishers continue to use paper-based logbooks that incur additional hardware and management costs of printing and distributing logbooks and manual data entry of completed logbook sheets. As part of the IOM program, e-reporting would become the only method of collecting catch data. This change is expected to provide an additional benefit of $141,223 per year and has been included as part of the cost-benefit analysis. The qualitative gain of having ‘real-time’ data, which can be used for responsive fisheries management, was not quantified.

The analysis also considered the impacts of the IOM program at the business level, particularly the ability of operators to absorb program costs and the effect on profitability.

Costs

The costs include several components. Hardware costs include installation, troubleshooting and licence fees, and management costs cover salaries, industry training and program coordination. All costs in the model are provided in Appendix 4: Cost-benefit analysis of Option 2.

Key assumptions

For the modelled scenario, the analysis used an underlying assumption that a minimum 10% of total camera footage would be reviewed.

Program costs were separated into 2 stages – establishment and ongoing. The establishment stage includes all costs for the first 6 years of the program during implementation. The ongoing stage is from year 7 onwards.

As part of the implementation of the IOM program, the Queensland Government will pay for all program costs over the 6-year implementation.

Note: The CFFTF is excluded from analysis of benefits and business profit due to a lack of financial data.

No decisions regarding who would pay for ongoing costs after the initial 6 years will be made until the first 2-yearly review following establishment, when more data will be available to inform an evaluation of coverage and ongoing program costs, including future cost-recovery options.

10.2.2.3 Results

Present value and annual costs

In this section a present value (PV) calculation is applied to costs only. This method reduces the future stream of costs over the designated period to a singular PV. The discount rate used to calculate PV is 7%. **Table 11** provides a summary of PV cost components and **Table 12** outlines the annual costs (converting PV to equivalent annuity value) of the IOM program where the components have been summed, with establishment and ongoing costs also presented, noting the costs are all annualised over 10 years.

Table 11: PV of cost components of the IOM program over 10 years

10-year cost components of IOM	PV
Total cost	$20,655,821
Establishment cost (years 1–6)	$12,384,314
Ongoing cost (years 7–10)	$8,271,507

Table 12: Annual costs of the IOM program over 10 years (sum of cost components)

Annual components of IOM	Equivalent annuity value
Total annual cost	$2,763,361
Establishment cost (reflects 100% government funding)	$1,655,536
Ongoing cost	$1,107,825

Cost-benefit analysis

Economic modelling of the IOM program implementation utilised a discounted cashflow framework to assess the viability of the investment. PV of the future stream of cost outflows and cash inflows is calculated over 10 years (split into establishment and ongoing stages) using a discount rate of 7%. Subtracting the future sum of cost outflows from the sum of future cash inflows generates NPV.

Cost-benefit analysis based on NER

NER for the ECOTF, based on the portion of harvest within the GBRMP (44% of Queensland total NER) is estimated at $627,000 annually. The total benefits include the additional benefit of e-reporting at approximately $141,000 annually. This figure was provided by BDO (58) for the 2021–22 financial year and indexed to the beginning of 2025. PV of the NER benefit over 10 years is $5.78 million (including the e-reporting benefit). As the program will be reviewed after year 2, a comparative NPV result is provided for the establishment stage that would be funded, and an estimate for the expected NPV for the ongoing portion of the program to year 10. The total benefit for the establishment stage is $3.92 million over 10 years (PV of NER over years 1–6) and the estimated benefit for the ongoing stage (years 7–10) is $1.86 million. The total benefit for the full 10-year analysis is $5.78 million (**Table 13**).

Subtracting the total benefits from the total costs results in a net economic benefit of -$14.9 million (i.e. a net negative economic benefit). This covers the top licences in the ECOTF that account for 90% of effort and the one active CFFTF licence.

Table 13: NPV result for the IOM program using NER (10 years at 7% discount rate) over a 6-year rollout

Component of IOM (10 years)	PV
Benefit (NER + e-reporting)	$5,778,919
Costs of IOM	$20,655,821
NPV results (total program)	-$14,876,902
NPV result for establishment stage	-$8,462,462
NPV result for ongoing stage	-$6,414,440

Cost-benefit analysis based on GVP

The alternative option is to use the GVP for the ECOTF based on the portion relating to catch taken within the GBRMP, plus the estimated GVP outside the GBRMP, plus the benefit of e-reporting. The total GVP used in this analysis is $60.3 million per year, which is attributable to catch taken within the GBRMP of $56.5 million plus $4.1 million GVP for exports of catch taken outside the GBRMP – as the rollout of the IOM program would maintain access to the GBRMP for fishing purposes and avoid revocation of export approvals. With the addition of the e-reporting benefit, PV of GVP over 10 years is $454 million (**Table 14**).

Table 14: NPV result for the IOM program using GVP (10 years at 7% discount rate) over a 6-year rollout

Component of IOM (10 years)	PV
Benefit (GVP)	$454,396,023
Costs of IOM program	$20,655,821
NPV	**$433,740,201**

Business profit analysis for ECOTF

No decisions regarding future cost-recovery models have been made.

While there are ongoing IOM program costs presented in the final cost-benefit analysis, they are subject to change and will be evaluated as part of the ongoing 2-yearly reviews.

An analysis of the potential financial impact to ECOTF fishing businesses is provided for the ongoing period (years 7–10), noting that government is paying for all costs in the first 6 years of the establishment stage.

Note: The CFFTF is excluded from analysis of business profit due to a lack of financial data.

An annual cost per vessel was derived for the ongoing stage and is spread across the whole fishery (all T1, T2, T4, M1 and M2 licences) so the IOM program is equitable. (**Note:** This information is presented for information purposes only, as no decisions about ongoing costs have been made.)

This ongoing annual program cost estimate was compared to the financial performance (business profit, including depreciation) of the ECOTF for the 2021–22 financial year (indexed to the beginning of 2025), which is detailed in BDO reports. For the purpose of this report, the profitability measure is indexed by inflation (14.92%) to reflect a more current profitability measure.

The BDO report gave the following business profit measures for ECOTF for quartiles (number of active businesses ranked by effort) of the fishery, as well as the average profit estimate for the fishery (**Table 15**).

Table 15: Annual business profitability of the ECOTF by quartiles of active businesses, ranked by effort (days fished) – excludes IOM cost

Average	Quartile 1 (lower)	Quartile 2	Quartile 3	Quartile 4 (upper)
$43,587	-$18,886	$3,014	-$59,841	$249,599

Quartile 3 would be expected to be profitable given the higher effort expended (132 days fished annually) but, due to significant unpaid labour and depreciation costs, is unprofitable. Quartile 4 demonstrates the highest effort at 283 days per year on average while Quartile 1 fished 21 days on average.

Government is funding the first 6-years of the program; however, it is unknown how ongoing costs from year 7 will be recovered – by industry, government funded or cost sharing. Costs apportioned between government and industry is speculation beyond the scope of this analysis and will be determined during ongoing reviews.

As such, the following analysis is based on full cost recovery of ongoing program costs (after the establishment stage from year 7) against trawl business profitability. **Table 16** below outlines the per vessel cost, showing that if it the remaining portion were to be fully recovered from industry, it would cost **$3,069** per year per licence. Comparing this to **Table 15** above, the annual cost may be affordable on average across the whole industry, although based on the results for each quartile, it will likely impact the ability of all but the most profitable quartile to continue to operate based on the profitability measures outlined in the 2021–22 BDO report (58).

Table 16: Annual cost of the IOM program per trawl vessel in the ECOTF (across T1, T2, M1 and M2)

Annual component of IOM per trawl vessel	Cost
Total annual cost of the program divided by the number of licences in the ECOTF	$7,655
Total annual cost of the program after government pays for establishment (all costs in first 6 years) – assumed all licences pay this remaining amount	$3,069
Percentage reduction through government funding	60%

10.2.3 Cost-benefit analysis summary

Given the government commitment to fund the initial 6 years of implementation, the introduction of the IOM program is not expected to result in any additional costs to industry during this period.

The establishment costs will be incurred by government and have been included in the cost-benefit analysis.

A review of program implementation will be undertaken to inform ongoing costs.

Consideration of stakeholder feedback

Stakeholder feedback was used to inform updates and improvements to the cost-benefit analysis presented in the consultation IAS. One key revision in the final model included the extended implementation timeframe from 4 to 6 years.

Overall, this change reduced the total implementation costs of the program as fewer vessels will be operating with e-monitoring systems in the earlier years of the program, which reduced or shifted associated costs with ongoing management of these systems (e.g. footage storage, review and validation) to later years.

By extending implementation out to 6 years, hardware replacements costs for systems installed in the first 2 years were included, as the model assumed a 4-year replacement timeframe. These replacements costs would still be covered by government as part of implementation, should they be required.

Feedback from industry also included concerns that the cost-benefit analysis had not included compliance costs, such as expenses required for industry to operate and maintain the camera systems, as well as make themselves available during installation. A review into these costs occurred, but these additional compliance costs were challenging to calculate. It was identified that during the ongoing program reviews, better compliance costs could be identified once implementation has commenced, and used to support updates to the model. Further, as the government is funding implementation of the program, there are no other compliance costs associated with fishers needing to purchase, install and operate e-monitoring systems, as well as all the footage transfer and review services.

Feedback was also received that questioned the accuracy of cost estimates used to inform the analysis, including costs such as installation and departmental management costs, and costs required to support

implementation within a short period of time. Costs used in the analysis were obtained during the onboard camera field trail.

While some costs may be subject to change, such as with general inflation or unexpected circumstances not yet experienced (e.g. if complete rewiring of a vessel's power systems was required), these costs still represent as the best available at the time of the analysis. It's acknowledged that some costs may change; however, the ongoing 2-year reviews will provide an opportunity to review and refine these estimated costs as implementation continues.

Feedback was also received that the analysis had not quantified the costs associated with improved TEP species reporting, management and sustainability, as well as the societal benefit of having accurate and transparent data. Quantifying these benefits is challenging. While supporting the sustainability of TEP species has clear inherent value, there is very little information available to quantify this benefit as a monetary value. For this reason, it was not included in the final model.

General analysis outcomes

Outcomes of the cost-benefit analysis provided valuable information that should be considered as the IOM program is designed and implemented. Based on government funding the establishment stage and undertaking a review to inform the ongoing costs, the establishment of an IOM program is not expected to result in any additional costs to licence holders.

Based on the costs and benefits included, the overall analysis indicates that the additional costs after establishment of a 90% effort coverage IOM program, if recovered from industry, would place additional burden on ECOTF licence holders. Given that existing profitability is either negative or marginal across all but the top quartile of fishers, current employment levels are premised on operating with little or no profit margin, suggesting employment in the sector is at risk (prior to consideration of establishing the IOM program).

While the economic information used to inform the assessment is the best available, it should be viewed with caution due to the limited sample size that contributed to the survey. An example of other economic estimates that differ to the BDO survey results used in the analysis have been provided by a key industry representative group, which considered the export value of the ECOTF to be significantly higher at around $40 million (60). Application of this figure would have a significant difference to the cost-benefit analysis outcomes.

The value of fish product caught in the GBRMP, plus the value of export of catch from outside the marine park, were defined as a benefit of the program in this cost-benefit analysis. GVP (the estimated income value of fish product sold) and NER (profitability of the industry) were used to measure this benefit.

The cost-benefit analysis found that NER showed a loss when assuming 90% effort coverage of the IOM program across the ECOTF (**Table 13**), while using GVP showed profitability (**Table 14**) – noting that GVP is simply a measure of total revenue of the fishing activity. This trade-off between overall profitability (NER), total revenue (GVP) and employment must be carefully considered at the 2-year review. NER assumes that fishers affected by changes to their business operations can contribute equally to the Queensland economy elsewhere.

It is also important to note that while the outputs of the cost-benefit analysis are a key consideration, there are several assumptions that have been applied to the analysis, which have resulted in the calculated program costs and subsequent estimated economic impacts.

Changes or modification to the cost inputs of the model would change the model outputs. For example, the ongoing management costs of the program included the assumption that 10% of all video footage will be reviewed. While this will be the case under the initial stages of the program, it may not be required long term as the use of AI to support review and validation of interactions has the capability to reduce ongoing program operating costs (as footage is automatically flagged by a model as requiring further review in the instance that a TEP species is observed).

The cost-benefit analysis also assumed that the costs of the IOM program will be spread evenly across all licence holders. This includes those that hold a licence who may not be actively fishing (i.e. the 119 inactive licence holders). While it is considered fair and equitable to share the program costs across all licence holders, imposing cost burden of an IOM program on those currently not generating an income, or included in the lower quartile with lower profitability, creates disproportionate economic impacts compared to those who are more actively participating in the fishery and generating an income.

A further complication is the program cost estimates being based on the total licences at a point in time. Should changes be introduced, or total licences numbers decrease, this would change the final program cost estimates.

10.3 Other benefits of implementing IOM

It's not often that all impacts and benefits associated with the introduction of new regulations can be monetised. Under the *Queensland Government better regulation policy*, if monetisation is not possible, impacts should be quantified and if quantification is not possible, impacts should be qualitatively assessed with sufficient justification and argument provided (31).

The introduction of an IOM program across the CFFTF and ECOTF would have several other benefits that, while it may be challenging to provide a monetary figure, still need to be considered.

10.3.1 Assessments of ecological risk

Recent regional ecological risk assessments (ERAs) completed by Fisheries Queensland across each management region of the ECOTF used a likelihood and consequence analysis, which examines the consequence of a species interacting with the ECOTF and the likelihood of it (the consequence) coming to fruition within the current fishing environment (45). Previous ERAs for the ECOTF used a productivity and susceptibility analysis method, which takes into consideration a range of biological and fisheries-specific attributes (availability, encounterability, selectivity, post-interaction mortality and conservation status) (61).

A key driver of risk for individual species under ERAs often occurs from of a lack of data. Most commonly, this is associated with the lack of understanding of interaction rates under current and historic fishing operations. Without information, it is common and best practice to apply a precautionary measure, which can often result in precautionary risks being applied during the ERA process. Generally, the species risk category is elevated when a precautionary risk is applied.

The management of ERA risks in the ECOTF is directly linked to each region's harvest strategy, in the way that any new or identified risks require management action to mitigate the risk as much as possible.

A benefit of IOM across the ECOTF would be improved understanding of species interaction rates and potentially their release condition. This includes interactions with TEP species across all regions of the fishery and bycatch in specific locations. Improved data on interaction rates could be used to support new ERAs and a more data-rich and informed analysis of risks.

As described above, a key driver of risk is the lack of information. In most cases the improved confidence and knowledge of interaction rates would reduce precautionary risk ratings in ERAs and potentially support a downgrade to the overall species risk.

A reduction in species risk rating could result in positive changes to the fisheries management arrangements, should the risks continue to be monitored and mitigated. This could include changes to spatial and temporal closures. Examples of this have occurred globally, where e-monitoring systems have been used to demonstrate that fishing operations were not an ecological risk to specific bycatch species (34).

While the financial benefits of providing improved data and reducing ERA risks is challenging to quantify, the management of these risks often requires action that is precautionary, which generally increases the impacts on industry. For example, seasonal closures to large areas of a fishing region may be implemented in light of perceived impacts on a particular species.

These closures could be proposed over areas of the fishery that are highly productive for industry and contribute to a significant amount of annual catch. However, if e-monitoring systems are able to demonstrate there is no or low risk, management intervention may not be required and fishing operations would be able to continue with no impact. This ensures there are no economic impacts to operations.

In addition, it can improve the social licence for fishing operations, with IOM data able to provide statistically significant information to demonstrate that fishing-related risks are low, improving community confidence that fishing practices are not having a detrimental impact on other ecological communities.

10.3.2 Compliance

QBFP adopts a risk-based compliance approach in order to ensure the most effective use of its limited resources – limited in comparison to the 7,000 km of coastline, hundreds of inland fishing areas, 250,000 recreational vessels, 639,000 recreational fishers and over 1,400 commercial fishing vessels (62).

A risk-based approach means the resources available are directed towards addressing the highest risks (where risks are assessed for individual fisheries) based on those that threaten the:

- sustainability of target fish stocks, including bycatch species
- environment, ecology and conservation value of the fishery ecosystem, including fishery bycatch and protected species
- social and community impacts
- profitability of compliant industry participants.

While compliance is not a primary objective or purpose of e-monitoring systems, their introduction has the potential to improve compliance processes and reduce program expenditure by limiting the operational burden often required to investigate and finalise compliance matters.

An example of this occurred during a recent fishing operation in the NX fishery, involving an interaction with a high priority TEP species (whale). Fortunately, all NX vessels operate with e-monitoring systems supporting the review and validation of reported interactions. The fisher immediately reported the event using the Qld eFisher app and notified the fishery manager. Fisheries Queensland were immediately able to validate the interaction and confirm the animal was released alive, as reported by the fisher.

If a similar interaction had been reported before e-monitoring was deployed, an operational exercise would have been required in an attempt to validate the fisher's interaction, including open water patrols by QBFP and potentially other groups, such as the Marine Animal Rescue Team, with costs associated to cover wages, allowances, boats and fuel. The ability to immediately validate the interaction with the e-monitoring system removed the need to prioritise operational resources to investigate, as the camera footage was sufficient to confirm the animal was released unharmed.

The compliance benefits of e-monitoring systems could be expected to be closely aligned with those from the implementation of vessel tracking across Queensland's fisheries. Vessel tracking was mandated across all major commercial fisheries between 2019 and 2020, which involved the implementation of vessel tracking units to support the independent validation of fishing effort information and provide real-time data to support compliance capabilities. Similarly, e-monitoring systems support the independent monitoring and validation of commercial fishing data, including effort information.

The compliance benefits of vessel tracking systems, both quantitative and qualitative, were comprehensively considered as part of the post-implementation IAS into the vessel tracking decision (39). A component of the analysis included a comparison of compliance data from individual fisheries before and after the introduction of vessel tracking. This comparison identified a pattern of fewer patrol days (and fewer patrol/staff hours), a reduction in vessels inspected and an increase in the number of non-compliance acts identified by QBFP. Ocean water patrol days are expensive, and the comparison identified that more compliance action was being taken after the introduction of vessel tracking with fewer operational patrols required.

The post-implementation IAS identified several other ways that vessel tracking units supported and improved compliance processes, including:

- monitoring the commercial fleet and adopting an intelligent approach to compliance inspections
- fishing in closed fishing waters
- investigating complaints from the public
- prioritisation of compliance activities
- compliance audits
- prosecuting offences.

The post-implementation IAS also estimated that vessel tracking had saved approximately $1.45 million annually in officer wages, not including the costs associated with use of boats, fuel and allowances. While it is challenging to relate this financial benefit estimate to IOM, considering the advanced capabilities of e-monitoring systems over vessel tracking systems (such as their ability to provide additional information on fishing activities and actions undertaken during a fishing event), it could be assumed that the compliance benefits of e-monitoring systems would be far greater. With the pattern of fewer patrol days and reduced spending as a result of the introduction of vessels tracking systems, it could be assumed that similar benefits would be realised by the introduction of an IOM program.

10.3.3 Improved market access and third-party sustainability certifications

Independent third-party sustainability certifications are becoming increasingly popular across wild-harvest fisheries on a national and international scale. A popular independent sustainability certification is the Marine Stewardship Council (MSC). A key requirement for MSC certification often includes the need to have a form of IOM established to support the independent monitoring and validation of protected species and/or bycatch interactions, depending on the risk profile of the fishery.

Obtaining MSC certification supports the ability to market product with the MSC logo and can increase access to potential markets with improved sale prices. For example, major supermarkets in Australia (Coles and Woolworths) will only sell seafood products that either meet MSC assessment standards or their own independent assessment frameworks.

The financial benefits of MSC certifications have been investigated for other global fisheries. For example, modelling of the benefits of an MSC certification for a South African trawl fishery indicated that the loss of its certification could result in an estimated reduction of 37.6% of the fisheries NPV, representing $3.927 million US dollars (63). While this study was for a fishery that already has MSC certification, and the CFFTF and ECOTF do not, it provides an example of the benefits that certification can have on market access for an entire fishery and the individual fishing businesses within it.

Other research on MSC-certified Western Australian rock lobster has not only demonstrated the economic contributions of the certification, but highlighted the improved social and political benefits the certification was able to provide (64).

However, there are other considerations of independent sustainability certifications. This includes the costs that are typically charged by the businesses and independent assessment agencies that undertake assessments against established frameworks, and that there is no guarantee a fishery will meet the relevant assessment benchmarks to be certified.

Again, while it is challenging to understand the full benefits that a third-party certification would have, such improvements are not just limited to improved economic outputs, but also social improvements.

Maintaining the ECOTF's WTO approval would also support an improved domestic beach price. While this is not an improved market access opportunity, a loss of exports would reduce domestic beach prices as more product would be available and sold on the domestic market, with sale prices expected to reduce as the supply increases (supply and demand). Ensuring the export approval is maintained will support a higher domestic price for product, as more product would be exported and create more demand in the domestic market.

10.3.4 Relaxation and removal of other reporting requirements

E-monitoring systems have the potential to validate most components of a fishing operation, including catch, effort and interactions with TEP and bycatch species (**Table 2**). They are also able to integrate with machine learning software to automatically validate and record data on fishing operations.

Deriving data on fishing activities directly from e-monitoring systems would reduce the reporting burden on fishers, and using machine learning software to automatically derive required data would further reduce program management costs such as reviewer time.

Machine learning has been used to reduce the need for the manual review of footage to ensure compliance with the deployment of bird-scaring lines on Australian tuna longline vessels (63). For the ECOTF and CFFTF, machine learning programs could be trained to automatically detect TEP species interactions using footage collected by the e-monitoring systems, or trained to estimate fishing effort using sensor data from onboard winches or vessel position and speed data (65).

The introduction of vessel tracking is a good example of how an independent monitoring and data validation tool can be implemented and used to support the removal or relaxation of regulations. As vessel tracking data could be used to better understand the fishing activities being carried out, it therefore reduced the need for compliance activities. For example, fishers are no longer required to give prior notice of their catch of quota species 1, 3 or 6 hours before landing at a location to facilitate compliance checks (39).

Using e-monitoring systems to derive data on fishing activities is highly likely to reduce the reporting burden on fishers, increase data accuracy (compared to manual data reporting) and streamline regulatory processes.

10.3.5 Product traceability

E-monitoring can improve the traceability of seafood products from origin to port. E-monitoring systems such as onboard sensors, cameras and GPS can capture and transmit real-time data on the location, time and date of catch, species and fishing method. This creates a digital footprint of when, where and how seafood was caught, allowing other stakeholders such as seafood processors, fisheries regulators and consumers to verify the origin of the seafood.

An example of this is major seafood company Thai Union, which has committed to only sourcing tuna from best practice fisheries that use some method of IOM by 2030. They aim to provide this information to consumers, increasing their confidence on the origin and sustainability of their seafood purchases (66).

10.4 Other impacts

Preliminary impact assessment of option 2 has been undertaken, including impacts on human rights, competition and fundamental legislative principles. Privacy impact assessment has also been undertaken. These components are included in:

- Appendix 5: Human rights considerations
- Appendix 6: Competition impacts
- Appendix 7: Fundamental legislative principles
- Appendix 8: Privacy impact assessment.

11 Consultation summary

For all communication and engagement material developed and used to inform the final options, visit **dpi.engagementhub.com.au**.

11.1 Onboard camera field trial

The field trial was delivered in consultation with voluntary industry participants, resulting in a collaborative model involving Fisheries Queensland, the Department of Climate Change, Energy, the Environment and Water, and volunteer commercial fishers.

Prior to the release of the consultation IAS, Fisheries Queensland engaged extensively with industry stakeholders during the design and delivery phases of the onboard camera field trial. Key learnings and recommendations from the trial have been shared with key stakeholder groups to ensure transparency and collaboration.

To support the trial, a technical focus group was established, providing field trial participants with a platform to discuss the technical aspects of the trial, share feedback and propose improvements. The group met 8 times during the trial. Participants were also actively involved in evaluating the results and contributing to the drafting and review of the final report.

At the conclusion of the field trial, Fisheries Queensland hosted an online webinar to present the trial results and discuss key findings. This webinar was open to all fishery stakeholders, not just trial participants, ensuring the broader fishing community had the opportunity to engage with the outcomes. In addition, the final report from the field trial was published and made accessible to all stakeholders.

11.2 Consultation IAS

Extensive consultation and engagment activities were delivered following release of the consultation IAS, which considered options to implement improved monitoring and indepenent data validation methods across priority trawl vessels.

Results and recomendations from this consultation process have been a fundamental component used to inform the final IOM program in this decision IAS. A short summary of the consultation results is provided in section 4, and relevant information is provided throughout the document.

12 Conclusion and final recommendation

Government decision

- Establish a regulatory framework that introduces a mandatory IOM program consisting of e-monitoring systems on all CFFTF vessels and ECOTF vessels that account for 90% of effort.

In conclusion, the recommendation to implement an IOM program across the CFFTF and ECOTF using scalable and cost-effective e-monitoring systems represents a critical step towards achieving the objectives of government action.

This program addresses significant risks, such as the potential loss of export approvals and restricted access to the GBRWHA, while supporting evidence-based management through the accurate monitoring and validation of commercial fishing data, particularly for TEP species and bycatch.

The proposed IOM program not only strengthens the sustainability and accountability of Queensland's commercial fisheries but also delivers tangible benefits to the industry and the broader community. These include improved confidence in data accuracy, enhanced market access and opportunities to boost the economic performance of commercial fishing businesses.

By funding the program for the first 6 years and committing to ongoing 2-yearly reviews, the government ensures minimal financial impact on industry while maintaining flexibility to adapt and improve the program over time.

The program's comprehensive approach includes prioritising high-effort vessels across higher-risk regions, adopting a risk-based framework for footage review, mandating e-reporting, and investing in advanced technologies to maximise efficiency. Additional commitments, such as the development of educational materials, a robust data retention and privacy policy and the establishment of a technical focus group with key stakeholders, further reinforce the program's transparency, effectiveness and alignment with industry needs.

By implementing this IOM program, Queensland is taking a proactive and collaborative approach to safeguarding its high-priority fisheries, ensuring long-term sustainability and maintaining its reputation as a leader in responsible fisheries management.

Appendix 1: Priority risk assessment

IOM priorities were identified based on the likelihood of collecting non-target species or interacting with TEP species, as determined by ERAs, and the need to satisfy time-bound WTO approval conditions (**Table A1. 1**). Other fisheries have also been assessed, but the results have not been included as they are classified as lower risk.

Table A1. 1:Risk assessment of priority fisheries

Fishery	Fishery components/symbols	ERA risk	Time-bound EPBC WTO requirement for IOM	IOM priority
Coral		**High**		*
Gulf of Carpentaria inshore fishery	Large mesh net (N3, N12, N13)	**High**		2
East coast inshore fishery	Large mesh net (N1, N2, N4**) Tunnel net (N10) Small mesh net (N11) Ocean beach (K1–8)	**High** **Intermediate** **Intermediate–low** **Intermediate–low**		2
East coast trawl	East coast otter trawl (T1, T2) Moreton Bay otter trawl (M1, M2)	**Intermediate–high** **Intermediate–high**	15 June 2026	1 1
Stout whiting trawl	Stout whiting (T4)	**Intermediate**	31 Dec 2021+	1
Crab	Gulf of Carpentaria mud crab (C1) East coast mud crab (C1) Qld blue swimmer crab (C1) Spanner crab (C2, C3)	**Intermediate–high** **Intermediate** **Intermediate** **Intermediate–low**		++
Gulf developmental trawl		**Intermediate**		#
Gulf line	L4	**Intermediate–low**		
River and inshore beam trawl	T5, T6, T7, T8, T9	**Intermediate–low**		
Rocky reef line	L1, L2, L3	**Intermediate–low**		
Reef line	RQ	**Intermediate–low**		
Spanish Mackerel line	SM	**Intermediate–low**		
Deepwater (multi-hook) line	L8	**Intermediate–low**		

* The coral fishery was classified as high risk because it is difficult to distinguish some protected coral species from similar species that can legally be collected. This issue is being actively addressed through port inspections in partnership with coral fishers. E-monitoring and observers are not required because there is no non-retained catch associated with the coral collection fishery.

** N1, N2 and N4 symbols were retired on 1 January 2024 and replaced by the NX and N15 fishing symbols. Former ERAs were completed under previous management arrangements for the former symbols, not those now regulated for the NX symbol.

\+ A voluntary program using onboard observers has been established to satisfy the WTO requirement for IOM in the short term and to maintain export approvals.

++The Gulf of Carpentaria mud crab fishery was classified as intermediate-high risk due to the potential for interactions with protected speartooth sharks (Glyphis spp.) and sawfish (family Pristidae). Further investigation or research is required to identify the best way to address this risk, given the practical challenges of IOM on small crab boats operating under mangroves in estuaries.

\# The Gulf developmental trawl fishery is required to carry an independent onboard observer as part of its developmental fishery permit.

Appendix 2: Consultation results

Feedback on the proposed options were gathered through extensive consultation and engagement activities resulting in a total of 10,293 written and verbal submissions. This included:

- 81 survey responses submitted through an online platform
- 14 written submissions received directly from stakeholders and industry groups
- 89 verbal submissions provided during 14 engagement sessions
- 596 endorsements from the Queensland Seafood Industry Association (QSIA) via an online campaign
- 9,513 endorsements from the Australian Marine Conservation Society (AMCS) via an online campaign.

Survey responses, which provide quantitative data, are presented to provide a clear analysis of respondent perspectives. Other forms of feedback, including written and verbal submissions, have been summarised along with the survey results to capture key themes.

Feedback during the consultation period was sought on topics including:

- other monitoring or independent data validation methods to consider
- support for improved monitoring and independent validation of commercial fishing data
- draft objectives and design of an IOM program
- preferred levels of vessel coverage for an IOM program
- criteria for prioritising vessels or regions for a risk-based staged approach to implementation of an IOM program
- proposed responsibilities of government and licence holders
- introduction of mandatory electronic reporting via the Queensland eFisher application
- funding and cost-sharing arrangements
- accuracy and factors considered in the analysis for the program
- general feedback, concerns, or suggestions about the proposed IOM program or options analysis presented in the consultation IAS.

Note that some care should be taken when interpreting results provided from the survey. Several questions allowed respondents to select more than one option, meaning response numbers and percentages reflect total responses rather than the proportion of individual respondents. Percentages displayed on plots are generally shown to one decimal place, meaning totals are approximately close to 100% but may not equal exactly 100% due to rounding.

Online surveys required all questions to be answered, while paper-based surveys allowed questions to be skipped, resulting in slight variations in total responses for some questions.

Data derived from small sample sizes (fewer than 30 responses), particularly when presented by stakeholder group (most with fewer than 10 respondents), should be interpreted cautiously. These results are not representative of broader stakeholder groups but reflect the views of individuals who chose to respond. As such, findings are indicative rather than conclusive and should be used carefully when drawing broader inferences. Additionally, stakeholders could identify with more than one sector of the fishing industry (e.g., in Question 1).

Pre-questions (survey demographics)

Survey Results

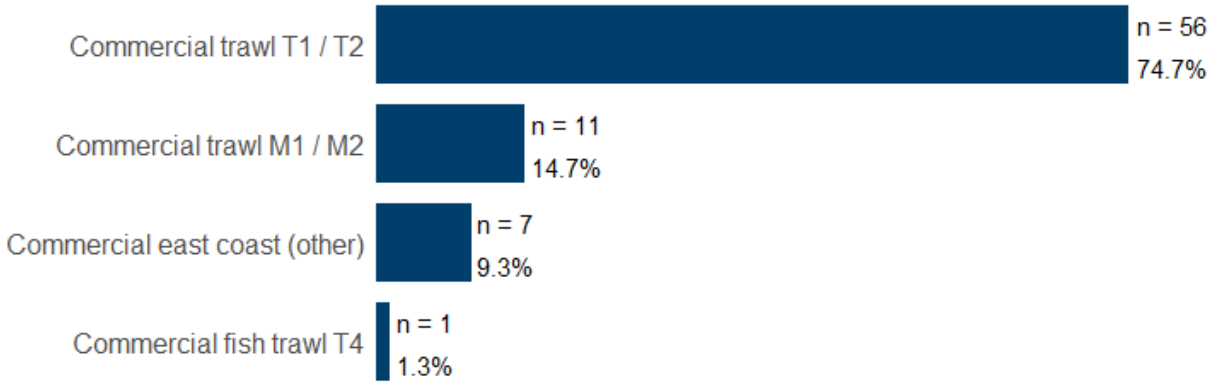
Question 1. What sector of the fishing industry do you represent? (select all that apply)

In total, 81 surveys (including 8 paper surveys and 73 online) were received. Seven stakeholder groups across the fishing industry were represented in the survey, with some overlap due to respondents identifying with multiple roles. The majority (92.6%) identified as commercial fishers, accounting for a total of 75 responses.

Stakeholder group	Number of representatives
Commercial fisher	75
Recreational fisher	8
Traditional fisher / Traditional Owner	1
Seafood wholesaler / marketer	5
Environmental group, industry peak body or other non-government organisation	1
Interested community member	4
Other	1

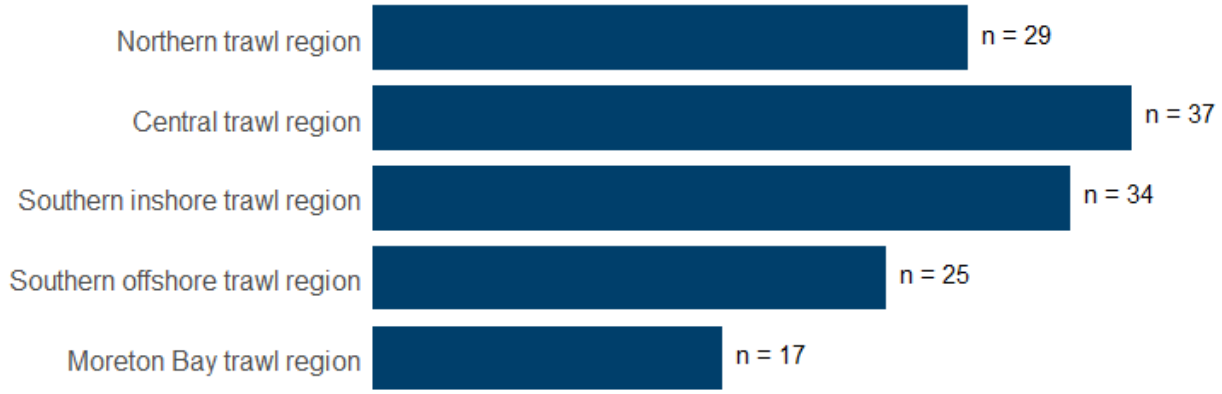
Eight responses were provided by recreational fishers, while four respondents identified as interested community members. One response each came from a Traditional fisher/Traditional Owner, an 'Environmental group, industry peak body, or other non-government organisation', and an 'Other' category. The respondent in the 'Other' category described themselves as representing an 'Other-Government organisation'. No responses were received from charter fishing operators, hospitality workers (e.g., restaurant, café, or fish and chip shop owners/workers), or fishing tackle retailers.

Question 2. If you are a Queensland commercial trawl fisher, which of the following fisheries do you primarily represent?



The majority (74.7%) of commercial fishers who completed the survey were from the T1/T2 trawl sector (56 respondents). The M1/M2 sector, associated with smaller-scale trawling in Moreton Bay, accounted for 11 respondents. Seven identified with other east coast commercial fisheries, and one respondent represented the east coast fish trawl sector (T4).

Question 3. If you are a Queensland commercial east coast otter trawl fisher, which region(s) do you regularly/primarily fish?



Queensland commercial east coast otter trawl fishers who participated in the survey identified the regions they regularly or primarily fish. The central trawl region was the most commonly fished area, with 37 respondents identifying it as a primary region, followed by the southern inshore trawl region (34 respondents). The northern trawl region was selected by 29 respondents, while the southern offshore trawl region and Moreton Bay trawl region were identified by 25 and 17 respondents, respectively.

General submissions

General submissions were also received. The majority of these were received from representatives of the commerical fishing sector, including the QSIA, the Central and Northern Zone Entitelement Holders group and other individual commercial fishers. A general submission was also received from AMCS/WWF.

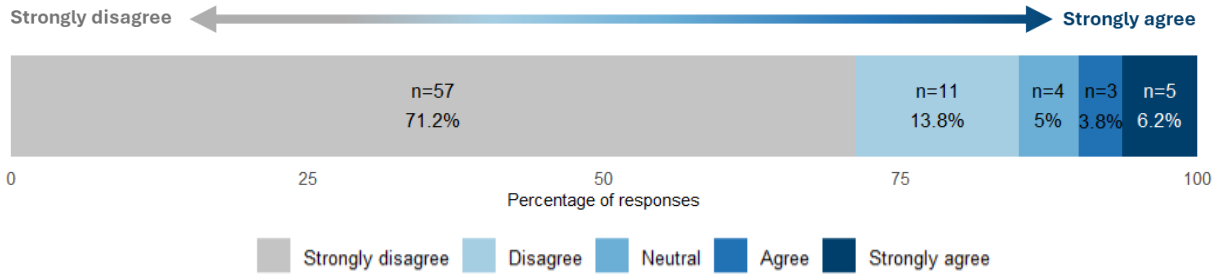
Online campaigns by QSIA and AMCS/WWF received endorsements from a wide range of stakeholders both nationally and internationally. Due to the submission types and information received from these campagins, it was not possible to determine the demographics of persons that responded.

General feedback

Survey Results

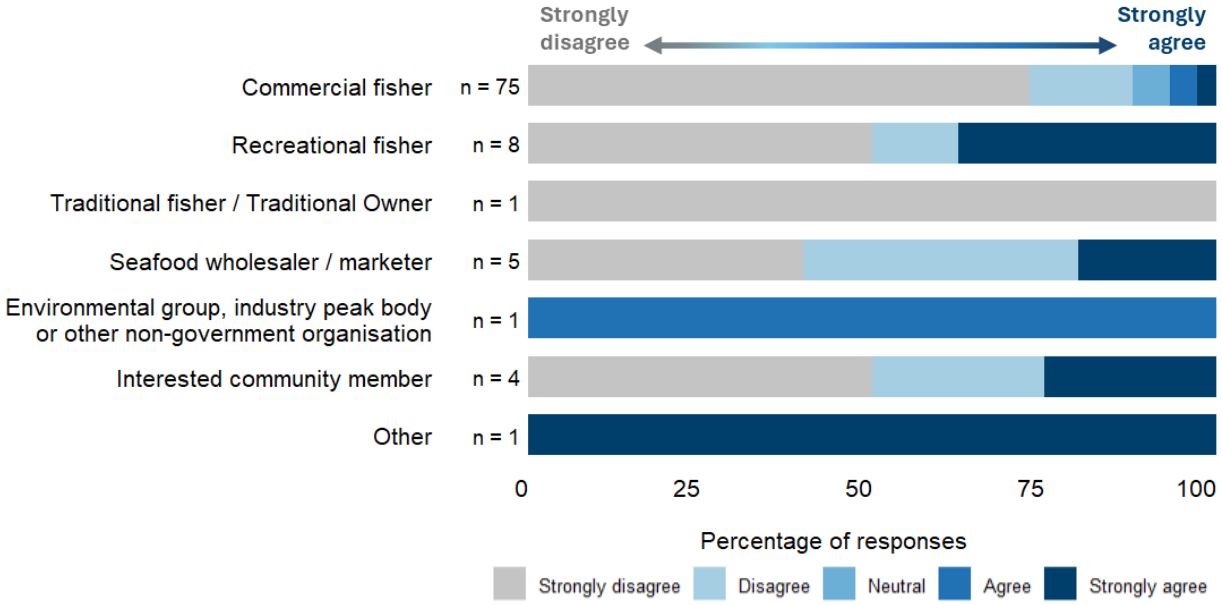
Question 4. Do you agree with the need for improved monitoring and independent validation of commercial fishing data?

All survey respondents



The majority of respondents opposed the need for improved monitoring and independent validation of commercial fishing data, with 68 respondents (85%) either strongly disagreeing or disagreeing. In contrast, a small minority supported the need, with eight respondents (10%) either agreeing or strongly agreeing. The remaining four respondents (5%) were neutral, neither supporting nor opposing the need for improved monitoring and independent validation of commercial fishing data.

By stakeholder group

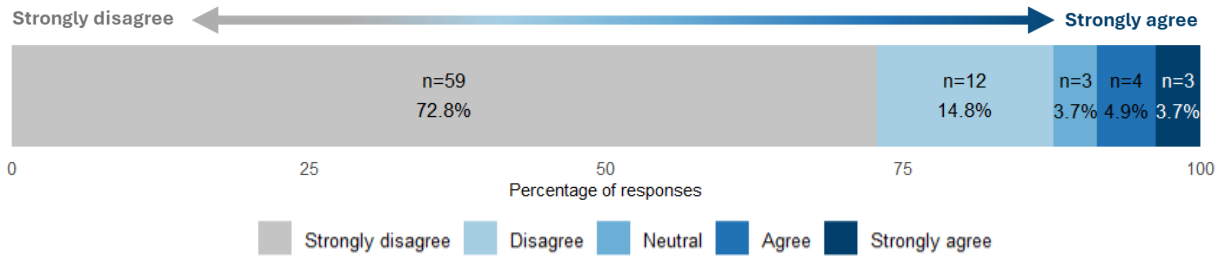


Responses varied across stakeholder groups, with some overlap in the sector groups for each person likely influencing the results. Among commercial fishers, the majority disagreed, with only a few selecting neutral or agreeing. This group included all seafood wholesalers/marketers, whose responses were more evenly distributed compared to commercial fishers.

Recreational fishers were more divided, with approximately two-thirds disagreeing or strongly disagreeing (n=5), while the remaining third strongly agreed (n=3). Notably, three recreational fishers also identified as commercial fishers, all of whom strongly disagreed. The respondent who identified as both a Traditional Owner/Traditional fisher and a commercial fisher also strongly disagreed.

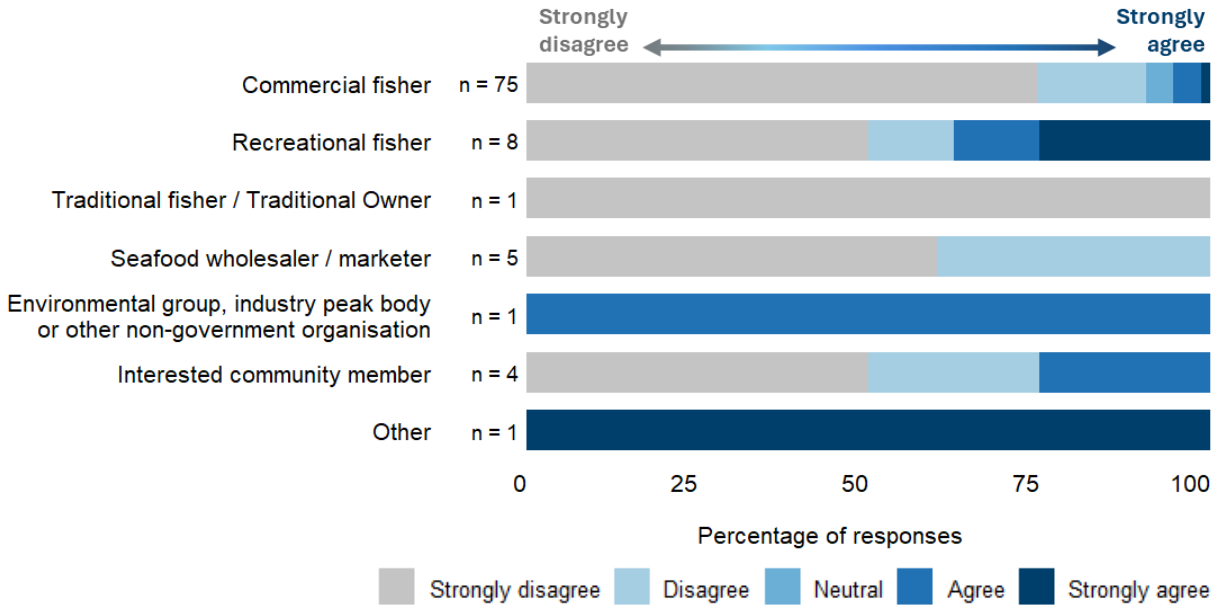
Question 5. Do you agree with the proposal to establish an independent onboard monitoring (IOM) program across the east coast otter trawl fishery and commercial fin fish trawl fishery that uses e-monitoring systems?

All survey respondents



The results showed that the majority of people surveyed opposed the proposal for establishing an IOM program using e-monitoring systems. The majority of respondents (72.8%) strongly disagreed or disagreed (14.8%). Only a small proportion of respondents were neutral (3.7%), while 8.6% either agreed or strongly agreed.

By stakeholder group



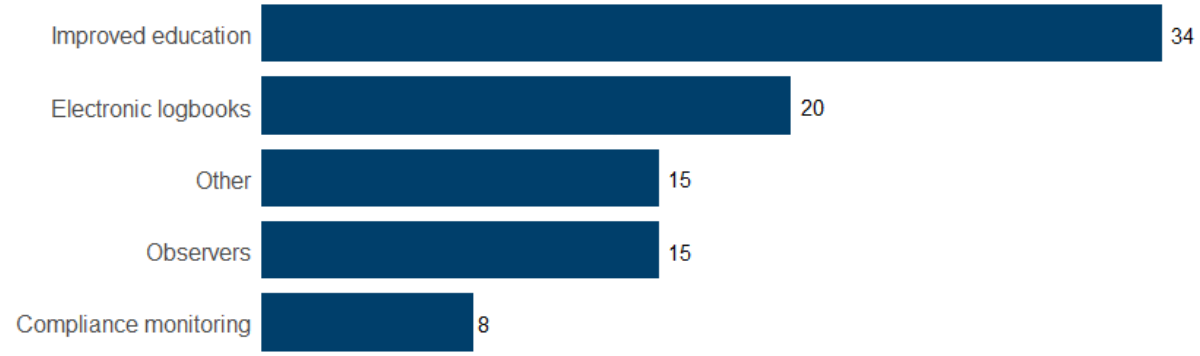
Responses to the proposal for establishing an IOM program varied across stakeholder groups. The majority of commercial fishers expressed strong disagreement. This group again included all five seafood wholesalers/marketers, all of whom disagreed with the proposed program.

Recreational fishers were more divided, with approximately one third expressing a level of agreement (n=3) and two thirds expressing disagreement (n=5). Notably, three of the five recreational fishers who disagreed

also identified as commercial fishers. The respondent who identified as both a Traditional Owner/Traditional fisher and a commercial fisher strongly disagreed.

Question 6. Are there other monitoring or independent data validation methods that should be included in an IOM program? (Select all that apply)

All survey respondents



Survey respondents indicated their preference for additional monitoring or independent validations methods and were also invited to provide alternative suggestions. Respondents were able to select multiple options, and the numbers provided represent the total number of responses for each method. Three respondents did not select any methods.

Improved education was the most frequently selected method (n=34). Electronic logbooks were the next most popular method chosen (n=20), while observers (n=15) and compliance monitoring (n=8) received comparatively fewer selections. Notably, all survey respondents who selected the observer method were commercial fishers.

Suggestions provided for 'Other' suitable methods (n = 15) included improved bycatch reduction devices (BRDs), utilisation of drone techonology, fisheries-independent Threatened, Endangered, and Protected (TEP) species monitoring surveys, and the use of electronic monitoring systems that have already been purchased by fishers (ie. CCTV). An optional buyout of licences was also mentioned in responses.

By stakeholder group

The breakdown of selections by sector are provided in the table below.

Stakeholder group	Commercial fisher	Recreational fisher	Traditional fisher	Seafood wholesaler/ marketer	Environmental group*	Interested community member	Other
Improved education	30	6		2		4	1
Electronic logbooks	16	4		1	1	2	
Other	13	2	1	2	1	1	1
Observers	15						
Compliance monitoring	7	1		1		1	

* Note: full name for this group is 'Environmental, industry peak body or other non-government organisation'

General submissions

The table below summarises feedback from QSIA, AMCS/WWF and other industry stakeholders/groups that related to the '*General feedback*' survey questions (Questions 4 – 6).

Feedback from QSIA

QSIA's submission acknowledged the need for improved independent validation of TEP species interactions to meet Commonwealth Government expectations, such as export approvals, however, did not support the proposed IOM program as the most viable or best outcome option.

Their submission recommended alternative options that could better support improved validation or better data, including existing logbook, fishery observers, protected species management plans, improved education, electronic reporting and more targeted monitoring or 'checks'.

While their submission did not support the IOM program proposed in the consultation-IAS, it recommended that a co-management or industry owned model should be considered. Such a model was recommended where industry own the data, which would better ensure their key issues and views would be considered in final program design.

Their submission also noted concerns with scope creep of a future IOM program, where the e-monitoring systems may be used for more than what they were originally implemented for (i.e. expanding program scope beyond TEP species validation).

Feedback from other commercial fishing stakeholders and groups

Submissions received from commercial fishers generally opposed the need for electronic monitoring and the use of cameras to independently validate TEP species interactions. Feedback generally stated that the fishery is already well-managed and sustainable. Some submissions stated that there is no need for improved validation as current levels of TEP species interactions are low and the existing use of exclusion devices like turtle exclusion devices (TEDs) and BRDs further reduce incidental capture and interactions with TEP species.

Fishers recommended alternative approaches such as better training for skippers and crew, simplifying reporting requirements, and the use of onboard observers.

A few fishers felt that the program was more about social licence and public perception than addressing genuine management or environmental concerns.

Feedback from AMCS/WWF

The joint submission from AMCS and WWF strongly supported the proposal to implement IOM in the ECOTF and the CFFTF. They emphasised a current lack of independent and verifiable data on TEP species interactions as a critical gap and raised concerns that mandatory reporting of TEP species interactions is widely believed to be significantly under-reported.

Their submission considered validated data to be essential for effective fisheries management and meeting external obligations, such as commonwealth export conditions, United Nations Educational, Scientific and Cultural Organization (UNESCO) recommendations, and the Reef 2050 Plan. They noted that e-monitoring systems have been shown to improve fisher behaviour and reporting accuracy, helping to address under-reporting of TEP species interactions.

Their submission stressed that accurate data on TEP species interactions is critical to assessing population-level impacts on vulnerable species and ensuring that fishing practices do not compromise

their survival. Increasing transparency of fishing impacts on TEP species and the environment was also highlighted as critical to improving the social licence of the fishery and community confidence.

Their submission supported the options analysis that was presented, agreeing that the use of e-monitoring systems was the most viable option. They also identified other options, including Crew-Member Observer programs and voluntary or industry led/owned programs, as not viable.

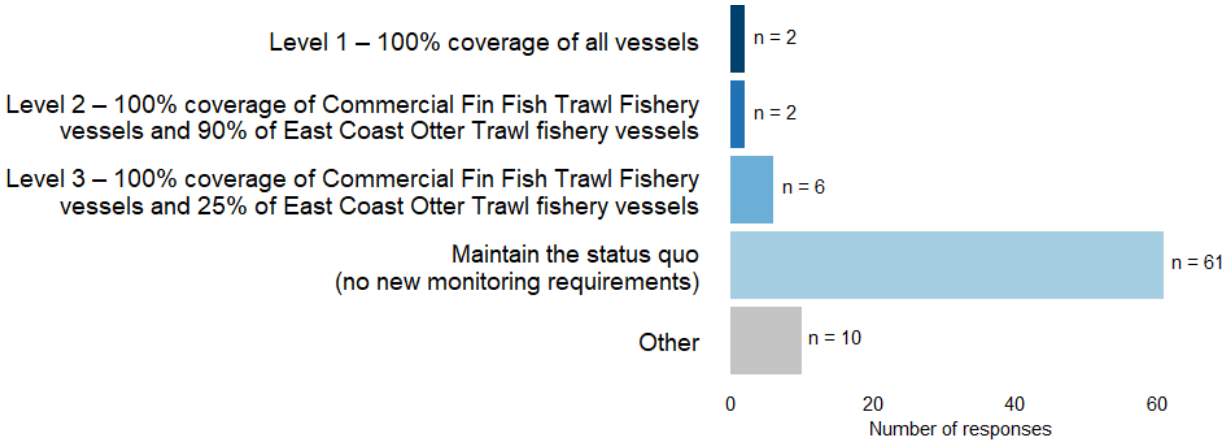
Public support was also noted in the submission, referencing a YouGov poll showing that 70% of respondents supported the introduction of cameras across the trawl fleet.

IOM program options

Survey results

Question 7. What level of vessel coverage do you think an IOM program should have?

All survey respondents



When asked about the preferred level of vessel coverage for an IOM program, most respondents supported maintaining the status quo (n=61, 75%) with no new monitoring requirements. A small number of respondents selected the highest levels of coverage, Level 1, 100% of vessels (n=2), or Level 2 at 90% of ECOTF vessels (n=2). Level 3, proposing 25% coverage of ECOTF vessels, received the most responses above the status quo (n=6), though this was still a small number of responses (n=6). Additionally, ten respondents only selected "other" and provided comments instead. Common suggestions included less than 25% vessels in the ECOTF but above the status quo. Another suggestion called for implementation on vessels that export only.

By stakeholder group

Stakeholder group	Commercial fisher	Recreational fisher	Traditional fisher	Seafood wholesaler/ marketer	Environmental group*	Interested community member	Other
Level 1		2					1
Level 2	1	1				1	
Level 3	6						
Status quo	59	4	1	3		2	
Other	9	1		2	1	1	

* Note: full name for this group is 'Environmental, industry peak body or other non-government organisation'

Commercial fishers generally preferred the option to maintain the status quo (73%). Respondents who selected higher levels of IOM coverage were more likely to be recreational fishers than any other stakeholder group. Most stakeholder groups had at least one respondent who preferred maintaining the status quo with no additional monitoring requirements. Since some respondents identify with multiple sector interests, the total number of selections in the table reflects the preferences of stakeholder groups rather than being limited to individuals.

General submissions

The table below summarises feedback from QSIA, AMCS/WWF and other industry stakeholders, that related to the '*Independent onboard monitoring program options*' survey question (Question 7).

Feedback from QSIA

QSIA's submission did not provide a recommended level of vessel coverage, instead stating that further discussions with industry should be held before confirming, with there being conflicting views across industry on how vessels could be prioritised and why.

Their submission raised the question that the consultation-IAS did not explain how the recommended options would ensure adequate validation of TEP information is achieved in order to meet commonwealth expectations, such as those under export approvals.

They questioned why blanket IOM (i.e. e-monitoring systems across a high percentage of active vessels) is necessary to support a program that is representative and risk-based, when there is limited data currently available to support this statement/assumption.

Feedback from other commercial fishing stakeholders and groups

Whilst the majority of fishers preferred the option of doing nothing with no implementation of IOM, some fishers recognised the need to do something to address the requirements of commonwealth export conditions, and some supported the introduction of IOM.

It was suggested by some fishers that mandating IOM on vessels without hoppers may not be practical, as they believe cameras are unable to effectively monitor TEP species interactions and bycatch on vessels

using sorting trays. Some submissions also suggested e-monitoring systems should only be implemented once hoppers have been established across the entire fleet.

Feedback from AMCS/WWF

The submission from AMCS/WWF provided a recommendation for 100% coverage of all active vessels across the ECOTF and CFFTF, explaining the 100% coverage was required in order to meet program objectives and external obligations. Excluding active vessels was noted as a risk, as it may allow vessels without cameras to avoid scrutiny, potentially leading to less sustainable fishing practices and limiting the widespread adoption of behaviour change across the fleet.

Their submission noted that fishing effort is not the only driver, or risk, for TEP species interactions, outlining several other influences including fishing location, gear, fisher behaviour and seasonality. Their submission raised concerns with the 90% option, creating an effort threshold where vessels that represent a risk of interacting with TEP species could continue to operate without validation of their interactions.

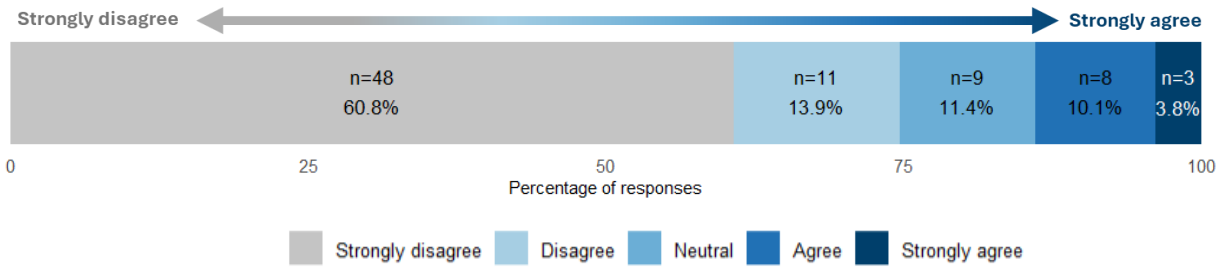
They noted that inactive vessels should remain out of scope, however, included if they become active.

Implementation and rollout

Survey results

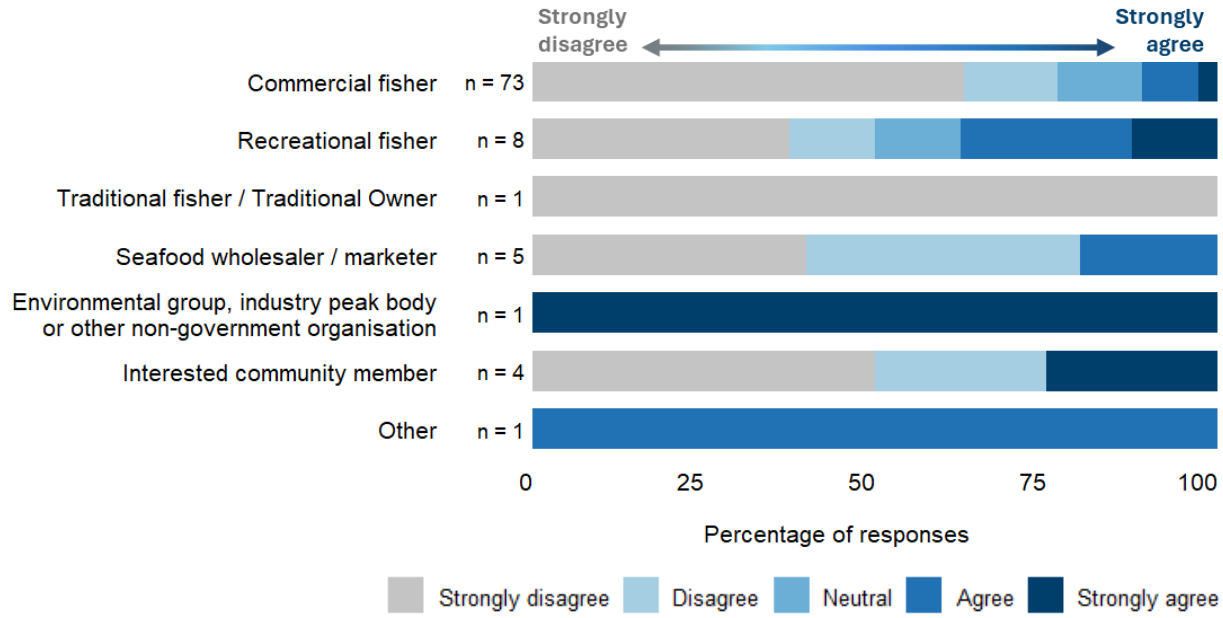
Question 8. Do you agree with a risk-based approach to the implementation of IOM across priority vessels from the northern, central, southern inshore and southern offshore management regions of the east coast otter trawl fishery?

All survey respondents



The majority of respondents opposed the adoption of a risk-based approach to implementing IOM. Strong disagreement was the most common response, with 60.8% strongly disagreeing and a further 13.9% disagreeing. Neutral responses made up 11.4%, while 10% agreed, and only 3.8% strongly agreed.

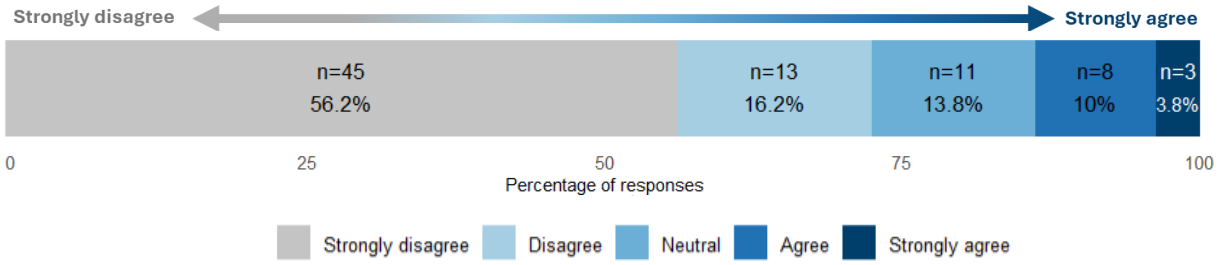
By stakeholder group



Responses to the proposal for establishing a risk-based approach to implementing IOM varied across stakeholder groups. Among commercial fishers, the majority expressed strong disagreement or disagreement. Recreational fishers were more divided, half expressing disagreement of some extent (n=4) and the other half expressing neutrality or agreement (n=4). This may be due to high representation of recreational fishers that also identified themselves as commercial fishers. The respondent who identified as both a Traditional Owner/Traditional fisher and a commercial fisher strongly disagreed.

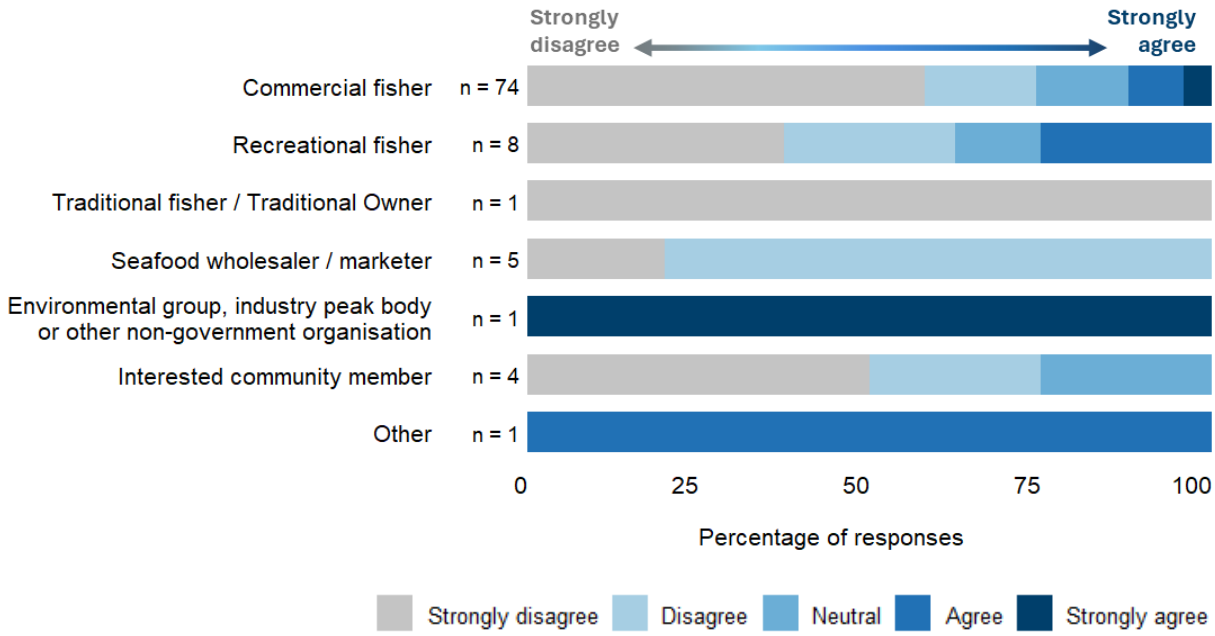
Question 9. Do you agree with the staged implementation of IOM across vessels that represent the highest fishing effort within each management region?

All survey respondents



Most survey respondents opposed the staged implementation of an IOM program based on the highest fishing effort within each management region, with 56.2% strongly disagreeing and 16.2% disagreeing. Neutral responses made up 13.8%, while 10% agreed, and only 3.8% strongly agreed.

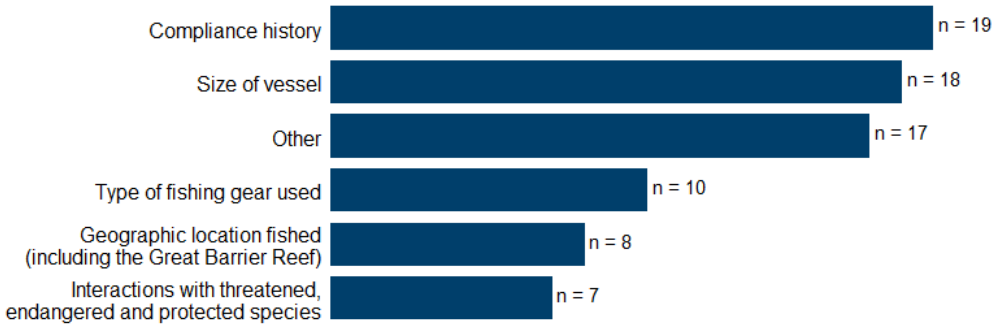
By stakeholder group



Responses to the proposal for the staged implementation of an IOM program based on the highest fishing effort within each management region, varied across stakeholder groups. Among commercial fishers, the majority expressed strong disagreement. Recreational fishers remained divided on this question, the majority expressing disagreement (n=5) and the others expressing neutrality or agreement (n=3). As in the previous survey questions, three of the five recreational fishers who disagreed also identified as commercial fishers. Also, the respondent who identified as both a Traditional Owner/Traditional fisher and a commercial fisher once again strongly disagreed.

Question 10. Should any of the following criteria be used to support the implementation of IOM? (Select all that apply.)

All survey respondents



Respondents were asked to select criteria that should support the implementation of IOM, with multiple selections allowed. Compliance history and size of vessel were the most selected. Type of fishing gear used, location fished, and interactions with TEP species were also common selections. Other criteria suggested by respondents included:

- risk level of TEP species – prioritising the highest-risk species (e.g. those identified in the Southern Offshore Region Ecological Risk Assessment and sawfish interaction areas in ECOTF and CFFTF) before monitoring low-risk TEP species.
- reporting history – considering whether vessels have consistently reported TEP species.
- exemptions for small vessels – several fishers proposed exempting vessels under 10m because of their smaller gear and shorter fishing shots.
- safety concerns – noting that IOM equipment may draw essential onboard power.
- unsustainable fishing practices – targeting vessels with poor practices (although respondents noted these are not typical in the relevant fisheries).
- structural adjustment buy-back schemes.
- further education for skippers and crew.
- effort history, with a preference for measuring effort in effort-units rather than nights to better reflect actual fishing activity.

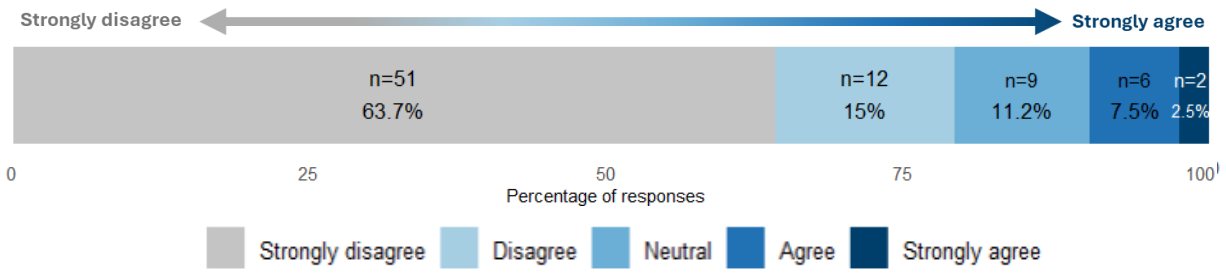
By stakeholder group

The responses by stakeholder group are provided below.

Stakeholder group	Commercial fisher	Recreational fisher	Traditional fisher	Seafood wholesaler/ marketer	Environmental group*	Interested community member	Other
Compliance history	14	6				2	1
Size of vessel	17	1		2			1
Other	15	1	1	2	1	3	
Type of fishing gear used	8	4		1			1
Geographic location fished	5	3			1	1	1
Interactions with TEP species	4	3			1	1	1

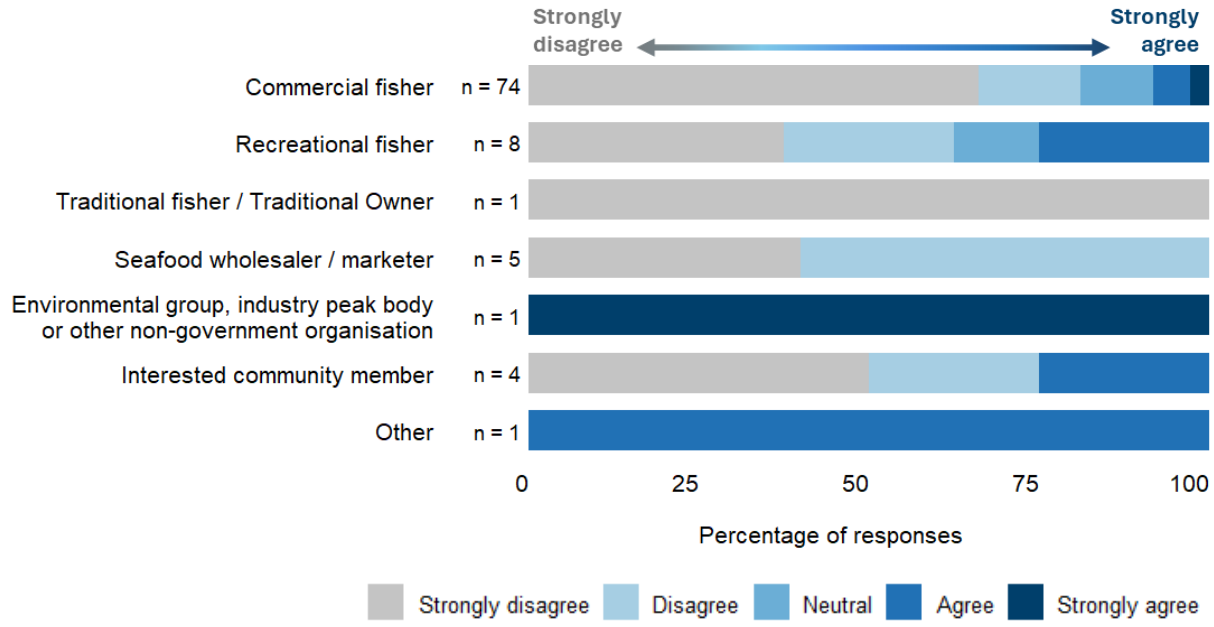
Question 11. Do you agree with the staged implementation of IOM over 4 years?

All survey respondents



Most respondents opposed the staged implementation of IOM over four years, with 63.7% strongly disagreeing and 15% disagreeing. Neutral responses accounted for 11.2%, while 7.5% agreed, and only 2.5% strongly agreed.

By stakeholder group

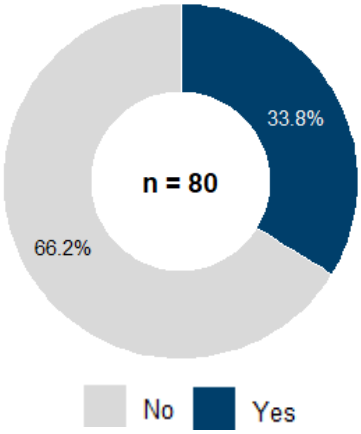


Responses to the question on the staged implementation of the IOM over four years, varied across stakeholder groups. Among commercial fishers, the majority strongly disagreed or disagreed. Recreational fishers remained divided, the majority disagreeing and the others were neutral or agreeing. As in the previous questions, three of the five recreational fishers who disagreed were also commercial fishers. The respondent who identified as both a Traditional Owner/Traditional fisher and a commercial fisher strongly disagreed.

Question 12. Should any other criteria or implementation timeframes be considered in the rollout of an IOM program?

All survey respondents

33.8 % of respondents indicated there are other criteria or implementation timeframes that should be considered.



Suggestions on how to prioritise implementation included prioritising:

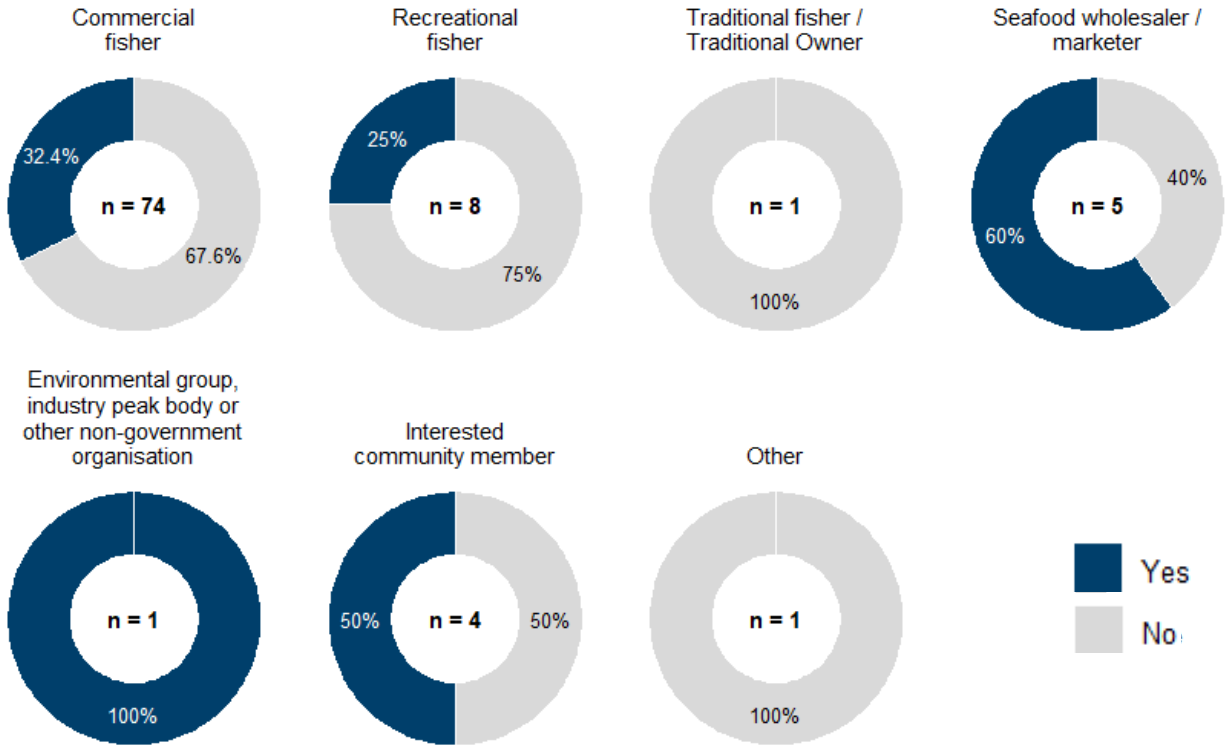
- locations where high-risk protected species occur (ie. such as sawfish)
- fishers that haven't reported TEP interactions before
- fishers that are currently reporting TEP interactions
- larger boats, such as boats with hopper and conveyor systems and auxiliary engines
- boats with ample crew to ensure there are no impacts of the program on safety
- deprioritising vessels under "grandfather clauses".

Broader suggestions on program implementation included:

- using effort units instead of nights fished for a fairer distribution of cost recovery
- considering AI to improve timeframes and reduce costs
- considering historical and current biomass levels of target species and their impact on TEP species.

By stakeholder group

Respondents from most stakeholder groups indicated that other criteria or implementation timeframes should be considered. Commercial fishers suggested implementation prioritsation based on effort, risk and vessel size. Recreational fishers commented on fisher safety and broader ecological considerations.



General submissions

The table below summarises feedback from QSIA, AMCS/WWF and other industry stakeholders that related to the '*Implementation and rollout*' survey questions (Questions 8 – 12).

Feedback from QSIA

QSIA's submission raised concerns that the proposed implementation timeline of four-years was too ambitious in speed and scale. They noted learnings from the onboard camera field trial, where several hardware issues were encountered, and stated that adequate time during broader implementation would be required to troubleshoot and refine expected issues.

Concerns were also raised with the technical and logistical challenges of installing large numbers of cameras across the fisheries' major and remote fishing ports, as well as the challenges faced by industry with adopting new technology at such a fast pace.

Their submission agreed that it was appropriate to undertake a risk-based and staged approach to implementation of a future program but recommended alternative ways this could be better achieved. Their submission suggested that 'risk' is more complex than just spatial effort and highlighted uncertainties around what level of implementation would deliver a program that is 'representative' and effectively addresses unknown 'risks' to TEP species. Concerns were raised about the potential for biased or skewed data if implementation focuses solely on high-risk regions or high-effort vessels, suggesting a random selection method to ensure representative coverage across regions, effort levels, and risk profiles.

Their submission recommended that implementation of a program should focus on a co-management model, adopting a phased approach commencing with volunteers who are financially compensated, and only expanding based on milestone reviews. It was recommended that ongoing reviews of implementation should be undertaken each quarter to report on rollout timelines, validation against TEP reporting, technical performance and overall progress, and that expansion of the program should only occur when review outcomes demonstrate that its justified.

Feedback from other commercial fishing stakeholders and groups

Feedback from commercial fishing stakeholders and groups identified a number of concerns and practical considerations in the implementation of IOM.

Some fishers noted the importance of an equitable rollout methodology and suggested use of a lottery system, with 25% of vessels participating at any given time over an 8-year period. Other fishers suggested to focus on targeted monitoring for high-risk vessels or regions, rather than blanket coverage.

Some suggestions included allowing fishers to purchase and manage their own approved camera systems to reduce costs and improve flexibility.

Vessel size was suggested as an important consideration, with fishers identifying that smaller vessels (under 10m) and/or those that complete short shot durations, pose a lower risk to protected species and should be exempt from mandatory camera requirements.

They raised concerns with the management of a program across jurisdictions, and with the proposed prioritisation method for vessels and regions.

Some fishers questioned the fairness of using historical effort data to determine which vessels receive cameras first, as it may not accurately reflect current fishing practices or risks to TEP species. Considerations of regional characteristics, such as fishing gear types, compliance history, and TEP interaction risks, were recommended by fishers when determining implementation priorities.

Feedback from AMCS/WWF

The submission from AMCS/WWF raised concerns around the timeframes for implementation, noting the slow progress in rollout to date and the proposed rollout of four years as insufficient to obtain robust and accurate data on TEP interactions. They instead recommended the completion of an IOM program rollout within two and a half years (by December 2028).

The submission supported the concept of risk-based staged implementation of IOM in the ECOTF, arguing that risk is not strongly influenced by number of fishing days, but is more influenced by factors such as fishing location, gear type, fisher behaviour and skill, and seasonality. However, prioritising IOM installation based on fishing effort (e.g., days fished) was supported in the submission to capture the most active vessels first and maximise early data collection.

Concerns were raised about inequities in program implementation, such as excluding some vessels, which could create compliance disparities and undermine industry morale. They recommended ensuring all active vessels are included in the program to address inequity and avoid compliance disparities between operators. Additionally, they recommended incorporating new entrants to the fishery and vessels increasing their fishing effort in the program to prevent gaps in monitoring and compliance.

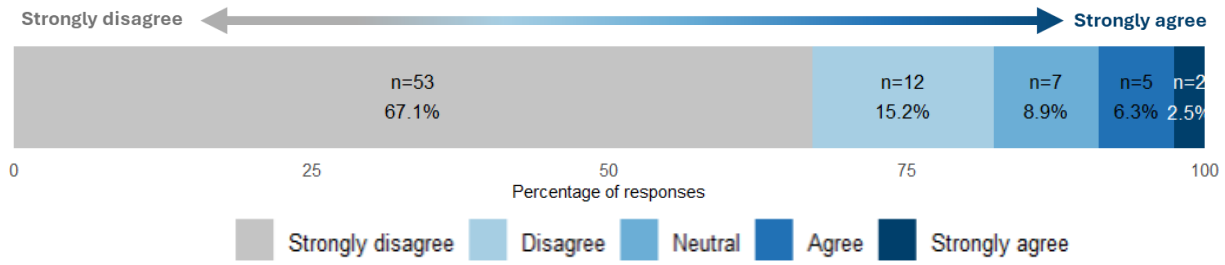
The submission supported the prioritisation of regions with overlap of the Great Barrier Reef World Heritage Area (GBRMHA) and also recommended to avoid relying on historic TEP species interaction data for prioritisation due to uncertainties in the dataset.

Objectives and design

Survey results

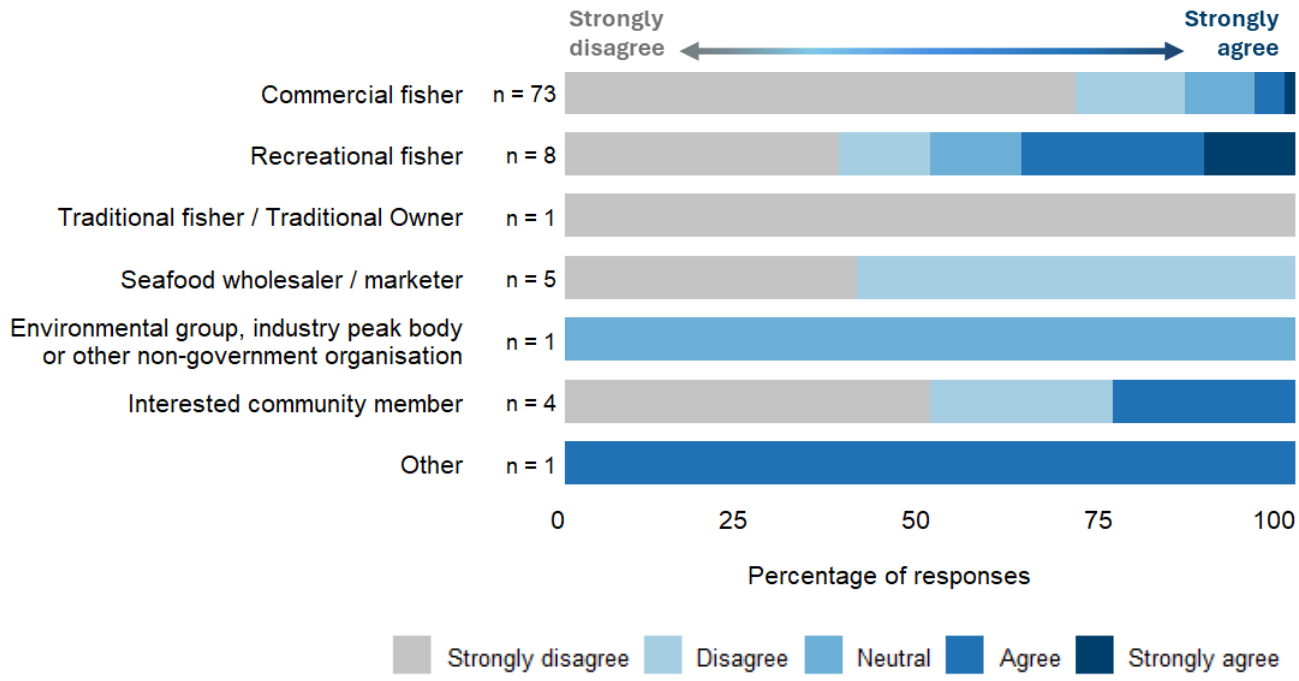
Question 13. Do you agree with the draft IOM program objectives?

All survey respondents



The majority of respondents opposed the draft objectives of an IOM program, either strongly disagreeing (67.1%) or disagreeing (15.2%). Neutral responses accounted for 8.9%, while 6.3% agreed and 2.5% strongly agreed.

By stakeholder group



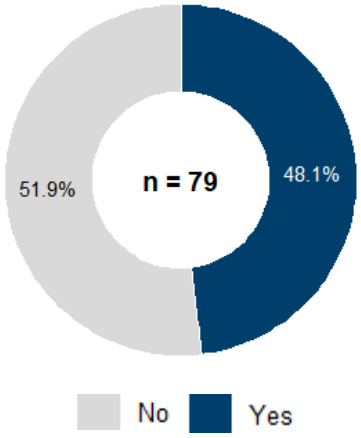
Responses relating to the draft IOM program objectives, varied across stakeholder groups. Most commercial fishers expressed some level of disagreement. Recreational fishers were divided, with half expressing a level of disagreement and the other half expressing neutrality or agreement to some extent. Two of the four recreational fishers who disagreed were also commercial fishers. The respondent who identified as both a Traditional Owner/Traditional fisher and a commercial fisher strongly disagreed.

Question 14. Should any changes or other program objectives be considered?

All survey respondents

48.1% of respondents identified that there were other objectives that an IOM program should consider.

Suggestions on what changes should be made to program objectives included additional consideration for:

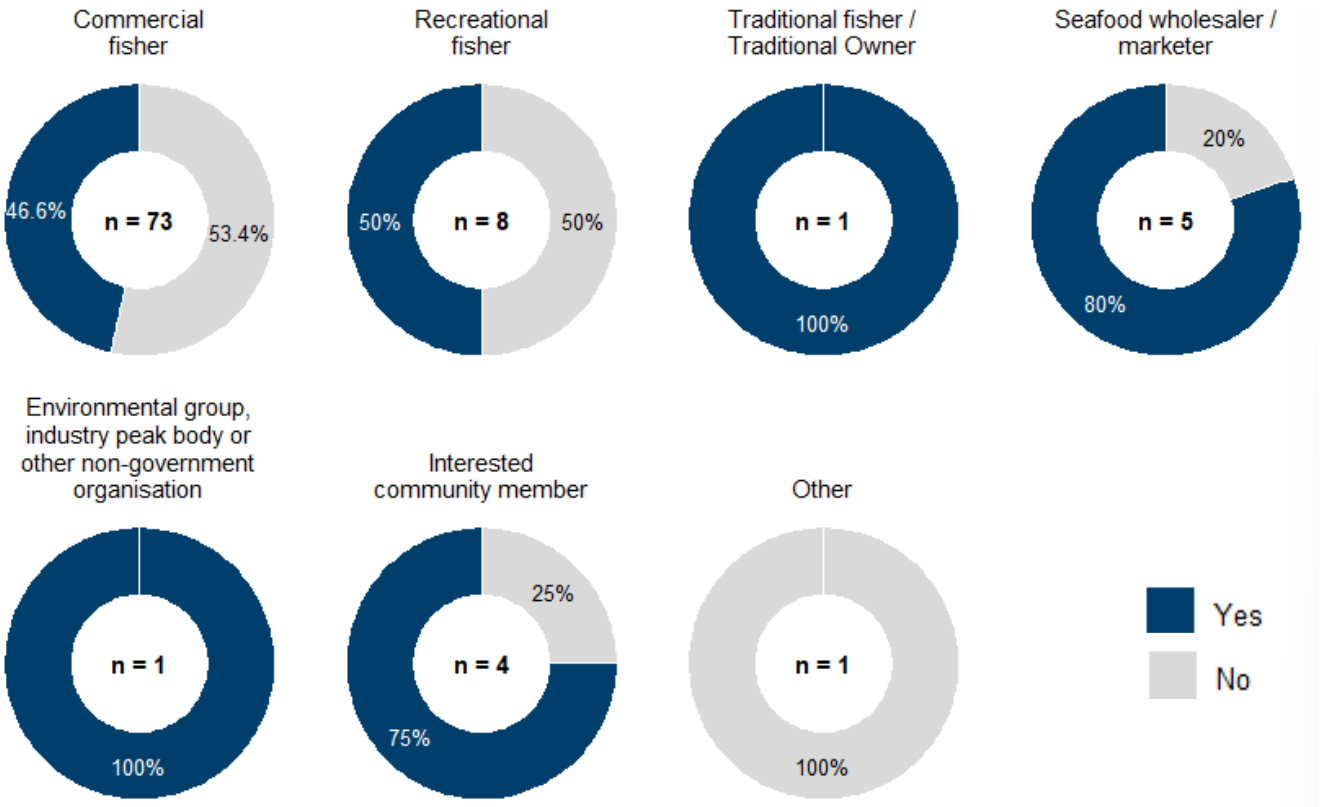


- the variation in fishing effort between management regions and between vessel sizes
- program flexibility to allow for changes to program objectives over the four-year implementation period
- an optional buyout of licences
- the removal of bycatch considerations in the program scope
- improved education for fishers, specifically regarding species identification
- inclusion of an onboard observer program.

By stakeholder group

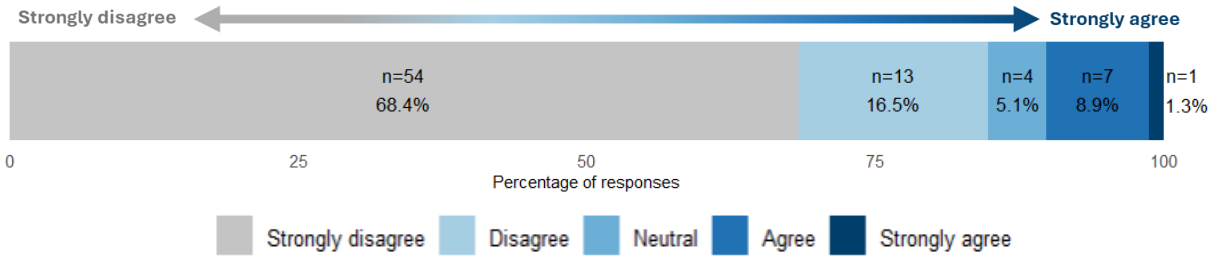
Respondents from most stakeholder groups indicated changes to the IOM program should be made. Recreational fishers commented on prioritising flexibility over the four-year implementation period.

Commercial fishers suggested reducing the IOM scope through the level of coverage and the removal of bycatch considerations, use of an onboard observer program, and an optional buy out of licences.



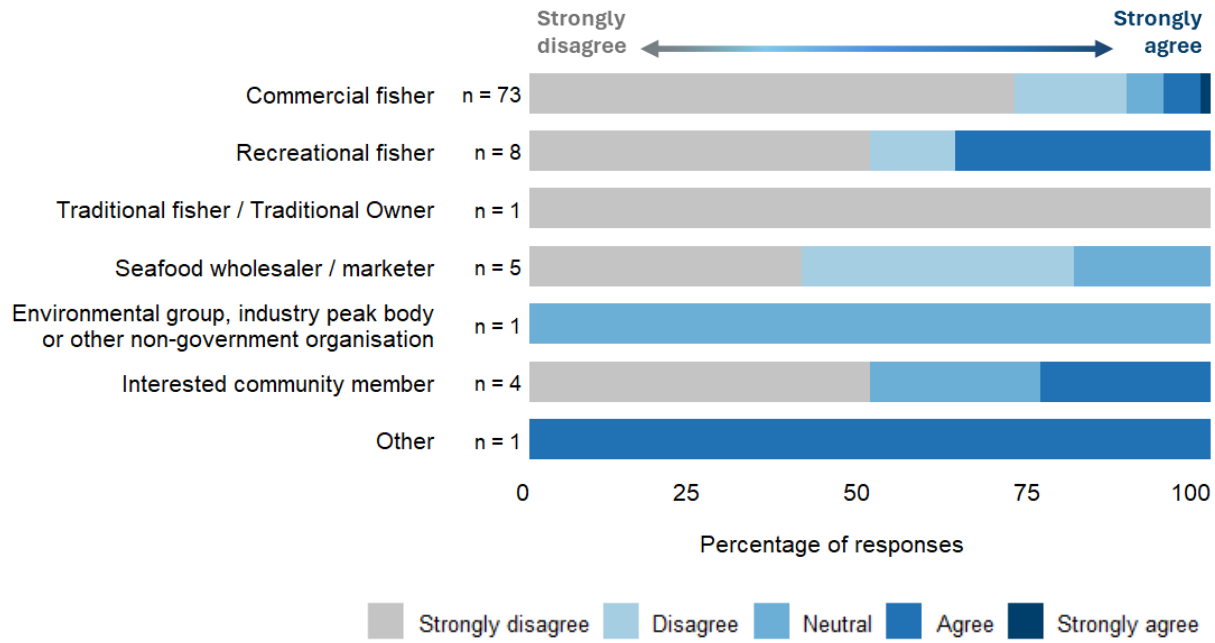
Question 15. Do you agree with the proposed responsibilities of government and licence holders to support delivery of an IOM program?

All survey respondents



Most respondents opposed the proposed responsibilities of Government and licence holders to support the delivery of an IOM program, with 68.4% strongly disagreeing and 16.5% disagreeing. Neutral responses received were 5.1%. A small group of respondents agreed (8.9%) or strongly agreed (1.3%) with the proposed responsbilities.

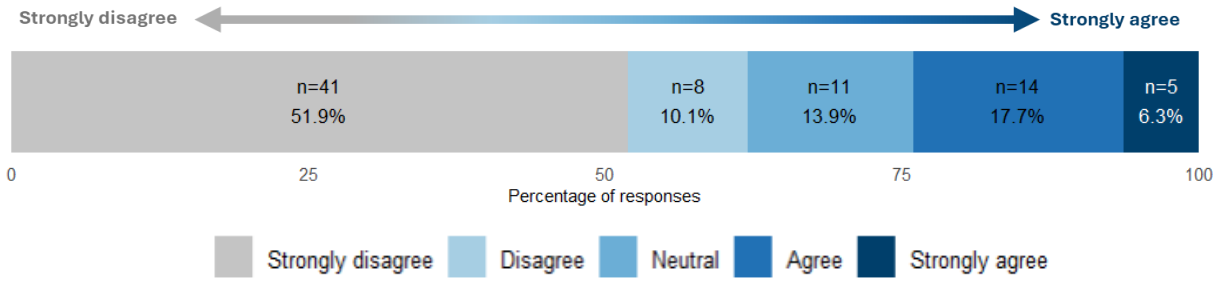
By stakeholder group



Responses to the proposed responsibilities of government and licence holders to support the delivery of an IOM program, varied across stakeholder groups. Among commercial fishers, the majority expressed strong disagreement. Recreational fishers were divided, with half strongly disagreeing, one expressing disagreement, and three expressing agreement. Notably, two of the four recreational fishers who disagreed also identified as commercial fishers. The respondent who identified as both a Traditional Owner/Traditional fisher and a commercial fisher strongly disagreed.

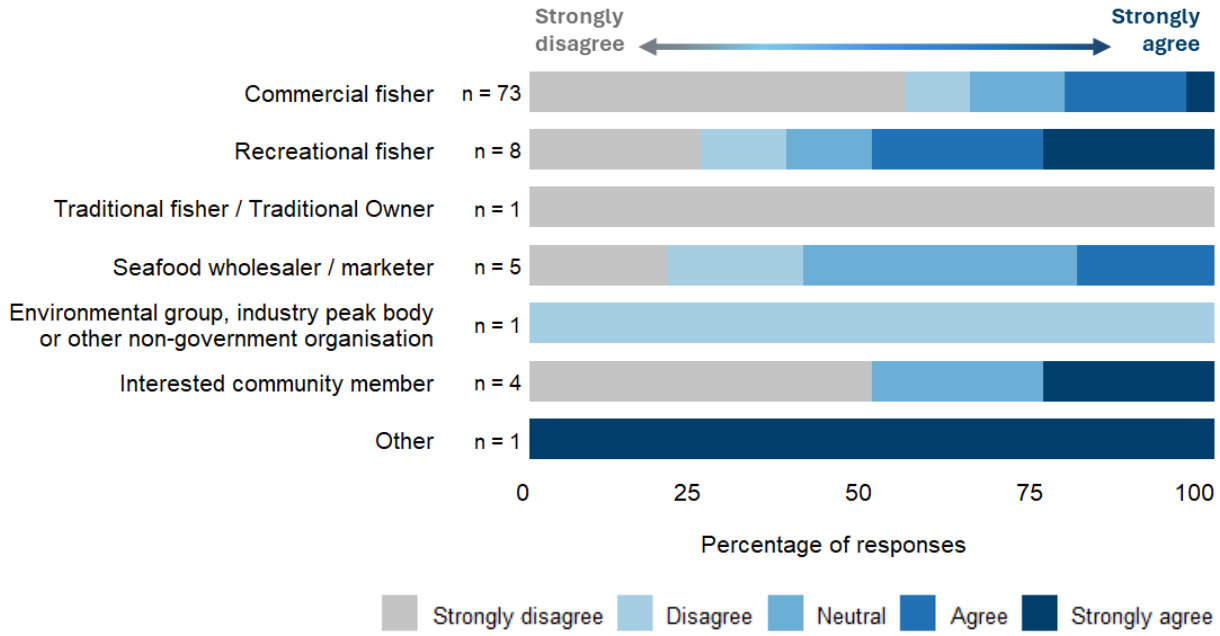
Question 16. Do you agree with the introduction of mandatory e-reporting via the Qld eFisher application?

All survey respondents



Responses to the proposed introduction of mandatory e-reporting via the Qld eFisher application showed mixed opinions. While a majority opposed the introduction (51.9% strongly disagreeing and 10.1% disagreeing), a notable proportion were neutral (13.9%) or supported e-reporting (17.7% agreeing and 6.3% strongly agreeing).

By stakeholder group

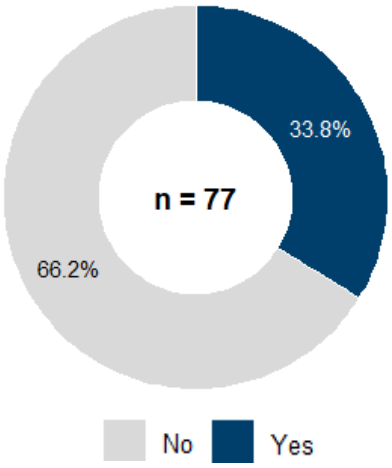


Responses to the introduction of mandatory e-reporting via the Qld eFisher application, varied across stakeholder groups. Among commercial fishers, the majority expressed disagreement. In contrast, the majority of recreational fishers supported the introduction of mandatory e-reporting or were neutral to the proposal. Both recreational fishers who strongly disagreed were also commercial fishers. The respondent who identified as both a Traditional Owner/Traditional fisher and a commercial fisher also strongly disagreed.

Question 17. Should any other responsibilities, program components or operational requirements be considered in the design, implementation or delivery of an IOM program?

All survey respondents

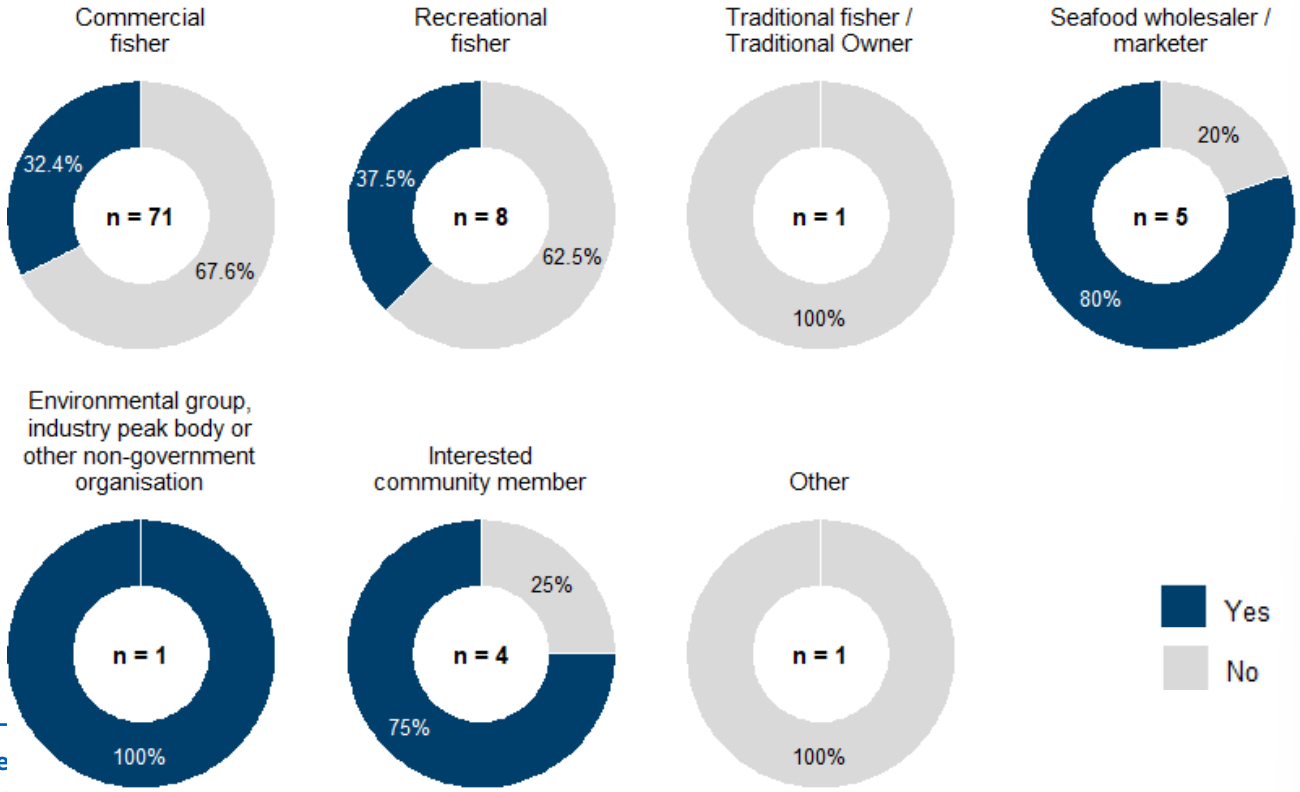
33.8% of respondents identified that there were other responsibilities, components and requirements that an IOM program should consider. These included:



- extra installation costs for vessels that require additional power for IOM systems
- compensation for damage to vessels and time lost due to malfunctions as well as no time restrictions on fishers for IOM system maintenance
- use of existing IOM systems on vessels if they sufficiently meet IOM program objectives
- consistent and reliable means of data transfer
- education on IOM systems for fishers
- improved eFisher application usability if electronic logbooks are mandated
- fishers owning their own footage and consideration of intellectual property rights.

By stakeholder group

Respondents from most stakeholder groups indicated that other responsibilities, program components or operational requirements should be considered for the delivery of an IOM program. Commercial fishers commented on how to improve systems to ensure fishers are fairly compensated, that their time and intellectual property is respected, and requested education of fishers around IOM systems. Recreational fishers commented on the ownership of footage and security of data.



General submissions

The table below summarises feedback from QSIA, AMCS/WWF and other industry stakeholders that related to the '*Objectives and design*' survey questions (Questions 13 – 17).

Feedback from QSIA

QSIA largely agreed with most objectives of the IOM program, however raised the importance that program scope remain focused on the validation of TEP species interactions. QSIA did not agree with the objective covering use of e-monitoring systems for compliance purposes. Their response recommended changes to draft objectives to account for industry ownership of data, referencing data deletion timeframes and also recommended a new objective be included that focused on supporting industry leadership and co-management of a future program.

QSIA emphasised the importance of ensuring efficiency in the review of camera footage and validation of data to minimise unnecessary burdens on fishers and reviewers, and the importance of aligning program objectives to meet international standards (i.e. MSC).

QSIA recommended a program should include a co-management framework, and raised concerns with privacy and trust should government manage key program components. They recommended that independent third parties should review footage for better transparency and limited potential bias.

While QSIA supported the proposal to mandate e-reporting, they noted that some existing issues with performance are ongoing and extensive support and training services should be provided to support industry transition. Their submission also suggested development of a desktop version of the e-fisher reporting application.

QSIA's submission also raised concerns with potential interruptions to planned fishing trips caused by equipment breakdowns or technical faults, advising that fishers should not be stopped from current or planned fishing operations in the event that malfunctions should occur.

Feedback from other commercial fishing stakeholders and groups

Some feedback raised concerns with the proposed objective suggesting program data would be used for compliance purposes.

Many fishers expressed frustration with the proposal for mandatory e-reporting citing technical difficulties and a lack of training. Some fishers highlighted the need for better training for skippers and crews to improve reporting accuracy instead of cameras. Fishers recommended providing comprehensive training and support packages for operators, including assistance with transitioning to e-reporting systems, and recognition of prior learning for experienced fishers to avoid unnecessary re-training.

Feedback from AMCS/WWF

AMCS/WWF supported the draft objectives but proposed several changes and additions. These included modifying conditions to include bycatch monitoring, adding an explicit condition to investigate and apply AI, and prioritising certain objectives over others, such as TEP species validation.

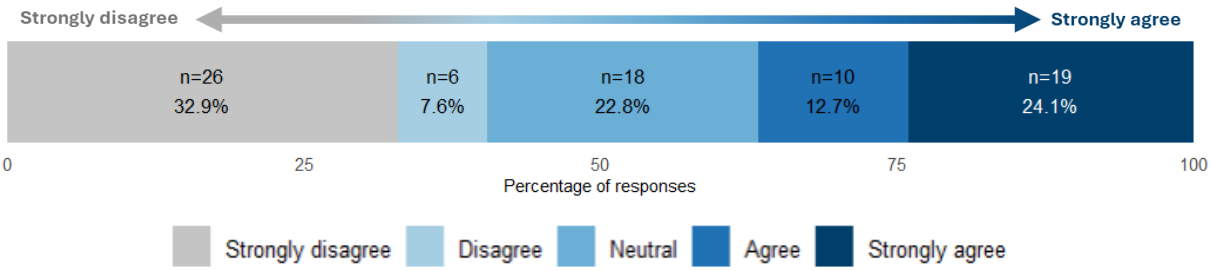
Their submission supported the roles and responsibilities of government and fishers as part of a future program, with a preference that footage be transferred electronically. Their submission also supported the use of camera footage for other compliance purposes and expressed support for mandatory electronic logbook reporting.

Funding and costs

Survey results

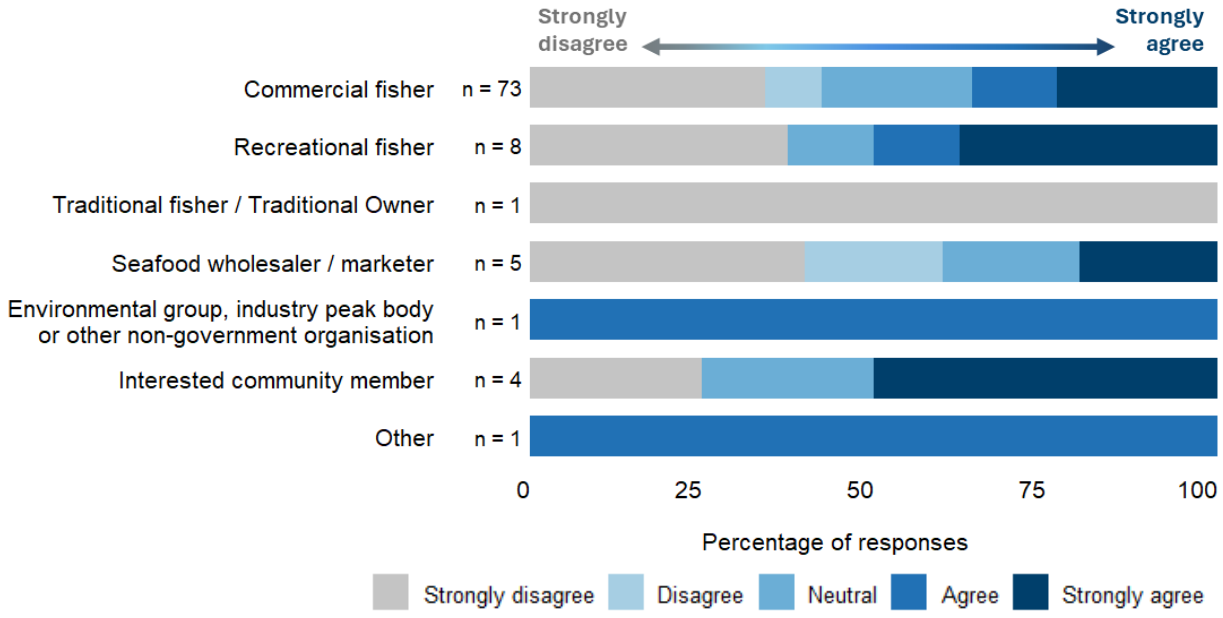
Question 18. Do you agree with government funding the establishment and ongoing management of an IOM program for the first 4 years?

All survey respondents



Responses to whether the government should fund the establishment and ongoing management of an IOM program for the first four years were more evenly spread compared to other questions. Approximately 40% either disagreed or strongly disagreed, 37% agreed to some extent, and nearly one quarter of respondents were neutral.

By stakeholder group

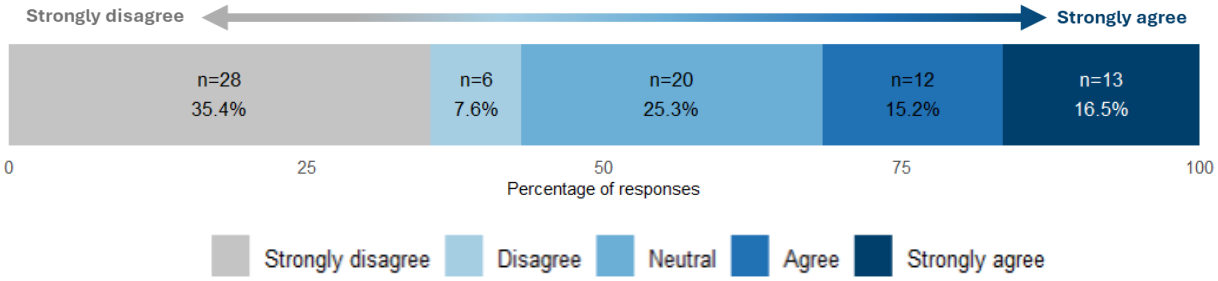


Responses to whether the government should fund the establishment and ongoing management of an IOM program for the first four years, varied across stakeholder groups. Among commercial fishers, recreational fishers, and seafood wholesalers/marketers opinions were mixed. Notably, both recreational fishers who strongly disagreed were also identified as commercial fishers. Similarly, the respondent who identified as both a Traditional Owner/Traditional fisher and a commercial fisher also strongly disagreed.

It remains unclear whether those who disagreed with this question opposed government funding specifically—suggesting funding should come from alternative sources—or if their disagreement reflects broader opposition to the program itself.

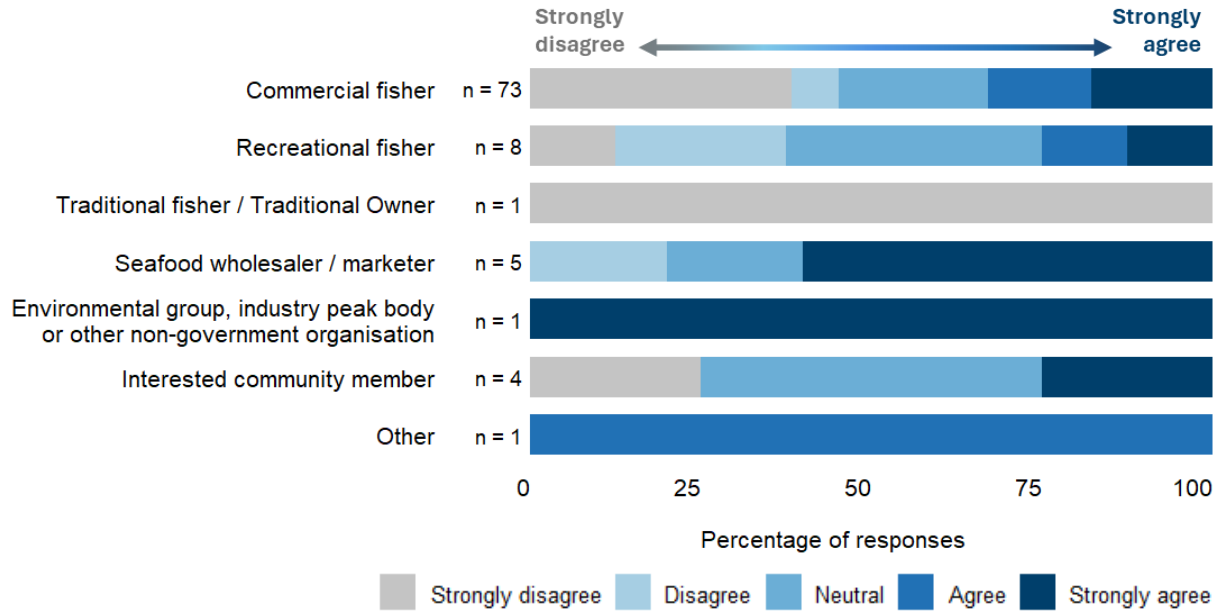
Question 19. Do you agree that a review of the IOM program should commence after 2 years of implementation?

All survey respondents



Opinions were divided on whether a review of the IOM program should commence after two years of implementation. While 43% expressed some level of disagreement, 31.7% agreed to some extent, and one quarter of respondents (25.3%) remained neutral.

By stakeholder group

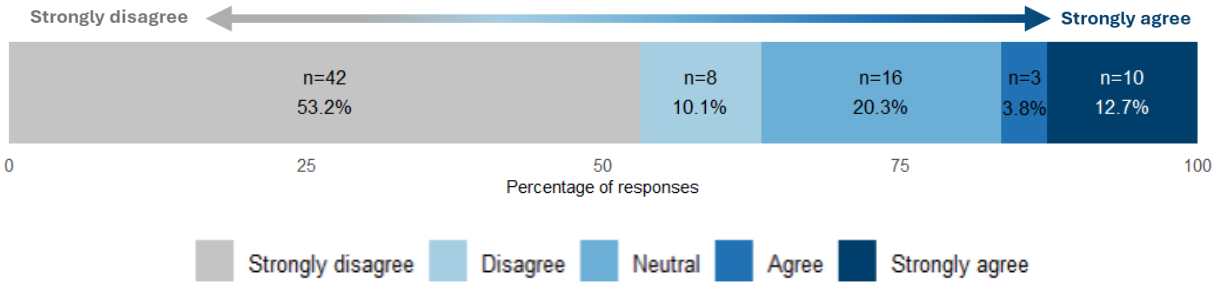


Responses on whether a review of the IOM program should commence after two years of implementation, varied across stakeholder groups. Among commercial fishers, recreational fishers, and seafood wholesalers/marketers there was a mixed response. Two of the three recreational fishers who expressed disagreement also identified as commercial fishers. The respondent who identified as both a Traditional Owner/Traditional fisher and a commercial fisher strongly disagreed.

Given that the majority of commercial fishers opposed earlier questions on the implementation of an IOM program, these responses may reflect general disagreement with the program rather than specific opposition to a review after two years.

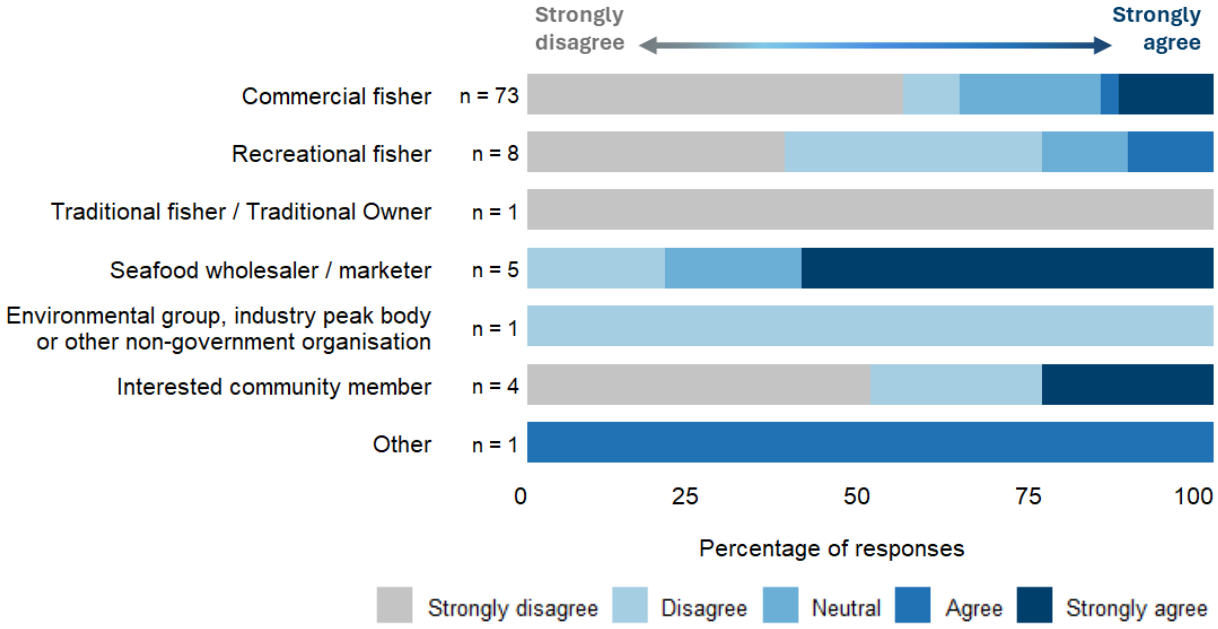
Question 20. Do you agree that the identified benefits and costs for the IOM program options cover all the factors that should be considered in making a decision?

All survey respondents



Most respondents disagreed with the identification of benefits and costs for the IOM program. Strong disagreement was the most common response (53.2%), followed by 10.1% who disagreed. Neutral responses made up 20.3%, while 12.7% strongly agreed and 3.8% agreed.

By stakeholder group



Responses on whether the identification of benefits and costs for the IOM program has been sufficient, varied across stakeholder groups. Most commercial and recreational fishers expressed disagreement, while the majority of seafood wholesalers/marketers in contrast strongly agreed. The respondent who identified as both a Traditional Owner/Traditional fisher and a commercial fisher strongly disagreed.

General submissions

The table below summarises feedback from QSIA, AMCS/WWF and other industry stakeholders that related to the '*Funding and costs*' survey questions (Questions 18 – 20).

Feedback from QSIA

QSIA's submission recommended that government should fund implementation and ongoing management of any IOM program, advising that recovering program costs from industry would force operators out of the industry.

Their submission supported a review after two years, providing recommendations to be considered including alignment of project outcomes with its objectives, meeting external needs, ongoing costs/affordability and long-term representative and risk-based coverage needs.

QSIA did not agree that the consultation-IAS presented accurate costs and benefits, suggesting benefits were overstated and costs were downplayed. QSIA raised concerns with estimated costs for key project components and identified areas where impacts were not accurately estimated or identified. Concerns were raised that the industry will be impacted greatly before the long-term benefits of IOM would be realised.

A key concern QSIA had with the cost benefit analysis was the assumption that implementing IOM would result in retained export approvals and access to the GBR, stating other external factors could influence these outcomes, not just the implementation of IOM. Several other issues were raised with the cost benefit analysis, some of which include hardware replacement timelines, future application of AI, feedback on the use of cashflows and discount rates, DPI management costs, hardware ownership and funding allocations across the fleet. QSIA also noted that the Net Economic Return (NER) method presented a disbenefit under all modelled scenarios.

Feedback from other commercial fishing stakeholders and groups

Submissions from commercial fishing stakeholders and groups highlighted sentiment that the proposed costs were seen as excessive, with many fishers citing concerns about inflation, limited service-providers, and the potential for costs to increase substantially. Some fishers noted that ongoing maintenance, internet costs, and wear and tear on vessels after the first four years would further strain their finances. Many recommended to maintain full government funding for the program until industry viability is proven and offer structural adjustment incentives to enable fishers to leave the industry and reduce costs for the program. Some stakeholders suggested developing a framework for industry co-investment in camera systems, supported by government subsidies or grants to help reduce upfront costs.

Submissions recommended to reassess the cost-benefit analysis of the program to ensure it is justified and proportionate to the actual risks to TEP species in the fishery. They also recommended to explore concessional loans, subsidies, or buyback schemes for operators unable to meet the financial burden and to partner with internet providers (e.g., Starlink) to reduce connectivity costs for electronic reporting and footage uploads.

Some submissions requested to include an industry steering committee in the program review process to evaluate the program's effectiveness and recommend adjustments.

Feedback from AMCS/WWF

AMCS/WWF supported the proposal for government to fund implementation of a program and undertake a review after two years. Their submission also included some feedback on future cost recovery options, suggesting industry be responsible for a portion of the ongoing program costs.

Their submission identified other benefits that were not covered in the consultation-IAS, including the advancements of scientific research and improved social licence that the data and information generated from an IOM program could provide. Their submission also raised concerns about the accuracy of the BDO information used to support the cost benefit analysis and calculation of NER.

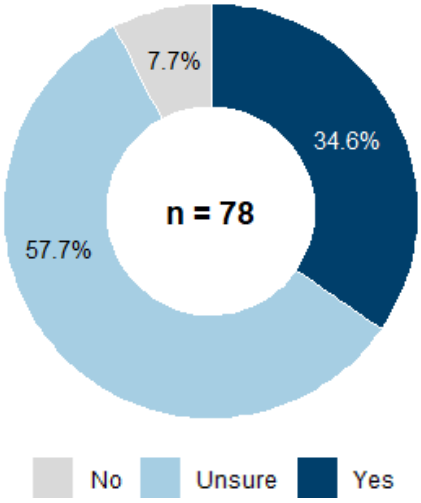
Options analysis

Survey results

Question 21. Are there any inaccuracies in the assessment of the options?

All survey respondents

34.6 % of respondents suggested there are inaccuracies in the assessment of options which included:

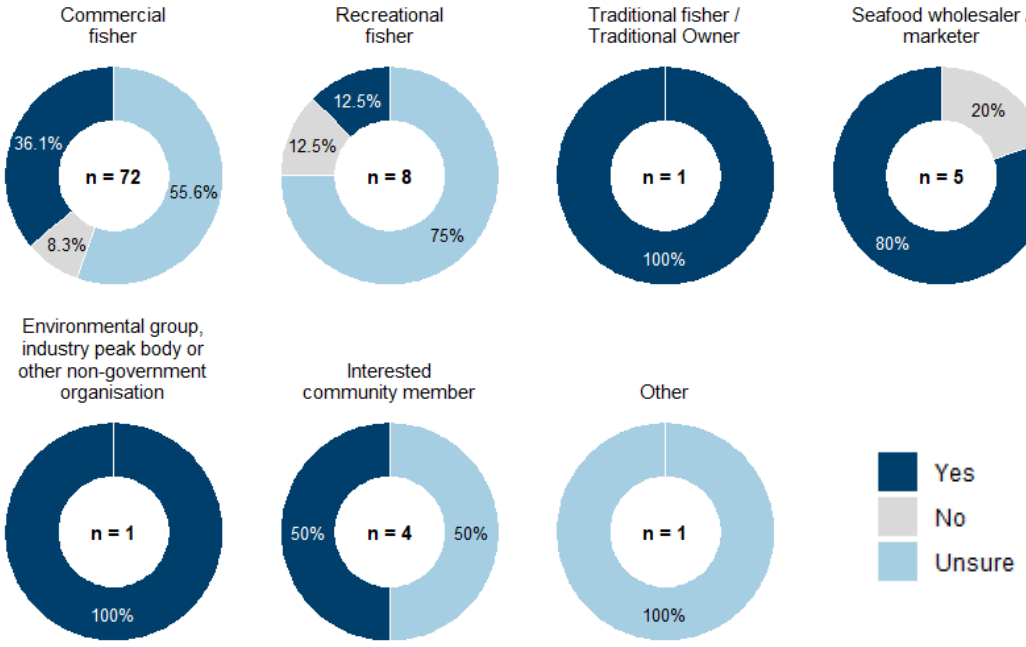


- the claim that logbook data currently does not adequately capture TEP species interactions is inaccurate
- both the impacts of trawling on TEP species and the trawl footprint are overestimated
- impacts on TEP species such as pollution and recreational fishing are underrepresented in program considerations
- the benefits of an optional buy out are not considered appropriately
- fishing days are not an accurate estimation of fishing, effort-fishing units would be more appropriate
- the effectiveness of the IOM program on boats without hopper and conveyor systems has not been adequately considered.

However, 57.7% of respondents are unsure if there are any inaccuracies, which may suggest a limited familiarity with the detailed content or technical aspects of the assessment, or uncertainty about the cost estimates and requirements.

By stakeholder group

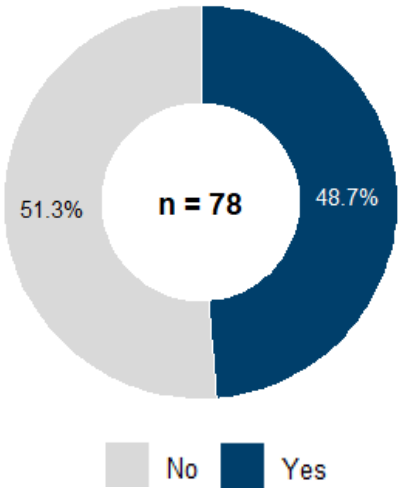
Respondents from most stakeholder groups indicated some inaccuracies in the assessment of options, with commercial fishers noting the majority of these concerns.



Question 22. Should any other factors be considered to evaluate the options?

All survey respondents

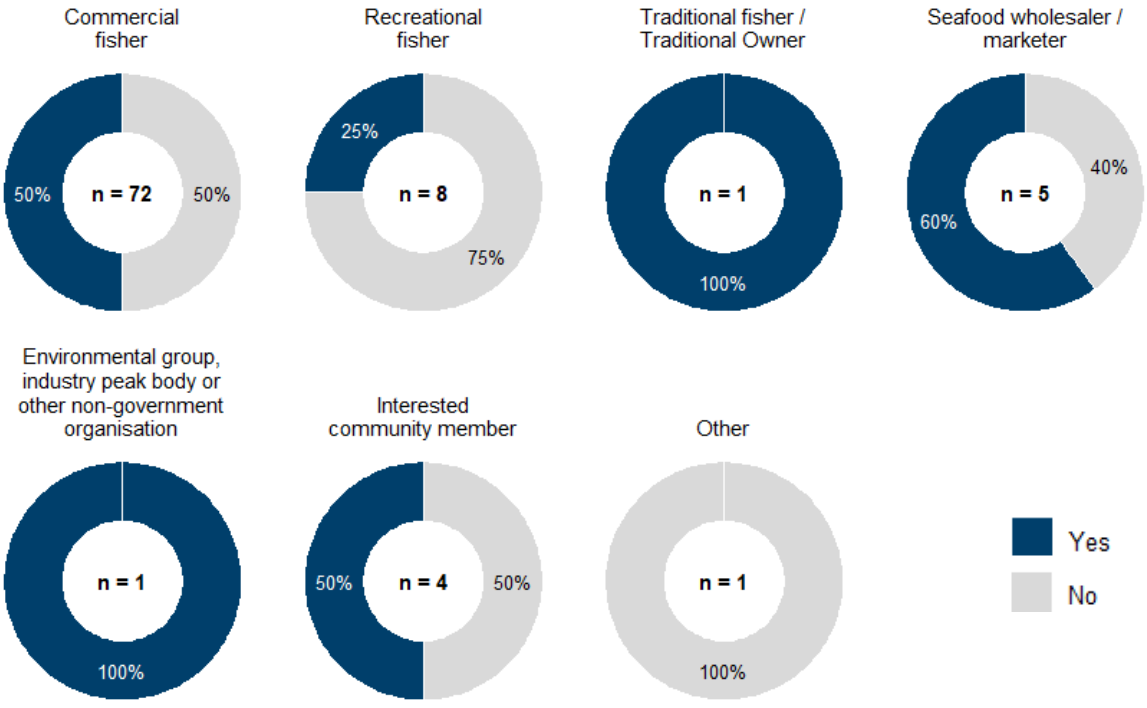
48.7 % of respondents believe that there are other factors that should be considered when evaluating the options. Suggestions included:



- financial costs to operators
- mental health costs to operators
- improved TEP species identification from IOM
- the support from industry for an optional buyout
- privacy of fishers and the security of data
- the inclusion of AI to improve program costs and resource requirements
- vessel size, fishing gear and fishing effort when prioritising implementation
- the program costs and responsibilities after the four-year implementation phase
- an alternative, industry-led IOM program, with fishers providing data reports to Fisheries Queensland
- the review rate of the IOM footage (e.g. more than 10% of footage reviewed)

By stakeholder group

Respondents from most stakeholder groups indicated that there are some inaccuraies in the assessment of options. The financial costs to fishers and concern for fisher privacy were common factors mentioned by most groups. One commercial fisher suggested that scenarios involving higher review rates, including up to 100% review, shoud be explored.



General submissions

The table below summarises feedback from QSIA, AMCS/WWF and other industry stakeholders that related to the '*Options analyis*' survey questions (Questions 21 – 22).

Feedback from QSIA
QSIA raised several inaccuracies with the consultation-IAS, some which include the use of 'high risk' language inconsistently and inaccurately, statements regarding non-compliance with TEDs and BRDs with no evidence, statements that improved TEP reporting is attributed to government not industry, and failure to present three viable options in the analysis.
Feedback from other commercial fishing stakeholders and groups
Some commercial fishers acknowledged underreporting of TEP species interactions in their submissions, attributing it to a fear of repercussions or a lack of training and awareness among skippers. However, other fishers claimed that reporting of TEP interactions to be accurate.
Feedback from AMCS/WWF
The AMCS and WWF submission raised issues that the IAS had not correctly estimated and presented other benefits of the program, including those associated with improved research and conservation outcomes for TEP species, as well as social benefits for industry.

Additional feedback

Survey results

Question 23. Do you have any other comments, questions or concerns about the proposed IOM program?

A total of 66 respondents commented in the additional feedback section of the survey.

Stakeholders provided a number of comments that did not support the proposal, including:

- Many respondents strongly opposed the program, citing concerns about constant monitoring, misuse or leaks of footage to external organisations, and the broader implications of surveillance.
- Significant concerns were expressed about the costs of installation, maintenance, and repairs of monitoring systems. Many feared the program would render their businesses unviable, forcing them out of the industry.
- Stakeholders expressed concerns about the long-term viability of their businesses, with some suggesting that the program could lead to further closures and restrictions.
- They highlighted that the industry is already heavily regulated, with declining numbers of fishers and increasing compliance costs. Many felt the program reflects mistrust in fishers.
- Respondents noted the stress on fishers, the loss of knowledge and expertise, and the declining cultural identity of the industry. Some noted the declining interest in the industry among younger generations due to over-regulation and high costs.
- Doubts were raised about the reliability of cameras, particularly for small vessels or in harsh conditions. Respondents noted concerns about system outages leading to penalties for fishers.
- Concerns were raised about the accuracy and usefulness of camera data, particularly for species identification and bycatch reporting.

- Frustration with past government decisions and fisheries management was evident, with calls for additional face-to-face meetings. Many viewed the program as politically motivated and unnecessary.

Some stakeholders provided constructive suggestions or expressed conditional support for the proposal, including:

- Proposals were made for industry-led monitoring programs, with funding and implementation tailored to individual vessels to reduce costs and improve ownership.
- Some suggested adopting a voluntary or risk-based rollout prioritising high-risk areas.
- Many respondents proposed a voluntary buyout for those unwilling or unable to comply with IOM due to financial strain.
- Many supported the use of onboard observers as a less invasive and more effective alternative to cameras.
- Calls were made for public reports on TEP species interactions to improve transparency and accountability.
- Suggestions included redirecting funding towards habitat restoration or other sustainability initiatives that benefit the broader ecosystem.
- Some recognised the potential for IOM data to contribute to research and better assess the sustainability and health of Queensland's fisheries, provided the data is anonymous and shared with researchers.

General submissions

The table below summarises other general or additional feedback from QSIA, AMCS/WWF and other industry stakeholders.

Feedback from QSIA
QSIA's submission highlighted the need to acknowledge, and consider, recent and historical reforms implemented across Queensland's trawl fisheries, most of which occurred at a significant personal and financial cost to industry. Consideration of the reduced risk to TEP and other species these changes have made also needed to be better explored (e.g. implementation of TEDs and BRDs, and extensive spatial and temporal closures). Other general concerns about the consultation-IAS process were received, including the document being too long, fishers feeling the consultation process was inadequate and pre-determined, including delivery and evaluation of field trials, and the mention of the NX fishery not being relevant to IOM in trawl fisheries. Their submission raised concerns about IOM impacting the retention of crew, with constant monitoring likely to also impact mental health and trust within the industry. They also highlighted skill shortages and practical constraints regarding the availability of personnel to install and maintain systems across the operating range of the fishery. Several privacy concerns were raised, including the release of footage to the public, with their submission recommending a data retention and privacy policy be created, along with other measures to reduce privacy including mandatory facial blurring. The need for clear and transparent management actions in response to protected species interactions was also raised as a key issue, with their submission recommending the development of a Threatened, Endangered and Protected Species management plan, developed jointly with industry before

implementation, to define acceptable interaction levels and provide guidance to industry on the actions and objectives of TEP species management.

Their submission also recommended the use of AI to not only support program reviews and reduce ongoing program costs, but also automated catch and effort reporting for operators.

They recommended changes to the objective of government action presented in the consultation-IAS, suggesting the proposed objective was too prescriptive and limited the viable options that could be considered, narrowing viable options to IOM only. They also recommended the establishment of a multi-stakeholder steering committee to oversee technical parts of the program and program delivery, with industry members applying through an expression of interest (EOI) and receiving a seating fee.

QSIA recommended a review of the Fisheries Data Validation Plan be undertaken to ensure its effectiveness and alignment with IOM program objectives. They also highlighted the need for a voluntary structural adjustment program for operators unable or unwilling to continue under a future IOM framework.

A range of other considerations and recommendations were provided, some of which included, the need to develop a 25-year industry plan to provide certainty and encourage investment in fleet modernisation and sustainability, fleet replacement, recruitment and retention, access to concessional loans and tax concessions, disaster funding, shore based infrastructure considerations, workforce recruitment and retention, mental health and wellbeing, and structural adjustment.

Feedback from other commercial fishing stakeholders and groups

Commercial fishing stakeholders raised broad concerns that past fisheries reforms have increased costs, reduced fishing rights, and lowered the value of businesses, vessels, and licences. Many fishers cited a need for a cultural shift towards more transparent reporting but acknowledged mistrust of government from experiences.

Feedback received a common sentiment that the decision to implement IOM was predetermined and that consultation had been inadequate. Some fishers noted that while many are reluctant to engage in discussions, they still want their voices heard to help secure the future of the industry. Fishers emphasised the importance of transparency and meaningful consultation, and recommend future consultation processes be transparent, inclusive, and allow sufficient time for industry input. Many submissions included requests for regular updates and more opportunities for feedback.

Some commercial fishing stakeholders noted that industry-led management models, such as the Spencer Gulf fishery, could serve as a template for better governance and decision-making. Many recommended establishing a steering committee or working group with equal representation from fishers, government, and independent experts to oversee the rollout and ongoing management of an IOM program.

Ownership of cameras and footage was raised as a concern, with fishers requesting the ability to own their cameras and access their footage for purposes such as third-party accreditation (e.g., MSC or Fishery Improvement Project (FIPs)). Some fishers suggested the possibility of fishers purchasing their own pre-approved camera systems (similar to vessel tracking) to allow fishers to have control over their equipment and potentially reduce costs. One fisher suggested other agencies (i.e. AFMA) should be allowed to use camera footage when operating in Commonwealth fisheries to contribute to observer coverage for those fisheries.

Some fishers believe a loss of WTO accreditation will disproportionately impact operators in the WHA, particularly those in the Northern and Central fishery regions, where tiger prawn markets are linked to export prices.

There were widespread and strong concerns from commercial fishing stakeholders around privacy, with fishers noting many operators live onboard their vessels and some have minors onboard, noting fears that footage could be accessed by external groups, used against fishers, or the potential for misuse.

Some fishers cited a lack of trust in government to manage sensitive footage securely and raised concerns about cybersecurity and how footage will be policed. Recommendations from stakeholders included implementing strict legislative timeframes for footage retention and disposal (e.g., 12 months after receipt or 1 month after review, with third-party audit footage held for a maximum of 3 months) and developing robust data security protocols to prevent leaks.

There were strong concerns from commercial fishers that mandatory implementation of cameras will worsen workforce shortages, with skippers, crew, and owners threatening to leave the industry and privacy concerns potentially deterring new recruits. To address these issues, recommendations received included developing recruitment and retention programs, and addressing mental health and wellbeing concerns by reducing unnecessary surveillance and ensuring transparency. Whilst there was some support for additional training requirements (i.e. the Master fisherman's training program), one fisher suggested recognising prior learning and a history of good compliance as an alternative for experienced fishers.

A common recommendation received in submissions from commercial fishing stakeholders was to offer voluntary exit pathways for operators unwilling to adopt cameras.

Feedback from AMCS/WWF

The AMCS/WWF submission included several other recommendations. A key recommendation related to the proportion of camera footage that would be reviewed, with the submission recommending a minimum of 20% of all camera footage be reviewed. The submission also included the recommendation to review all TEP species interactions that are reported. The submission explained that higher review rates are required to capture rare encounters and that other programs deliver higher rates than the 10% proposed in the consultation-IAS.

Their submission also recommended that all TEP interaction data be made publicly available on either a monthly or quarterly basis with no delays, and that fisher validation outcomes are reviewed and published each year.

Online campaign submission – QSIA

The QSIA launched an online campaign allowing members and supporters to send a pre-written email to Fisheries Queensland, with the option to customise the text before sending. The standard pre-written was as follows:

Subject: Response to impact Assessment statement – Independent Onboard Monitoring in the Queensland Trawl Fishery

Fisheries Queensland – Consultation Team,

Thank you for the opportunity to provide feedback on the proposed implementation of independent onboard monitoring in the Queensland Trawl Fishery. As a Queensland resident with a deep appreciation for both our marine biodiversity and the hardworking communities that rely on sustainable fishing, I wish to offer a perspective that supports a balanced and evidence-based approach.

While I understand the concerns raised about potential bycatch of threatened species, I believe the current proposal risks overstating the problem and underestimating the professionalism and stewardship already demonstrated by Queensland's commercial fishers. These individuals operate under strict reporting requirements and have actively participated in sustainability initiatives, including training programs and other fishery improvement projects.

The suggestion that interactions with threatened species are routinely under-reported lacks substantiated evidence and unfairly casts doubt on the integrity of fishers. Rather than imposing blanket surveillance measures, I believe we should focus on collaborative solutions that build trust and improve outcomes without unnecessary burden.

- I do not support the proposal to install electronic monitoring cameras on all active trawl vessels, nor any recommendation to increase footage review to an arbitrary level. These measures are costly, intrusive, and risk diverting resources from more targeted, effective strategies. Instead, I recommend:
- A risk-based and voluntary rollout of onboard monitoring, prioritizing areas or vessels where data gaps genuinely exist.
- Maintaining a practical and cost-effective review rate, informed by scientific evidence rather than arbitrary targets.
- Investing in fisher-led reporting improvements and training, which foster accountability and build capacity within the industry.
- Ensuring transparency and consultation throughout the process, with clear protections for privacy and operational integrity.

Queensland's seafood industry is a vital part of our economy and cultural identity. Any monitoring initiative should reflect a genuine partnership between government, industry, and the public—one that respects the expertise of fishers and focuses on practical, achievable outcomes. Thank you for considering this perspective as part of your consultation process.

Sincerely,

[First and last name]

Online campaign submission – AMCS

The AMCS launched an online campaign allowing supporters to send a pre-written email to Fisheries Queensland, with the option to customise the text before sending. The standard pre-written was as follows:

Subject: Active trawlers need cameras on boats

Dear Fisheries Managers and Data Validation Team,

I'm contacting you as an Australian who is concerned about threatened species bycatch in the Queensland Trawl Fishery. I welcome the Queensland Government's consideration of deploying cameras on boats and appreciate the opportunity to provide feedback to the consultation and impact analysis.

Queensland and the Great Barrier Reef is a hotspot for threatened species biodiversity. However, iconic species such as sea snakes, sawfish, and our unique small sharks and rays are easily caught in the Queensland Trawl Fishery, where they can be injured or killed by the weight of the catch.

Despite the requirement for fishers to report these interactions, unfortunately, many of these remain under-reported and underestimated. We need an accurate picture of what is being caught, so that we can ensure the recovery of our threatened and protected species.

I strongly support the proposal to implement electronic monitoring cameras on trawl vessels and the objective to accurately identify and determine threatened and protected species bycatch. The proposed government funding to deliver the program is essential and I support a risk based staged implementation.

However, the proposal to implement electronic monitoring cameras on trawl vessels should be strengthened by delivering the following:

- Implementing cameras on all active trawl vessels.
- Deploying more resources to deliver the program over a shorter timeframe. I recommend staged implementation over 2.5 years, complete by December 2028, commencing with the most active vessels.
- Increasing the proportion of footage review to 20% to more accurately determine the numbers of rarely caught threatened species.
- Investment in AI technology to accurately identify species from camera footage, allowing 100% of the footage to be reviewed and cutting the costs associated with footage review.

Thank you,

[First and last name, postcode]

Appendix 3: Case studies from other jurisdictions

Australian Fisheries Management Authority

The Australian Fisheries Management Authority (AFMA) has conducted e-monitoring trials in 6 different large-boat fisheries, including the Commonwealth trawl sector – one of the 4 sectors in the southern and eastern scalefish and shark fishery (67) and northern prawn fishery (68). Systems from 4 different manufacturers were tested in each fishery.

These trials aimed to assess the effectiveness of e-monitoring systems to gather necessary fisheries management data, including detection of fishing activities, identification of catch composition and monitoring interactions with protected species. The project successfully equipped vessels with e-monitoring systems, collected and analysed video footage and sensor data, and evaluated findings to guide further implementation.

AFMA found that e-monitoring could effectively detect fishing activities and observe larger protected species interactions, as well as verify mitigation device use and handling practices. Installation and maintenance practices, such as proper lighting and camera positioning over processing areas, were essential to the quality and reliability of footage.

Crew-based catch-handling practices and adherence to e-monitoring upkeep were also identified as critical for maximising data quality. For smaller species and detailed catch composition, e-monitoring alone proved insufficient. AFMA's trials emphasised that, with adjustments to camera settings and crew handling protocols, e-monitoring could be a valuable, complementary tool in sustainable fisheries management.

E-monitoring systems are now compulsory for most commercial fishing boats that export catch in the eastern and western tuna and billfish fisheries, the gillnet, hook and trap fishery, and the midwater trawl sector of the small pelagic fishery (36).

These fisheries have also been assessed and are approved WTOs under part 13 (protected species) and part 13A (export) provisions of the EPBC Act. Other fisheries still have human observers; however, they are more costly and limit the representative coverage needed in these fisheries.

Watch the AFMA video on e-monitoring.

Fisheries New Zealand

In 2019, Fisheries New Zealand began a major initiative to implement onboard cameras across priority fisheries, with the aim of outfitting up to 300 commercial vessels to monitor up to 85% of the inshore fishery's total catch volume.

This government-supported investment aimed to strengthen New Zealand's sustainable fisheries management, increase regulatory compliance and ensure the accurate verification of interactions with protected species. Initially launched as a proof-of-concept in critical Māui dolphin habitats (69), this successful trial laid the groundwork for a wider rollout in 2023. New Zealand's program reflects consumer and regulatory expectations for responsible sourcing of seafood and environmental stewardship.

New Zealand's onboard camera program objective is to provide independent, accurate data on commercial fishing impacts, focusing specifically on protected species interactions, compliance with landing and discard regulations, and the use of mitigation measures. Cameras target essential areas on board, such as setting, hauling, sorting, processing and discarding areas, enabling precise monitoring of high-risk activities.

The program was carefully tailored, prioritising fisheries posing the greatest risk to protected species, including trawl vessels under 32 m and surface and bottom longlines, with additional restrictions in areas critical to dolphin and penguin populations.

Since implementation, the program has shown promising results, including improved accuracy in protected species reporting and enhanced compliance (70). Notably, 98% of observed protected species capture events have been reported by fishers, aligning well with New Zealand's bycatch estimates (69). Additional measures (such as feedback to fishers on reporting and handling practices) have supported positive behavioural changes within the industry, with low referral rates for compliance issues.

Innovations introduced by Spark (a New Zealand telecommunications company working with Fisheries New Zealand), such as sensors and AI-driven fishing activity recognition, have further optimised the system by reducing the recording of non-essential footage and enhancing data relevance.

New Zealand's program has strengthened the nation's commitment to sustainable fishing, contributing valuable insights into the management of at-risk species and ensuring seafood sourcing practices meet global environmental expectations.

Read more about the New Zealand program.

Appendix 4: Cost-benefit analysis of Option 2

Economic objectives

Economic analysis of the IOM program estimates the associated costs and benefits of the IOM program based on 90% effort coverage on ECOTF boats, and one active CFFTF boat (165 licences).

Currently, the government has committed to funding the first 6 years of the program (the establishment stage) as e-monitoring systems are rolled out. A 10-year IOM program was modelled. Regular reviews will be conducted as data becomes available.

Financial affordability of the modelled scenario for the ECOTF was analysed to determine the potential impacts of the IOM program. Further financial impact analysis after the 6 years of establishment was assumed to be at full cost recovery (across all 364 licence holders) as a benchmark to determine the potential cost to industry if it were to continue (ongoing stage, years 7–10), understanding that no determination has been made about how the ongoing stage will be paid for. Profitability measures captured from a BDO report[1] on the financial performance of the trawl fishery was used to gauge the potential impact of IOM at an individual business level for this portion of the work (indexed to 2025).

Detailed economic assessment of IOM scenarios supports decision-making regarding an appropriate and cost-effective design and implementation of a broad-scale IOM program across high-risk fisheries, ECOTF and CFFTF in this instance, commencing in 2026.

Key assumptions and scenarios

Table A4. 1 outlines the baseline scenario for implementation of IOM to capture 90% of trawl effort in the ECOTF and the one active CFFTF (100%). The analysis assumes that the Queensland Government will fund the first 6 years of the program.

Table A4. 1: ECOTF and CFFTF effort scenario and baseline modelled in analysis for T1, T2, T4, M1 and M2

Scenario	Outcome
Option 1 – Maintain status quo (baseline) Do not proceed with the IOM program in Queensland	Vessels in the trawl fleet that access the GBRMP lose access to the GVP associated with fishing the marine park and loss of exports for the ECOTF and CFFTF that are external to the GBRMP due to a revocation of export licences
Option 2 Implement an IOM program consisting of e-monitoring systems across the ECOTF and CFFTF	E-monitoring is installed to capture 100% of CFFTF and 90% of ECOTF fishing effort (days fished)

The analysis of Option 2 uses an underlying assumption that **10% of total camera footage is reviewed** and that **fishery observers are excluded** at this point in the investigation. For the trawl analysis, only vessels holding T1, T2, T4, M1 and M2 symbols are considered.

[1] Commercial Fisheries Economic and Social Indicators 2021-22

Methods

Development of the economic model

Economic modelling of the IOM program for the ECOTF and CFFTF in Queensland was developed using cost-benefit analysis methodology incorporating a discounted cash flow framework over a 10-year period (2026–2035). In this case, the approach estimates the cost of the investment in IOM (using 2025 prices) over 10 years to identify whether the identified impact to the fishery outweighs the benefits of undertaking the investment.

The economic modelling calculates the present value (PV) of the future stream of costs and benefits using the compound interest method. The rate used to calculate the PV is the discount rate. The difference between costs and benefits generates a net benefit that is the standard method of comparing costs and benefits that occur at different times (over 10 years in this instance) and assumes that a dollar today is worth more than a dollar tomorrow.

This approach reduces a future stream of costs or benefits to an equivalent amount in a specific price year. This is the year the dollar units all represent the same purchasing power. It is the same as the base year, which is the year for which the evaluation is conducted. For the purpose of the modelling exercise, the discount rate was set at 7%[2] as set out in the Queensland Government cost-benefit analysis guidelines. Sensitivity analysis using 4% and 10% was also carried out in accordance with the guidelines.

From this baseline, a model was developed to test the scenario. Underlying data was obtained from Fisheries Queensland, including catch and effort for all active trawl vessels. Analysis was carried out to confirm that 2023 was an appropriate year to use as indicative of future fishing catch and effort. The data showed that there was a total of 364 licences that held at least a T1, T2, T4, M1 or M2 symbol. Of these total licences, 243 ECOTF vessels had commercial logbook entries showing catches in 2023 and were therefore considered active in recent years. Only one CFFTF vessel is currently active.

Table A4. 2 below shows the interrelatedness of the number of boats actively fishing (sorted from most active to least) and the percentage of effort they account for in days. For example, 13% of vessels account for 25% of the fishing effort.

Table A4. 2: The proportion of boats that account for effort days across the fishery, and the commensurate percentage of active vessels associated with the effort

Effort coverage (days fished)	ECOTF and CFFTF vessels
25%	13%
80%	53%
90% (option 2)	68%
100%	100%

[2] Queensland Government's Cost Benefit Analysis Guide – Business Case Development Framework (Page 12)

Maintain status quo scenario

As part of the cost-benefit analysis, consideration is given to a scenario in which the status quo is maintained (do nothing). In this case the scenario is based on the decision to not proceed with the IOM program, in which case vessels in the trawl fleet that access the GBRMP would lose access to the GVP associated with fishing the marine park and the loss of exports for the ECOTF and CFFTF that are external to the GBRMP due to a revocation of export licences for the Queensland trawl fleet. A further consideration is that vessels with history of fishing in the GBRMP would potentially move to fish areas external to the GBRMP (placing additional pressure on current stocks as fishing effort increases) or exit the industry due to increased competition for public resources.

Approximately 44% of the total ECOTF and CFFTF catch is accessed within the GBRMP boundaries. It is valued at $56.29 million, plus an estimated $4 million for exports external to the GBRMP (apportioned midpoint from total exports). Note that the CFFTF licence holder does not fish in the Great Barrier Reef; however, they do export their product. Due to privacy concerns, there is no data on the amount of export from the CFFTF fishery.

Benefit analysis

There are 2 approaches to value the benefit component of the cost-benefit analysis. They are Net Economic Return (NER) and Gross Value of Production (GVP). While there are arguments for the use of either, it is the preference of Queensland Treasury to apply NER when estimating the benefits for the implementation of the IOM program, as it accounts for the costs of operating the fishery and its management. NER provides insight into the performance of the fishery, given that it extracts private benefit from a public resource.

NER examines the performance of a whole fishery, in this case the ECOTF and CFFTF. It represents the long-run profit from a fishery (GVP less total fishery costs), including labour and consideration of unpaid labour by family members and owners, materials and services, fishery management costs, depreciation and the opportunity cost of capital (which is set at 10%). For the purpose of this study, NER has been adjusted to exclude the management cost component, as it will be included as part of the IOM program (**Table A4. 3**).

Table A4. 3: Adjusted NER for the GBRMP portion of the Queensland ECOTF (based on BDO reports 2021–22, indexed to 2025)

NER components	Million ($)
GVP	$56.29
Labour	$18.45
Materials and services	$25.95
Depreciation	$5.80
Opportunity cost of capital	$5.45
NER (Great Barrier Reef only)	$0.63

The alternative option is to use GVP (including exports) for the ECOTF and CFFTF. In Queensland, the portion relating to catch taken within the GBRMP plus the value of estimated value of exports outside the GBRMP is $56.29 million. The premise for using this benefit is that the rollout of the IOM program (to the satisfaction of stakeholders) would maintain access to the GBRMP for fishing purposes and avoid cancellation of export rights Queensland-wide, thus allowing the ECOTF and CFFTF to continue to access that value and continue to export product.

Introduction of e-reporting

An additional companion benefit to both benefit measures above is the introduction of e-reporting across the entire ECOTF and CFFTF. Currently, the majority of fishers continue to use paper-based logbooks, which is considered to be an inefficient method of collecting catch data as it must be entered electronically by government. As part of the IOM program, e-reporting will become the only method of collecting catch data. This change is expected to provide an additional benefit of $141,223 per year and will be included as part of the cost-benefit analysis.

Cost components of the economic modelling

The cost components of the economic modelling include the categories of hardware, data storage, footage review, and management (government). As part of the modelling, it was deemed appropriate to split the categories of hardware, data storage and management into 2 stages – establishment and ongoing. Over the 10-year horizon of the cost-benefit analysis, the establishment stage will occur for the first 6 years of the program and have an adoption (or uptake) profile applied so that costs would accrue according to the profile as the number of vessels participating in the IOM program increases during rollout. **Table A4. 4** outlines the proposed adoption curve for the establishment stage.

Table A4. 4: Proposed adoption profile for the establishment stage of the IOM program

Year	Coverage per year	No. of active vessels	Cumulative coverage (% & no. of vessels with onboard cameras)
2026	15%	25	15% – 25
2027	16%	26	31% – 51
2028	16%	26	47% – 77
2029	17%	28	64% – 105
2030	18%	30	82% – 135
2031	18%	30	100% – 165

The remaining years from 2032 to 2035 were considered as the ongoing stage of the program.

Camera hardware and related costs

The modelling considered the initial installation of cameras and associated hardware on vessels, as well as ongoing repairs and maintenance costs, camera replacements if required, software licensing, data connectivity and any additional hardware such as hard drives for storage of video capture. Under option 2 (90% active vessels) the government has committed to fully funding the establishment stage of the IOM program over 6 years. For the purpose of this analysis, all other associated costs were assumed to be covered by industry in the ongoing stage (years 7–10). However, it is yet to be determined who will pay for the ongoing costs.

Based on the operating environment, it was assumed that camera units would require replacement every 4 years beyond establishment. The unit replacement cost would be lower given that some items (e.g. the camera bracket) could be retained and used again. Replacement cost was deemed to be 80% of the initial unit cost (incl. GST). Replacement unit installation cost was assumed to be only one-fifth of the original installation cost ($5,000), as some of the wiring, conduits and fixtures would already be in place and would

require no labour or part charges. Government employee time taken for initial troubleshooting of camera installations during the establishment stage were assumed to $5,000 per vessel, followed by $2,400 per vessel once installed ($100 per hour at 24 hours per vessel per year). Annual data connectivity is set at $49 per month.

Table A4. 5 outlines the summary of costs related to the installation of cameras on boats and costs associated with the establishment of the IOM program in the first 6 years (2026–2031).

Table A4. 5: Initial costs associated with establishment of IOM in first 6 years (adoption profile applied where appropriate)

Cost component	Cost (incl. GST)	Occurrence
Initial camera unit (per vessel)	$13,200	All 6 years
Cost of installation (per vessel)	$5,000	All 6 years
Cost of coordination & reporting of installation (per vessel)	$2,000	All 6 years
Troubleshooting installation (per vessel)	$5,000	All 6 years
Troubleshooting post installation (per vessel)	$2,400	All 6 years
Server establishment - cloud storage	$50,000	Year 1 only
Server establishment - SFTP	$50,000	Year 1 only
Server maintenance	$50,000	Years 2–6
Annual fee (software licensing / subscription)	$11,000	All 6 years
Machine user licence	$10,000	All 6 years
Data connectivity / transfer (per vessel)	$588	All 6 years
Hard drive (per vessel)	$500	All 6 years
Firmware licence (per vessel)	$1,000	All 6 years
Replacement camera(s) (per vessel)	$10,560	Every 4 years
Replacement camera installation (per vessel)	$1,000	Every 4 years

Table A4. 6 outlines the summary of ongoing costs related to the IOM program in the remaining 4 years (2032 to 2035).

Table A4. 6: Costs associated with ongoing operations of the IOM program (remaining 4 years in the 10-year forecast)

Cost component	Cost (incl. GST)	Occurrence
Replacement camera(s) (per vessel)	$10,560	Every 4 years
Replacement camera installation (per vessel)	$1,000	Every 4 years
Annual Fee (software licensing / subscription)	$11,000	All 4 years
Machine user license (per vessel)	$10,000	All 4 years
Troubleshooting (per vessel)	$2,400	All 4 years
Data connectivity / transfer (per vessel)	$588	All 4 years
Firmware license (per vessel)	$1,000	All 4 years
Server maintenance - cloud storage and SFTP	$50,000	All 4 years
SFTP operation	$3,000	All 4 years

Data storage

The analysis assumed all footage would be retained for 7 years. this was used as an absolute maximum estimate, noting that it is not proposed to retain program footage for longer than 90 days, unless otherwise require. All footage would be retained in 'hot storage' for one year and then 5% would be transferred to cheaper 'cold storage' for an additional 6 years, after which time it could be deleted. Given most data can be deleted within 90 days (71) this is an absolute maximum cost.

Hot storage costs

Using the Azure online calculator[3], it was determined that the monthly cost of 1,000 GB of data in hot storage is $32.36 or $388 per year. As an example, if all trawlers were to have cameras installed, there would be 27,914 days of fishing footage equating to 837,420 GB of data (30 GB per fishing day). If each 1,000 GB of data costs $388.32 to store per year, the annual cost for hot storage is $325,187. This is only for a new year of data. Following the initial year of hot storage, 5% of the footage is moved into cold storage in the second year up to the to the seventh year after recording, at which time the footage may be deleted in accordance with the retention and disposal schedule.

Cold storage costs

Using the same calculator, it was determined that the monthly cost of 1,000 GB of data in cold storage is $12.29 per month (with no retrieval). The additional 'retrieval of cold storage' cost is $45.91 per month per 1,000 GB.

In this model it is assumed that government would only retrieve 5% of footage in any one year from cold storage, which brings the retrieval cost to $0.23 / month / 1,000 GB. The cold storage plus retrieval cost comes to a total of $12.52 / month / 1,000 GB. This equates to $150.23 per year for cold storage and retrieval per 1,000 GB. Footage is moved into cold storage from the second year of the program and then accumulates as more and more cold storage is required over time. After the seventh year of the program (end of 2032), the first year of footage can be deleted, in 2033 the second year of data can be deleted and so on.

Footage review

The footage review cost applied in the model was $140 per hour and included the following services:

- Review of onboard camera equipment data - includes recording fishing events and TEP interactions
- Data analysis and validation of footage derived data against logbooks, includes report generation and provision
- Project management - includes development of data protocols and monthly report and provision of derived data
- Hard drive handling and data processing administration, and
- Stakeholder engagement - includes attending meetings and working with DPI and the Customer.

For the ECOTF and CFFTF, the benchmark is set at minimum 10% of trip nights to be reviewed, plus one additional night. For example, if a trip is 10 days in length, the total review will span 2 days fished (10% x 10 days fished + 1). Within each day fished a number of 'shots' will be conducted by each trawl fishing vessel (one shot = trawl net down to trawl net up). For each shot conducted during a fishing day, there will be

[3] Microsoft Azure Pricing Calculator

15 minutes of review time allocated to identification of TEP species. These parameters will generate a total review time. **Table A4. 7** provides a summary of the review parameters.

Table A4. 7: Footage review parameters for the IOM program

Review parameters	Unit
Footage review time (% of fishing trip nights + 1)	10%
Shot review time for TEP	15 minutes per shot
Report of validation process per vessel	6 hours per year
E-transfer of footage from each vessel	6 hours per year
Project management	12 hours per year

For footage review, the default cost was set at $140 per hour, as the reviewer agreement identified a mix of costs per hour for review ($131) and analysis ($148) that composed the footage review definition.

Management costs

In addition to the applied costs of the IOM program, Fisheries Queensland will be required to manage the program over time and will allocate 3 fisheries management staff and 3 technical officers at various levels. **Table A4. 8** below provides a summary of the expected management costs to be incurred by government post-implementation of the IOM program and ongoing for its expected life. All salaries are based on the Queensland Public Service Officers and Other Employees Award, with an on-cost multiplier of 17.38% applied.

Table A4. 8: Government management costs associated with the operation of the IOM program (based on current Queensland Government awards)

Fisheries Queensland staff	Allocation	Cost
AO8 Principal Fisheries Manager (Trawl and Net)	33.33%	$56,892
AO7 Senior Fisheries Manager	100%	$156,424
TO5 Fisheries Manager	100%	$134,926
TO3 Fisheries Officer	100%	$107,120
TO3 Fisheries Officer	100%	$107,120
TO3 Fisheries Officer	100%	$107,120

Total cost for management of the IOM program each year at full allocation is $669,603. It should be noted that during the establishment stage (first 6 years), the allocation of management costs to the IOM program will follow the adoption profile as indicated in **Table A4. 4**. As the IOM program is rolled out across the fleet, more time, and therefore management effort, will be allocated to the program.

During the establishment stage, additional budget has been allocated to fisher education. The aim of the education initiative is to enable fishers to learn about the e-monitoring systems, receive training for the identification of TEP species and learn more about e-reporting of catches – amongst other key educational aspects required for the successful implementation of the IOM program. The educational component has been estimated at one hour per vessel at a cost of $100 per hour, or $1,200 per vessel.

Results

Present value and annual costs

In this section a PV (present value) calculation is applied to costs only, as benefits accruing to the program from the GBRMP are not considered in this part of the assessment. This method reduces the future stream of costs over the designated period to a singular PV. The discount rate used to calculate the PV is 7%.

Table A4. 9 outlines the PV outcomes of the economic assessment across the various cost components of the program applied to the active vessels within trawl fishery.

Table A4. 9: PV of cost components over 10 years split into establishment and ongoing stages of the IOM program

Cost component	Total costs (PV)
Hardware and installation (establish)	$5,868,575
Hardware and installation (ongoing)	$2,891,864
Data storage (establish)	$820,301
Data storage (ongoing)	$772,206
Footage review, analysis & reporting (establish)	$3,348,899
Footage review, analysis & reporting (ongoing)	$2,990,324
Fisheries Queensland management (establish)	$2,346,540
Fisheries Queensland management (ongoing)	$1,617,114
Total cost	**$20,655,821**
Establishment cost (years 1–6)	$12,384,314
Ongoing cost (years 7–10)	$8,271,507

The total cost over the full 10 years of the IOM program is $20.7 million. The establishment cost in years 1–6 is $12.38 million, with ongoing costs of the program (years 7–10) expected to cost a total of $8.3 million.

Table A4. 10 outlines the annual costs (converts PV to equivalent annuity value) of the IOM program where the components have been summed, primarily due to the split between establishment and ongoing costs being potentially misleading if annualised over 10 years.

Table A4. 10: Annual costs of the IOM program over 10 years (sum of cost components)

Components	Annual cost
Total IOM program annual costs (establishment and ongoing)	**$2,763,361**
IOM establishment cost (reflects 100% government funding in establishment stage)	$1,655,536
IOM ongoing cost	$1,107,825

Table A4. 11 provides a sensitivity of the discount rate applied to the PV calculation for the IOM program. The discount rate reduces the value of future cash flows, in this case the costs of IOM program (over 10 years). The higher the discount rate, the lower the present value of the future costs, hence a lower PV.

Table A4. 11: Sensitivity of the total cost to the discount rate for the IOM program

	Discount rate		
	4%	7%	10%
10-year NPV	**$23,742,892**	**$20,655,821**	**$18,135,368**

Cost-benefit analysis

The economic modelling undertaken to assess the IOM program across the ECOTF and CFFTF utilises a discounted cashflow framework to assess the viability of the investment. The present value (PV) of the future stream of cost outflows and cash inflows is calculated over 10 years (split into establishment and ongoing stages) using a discount rate of 7%. Subtracting the future sum of cost outflows from the sum of future cash inflows generates the net present value (NPV) for the range of scenarios being investigated.

In the economic analysis, consideration was given to 2 benefit scenarios, net economic return (NER) for the GBRMP portion of Queensland and gross value of production (GVP) derived from the GBRMP access plus exports realised outside the Great Barrier Reef. NER measures the total return to the fishery resource as the difference between fishing revenue and the economic costs incurred in a fishery, detailing its economic performance as a whole fishery, while GVP simply measures the total revenue earnt through the fishing activity. NER is the preferred benefit measure to apply (based on recommendations from the Office of Best Practice Regulation with the Department of the Premier and Cabinet) but both were investigated to provide a comparison. The NER measure is based on figures published in the BDO[4] report (2021–22) on the financial performance of the Queensland trawl sector and applied to the portion of effort related to fishing within the GBRMP.

NER cost-benefit analysis

As outlined in **Table A4. 3**, the NER for the ECOTF and CFFTF, based on the portion that relates to the GBRMP (44% of Queensland total NER) is estimated at $627,000 annually. The total benefits include the additional benefit of e-reporting at $141,000 annually. This figure was provided in a detailed to report to Fisheries Queensland by BDO for the 2021–22 financial year and indexed to 2025.

The PV of the NER benefit over 10 years is $5.78 million (includes e-reporting benefit)**.** As the program will be reviewed after year 6, a comparative NPV result is provided in **Table A4. 12** for the establishment stage of the IOM program. The total benefit for the establishment stage of the program is $2.79 million (PV of NER over years 1–6), rather than the total benefit for the full 10-year analysis of $5.78 million.

Table A4. 12: NPV result for the IOM program using NER (10 years at 7% discount rate)

	NER analysis
Benefit (NER + e-reporting)	$**5,778,919**
Costs of IOM	**$20,655,821**
NPV results	**-$14,876,902**
NPV result for establishment only (first 6 years)	**-$8,462,462**

[4] Commercial Fisheries Economic and Social Indicators 2021-22

Applying NER and e-reporting benefits to calculate the NPV for the IOM program generates a negative NPV result of -$14,876,902 million (**Table A4. 13**).

Table A4. 13: Sensitivity of the NPV (utilising NER + e-reporting over 10 years) to changes in discount rate (refer **Table A4. 11** for changes in cost base under different discount rates)

	Discount rate		
	4%	7%	10%
Change in benefit (NER)	**$6,486,440**	**$5,778,919**	**$5,197,425**
NPV benefits less costs	**-$17,256,452**	**-$14,876,902**	**-$12,937,944**

GVP cost-benefit analysis

The alternative option is to use GVP (plus external exports and e-reporting) as the benefit component for the ECOTF and CFFTF. The total GVP for the ECOTF is $127.85 million, of which $56.29 million is attributable to catch taken within the bounds of the GBRMP. Total benefit, including export value ($4 million) plus e-reporting is $60.5 million.

The premise for using this benefit is that the rollout of the IOM program would maintain access to the GBRMP for fishing purposes and avoid cancellation of export rights. With the addition of the e-reporting benefit, the PV of the GVP over 10 years is $454 million (**Table A4. 14** below).

Table A4. 14: NPV result for the IOM program using GVP (10 years at 7% discount rate)

	GVP analysis
Benefit (GVP)	$454,396,023
Costs of IOM	**$20,655,821**
NPV	**$433,740,201**

Given the significant value of GVP (GBRMP only) calculated over 10 years in comparison to the costs of the IOM program, undertaking a sensitivity analysis would be redundant given the scale of the disparity between the 2 figures. The addition of an NPV for the establishment stage only would also be redundant, as the benefits (although smaller covering only the first 6 years) would be based on a benefit of $295 million.

Appendix 5: Human rights considerations

All proposals involving the introduction of, or change to, Queensland Government legislation need to be accompanied by a consideration of impacts on human rights under the *Human Rights Act 2019* (72).The proposal to introduce IOM requirements will carefully consider and seek to minimise any impacts on human rights.

The introduction of IOM across the CFFTF and the ECOTF has the potential impact on the following human rights:

- right to privacy and reputation (section 25)
- right to recognition and equality before the law (section 15).

Privacy and reputation

The use of e-monitoring systems would involve the collection of information about a person's activities on board a commercial fishing vessel, which has the potential to impact on personal privacy and consequently limit the right to privacy and reputation. However, the impact on the right to privacy and reputation will be limited by legislation (i.e. *Information Privacy Act 2009* (73)*, Right to Information Act 2009* (74)) and strong protocols to ensure the information collected is only used for its intended purpose.

Recognition and equality before the law

IOM of commercial fisheries data would involve an obligation on a certain class of people to either install, maintain and operate e-monitoring systems. This would have the potential to impact on the right to non-discrimination if that obligation was allocated in an arbitrary way, highlighting the need to determine any such obligation in an objective, fair and transparent manner informed by stakeholder consultation.

Summary

The impacts of the proposal to introduce IOM across the ECOTF and the CFFTF have been considered. Further consideration will be given to the development of the legislation and inclusion of appropriate safeguards to protect commercial fishers and other affected parties. Any action must be reasonable and proportionate in order to meet community expectations and government objectives, while minimising the regulatory burden on commercial fishers where feasible. The human rights that may be engaged by this proposal will be addressed during the drafting of the legislation.

Appendix 6: Competition impacts

Under the *Queensland Government better regulation policy* (31), an IAS must provide a brief assessment of the consistency of the proposed regulation with clause 5 of the Competition Principles Agreement. Clause 5(1) requires that legislation should not restrict competition unless it can be demonstrated that the benefits of the restriction to the community outweigh the costs, and the objectives of the legislation can only be achieved by restricting competition.

The Organisation for Economic Co-operation and Development Competition Assessment Toolkit helps assess whether a proposal will restrict competition (75). Based on that checklist, the proposal to implement IOM across the CFFTF and ECOTF may have a minor indirect effect on competition, noting that major business decisions are likely determined by multiple factors:

- It would not grant exclusive rights for a supplier to provide goods or services.
- It would not establish a new licence, permit or authorisation process as a requirement of operation, but it would add to existing authorisation conditions.
- It may limit the ability of some types of suppliers to provide goods or services.
- It would raise the cost of entry (capital costs) for new entrants to the fishery.
- It would not create a geographical barrier to the ability of businesses to supply goods, services or labour, or invest capital.
- It would not limit suppliers' ability to set the prices for goods or services.
- It would not set standards for product quality.
- It would raise costs of production (operating costs) for some suppliers relative to others (depending on cost-sharing arrangements between government and industry).
- It would not restrict or reduce the incentive for suppliers to compete.
- It would not limit the choice and information available to consumers.

Appendix 7: Fundamental legislative principles

As defined in the *Legislative Standards Act 1992*, fundamental legislative principles require that legislation has sufficient regard to the rights and liberties of individuals and the institution of Parliament. Establishing an IOM program consisting of e-monitoring systems may give rise to several fundamental legislative principle issues relating to whether it has sufficient regard to the rights and liberties of individuals.

The requirement to install and operate e-monitoring systems on commercial fishing vessels may give rise to fundamental legislative principle issues in relation to the undue restriction of ordinary activities (including the right to conduct business without interference) and interference with a person's property without sufficient justification. Such requirements associated with IOM have the potential to interfere with a fisher's personal property (fishing vessels) and day-to-day business of their fishing operation.

While there could be limitations, the program design, implementation and ongoing management arrangements are designed to mitigate any regulatory burden on commercial fishers such as:

- installations occurring in locations that will not impact fishing operations and processes
- ensuring automatic operation of equipment to limit fisher intervention and operation
- providing malfunction provisions to support continued fishing in the event of a malfunction that is outside the control of the fisher.

Introduction of new offences may also present an issue; however, any such provisions will be in accordance with other fisheries management offences and penalties will be reasonable and proportionate to the offence.

The issue of privacy pertaining to the rights and liberties of individuals is addressed in greater detail in the privacy impact assessment (Appendix 8: Privacy impact assessment). Privacy rights will be protected through a combination of footage and data encryption, operational controls (e.g. policies and procedures), technical controls (including access controls and encryption) and protocols for contractors engaged in IOM systems and services.

While there may be limitations, the program is consistent with fundamental legislative principles as the limitations are mitigated through program design. Any remaining limitations to commercial fishers are also justified when considering the benefits gained in maintaining fishery export approvals and fishing access through better management and protection of marine ecosystems. In addition, commercial fishing businesses are accessing a public resource and the improved confidence in logbook data and subsequent management decisions are a benefit to the community.

The benefits of introducing IOM are considered to outweigh the impacts of regulation, and there is no feasible alternative available for independent validation of TEP and bycatch species.

Appendix 8: Privacy impact assessment

A privacy impact assessment has been performed in accordance with requirements of the Queensland Office of the Information Commissioner (76). It assumes that incidental personal information will be captured through e-monitoring and will ensure IOM program requirements will comply with the *Information Privacy Act 2009*. The IOM program will adopt 'privacy by design' principles and seek to minimise the amount of personal information collected.

Protection of privacy is critical to the design and implementation of e-monitoring and observer programs, including industry acceptance of such programs. Protection of information is necessary to minimise the risk of collected data being misused or misrepresented.

A privacy impact assessment was also conducted for the onboard camera field trial, which collected footage identical to that a future IOM program could expect to capture. This included occasionally capturing personal information of the crew and skippers in the form of images of their face or other features that could be used to identify them. Although these instances were minimised by only recording catch-handling events and the use of privacy by design principles, footage collected during the field trial also had the following measures implemented to safeguard the footage and prevent misuse of private information:

- encrypted footage that could only be accessed by specific software/personnel with access/authority
- secure storage of footage and data by the reviewer
- clear guidelines for data use, access and retention
- adjusting camera angles to minimise capture of crew where possible (otherwise known as privacy by design)
- using software applications such as privacy shields
- using sensor-triggered recording or on-demand e-transfer methods to manage the data collected as accurately as possible and only collect what was necessary to achieve the objective of the trial.

The flow for footage and private information captured during the IOM program will be as follows:

- E-monitoring footage will be collected from individual fishing boats, which will contain information identifying the boat concerned. E-monitoring data will identify individual fishers and aspects of the boat and its operations that could be used to identify individual boats. It is unlikely that this identity information could be fully removed from any video footage. However, all footage and identifying information will be encrypted to protect fishers' privacy and stored in a secure environment.
- E-monitoring data will be encrypted and securely transferred from fishers to base – preferably through secure telecommunications.
- Only authorised personnel, including Fisheries Queensland staff or professional contractors who are bound by laws regarding privacy and confidentiality (77), will have access to, and the ability to view, the encrypted e-monitoring footage. Only authorised personnel will review footage.
- Only a proportion of e-monitoring footage will be reviewed (for example, AFMA reviews 10% of the footage collected). Data analysis will be undertaken to determine the minimum amount of footage to be reviewed to develop an accurate overall picture for each fishery. As data is collected, this percentage could be revised (up or down) using risk assessments.

- Reports based on the data will not include any individually identifiable information during the normal course of business. The only circumstance in which individually identifiable information will be used is if a compliance breach or other offence was detected and was required by law to be released.
- Fishers will have the right to retain copies of the information provided and will have the right to review their own information in accordance with the provisions of the *Right to Information Act 2009*. Fishers will not have the right to amend footage.
- Under the *Fisheries retention and disposal schedule*, e-monitoring data and footage will be kept for 90 days (71).

All data collected will be treated as official government records and Fisheries Queensland will comply with the *Information Privacy Act 2009* (73)*, Right to Information Act 2009* (RTI Act) (74) and *Public Records Act 2023* (51)*.* Fisheries Queensland will manage the information collected in accordance with the information privacy principles set out in the *Information Privacy Act 2009,* including:

- Principle 3 – personal information collected is relevant to the purpose for which it is collected.
- Principle 4 – personal information is protected against loss, unauthorised access, use, modification or disclosure, and any other misuse.
- Principles 9 and 10 – personal information is only used for the purpose for which it is created.

To support the application of these principles, Fisheries Queensland will implement:

- operational procedures to require data encryption to protect fishers' privacy
- operational controls, including policies and procedures, staff training and communication strategies
- technical controls, including access controls and encryption
- strict protocols for any contractors engaged to provide e-monitoring systems and services (77).

The RTI Act includes protections for information that could be expected to prejudice the private, business, professional, commercial or financial affairs of entities (78), and significant penalties apply if this legislation is breached. While not directly applicable, the Administrative Review Tribunal has confirmed that comparable provisions in Australian Government legislation apply to AFMA's e-monitoring program (79).

If any data collected for data validation purposes is subjected to a 'right to information' request, the involved fishers will be contacted by the Office of the Information Commissioner and consulted about its release. In this case, fishers may request that footage not be released, but they must be able to provide a strong argument for doing so. Fishers also have appeal rights under the RTI Act if such requests are not successful. In addition, there are also provisions in section 41 of the RTI Act to mitigate against requests made without sufficient grounds.

Any data requested under a 'right to information' will need to be appropriately redacted before release to ensure there are no distinguishing features (e.g. boat marks, faces, gear configurations, etc.). Read more about right to information and information privacy at rti.qld.gov.au.

Glossary

Acronym / term	Description
AFMA	Australian Fisheries Management Authority
BDO	is an independent group of researchers with experience monitoring economic and social indicators for fisheries in Australia
CFFTF	commercial fin fish trawl fishery
ECOTF	east coast otter trawl fishery (also known as east coast trawl)
e-monitoring	onboard electronic monitoring, including onboard camera systems
e-reporting	electronic reporting of catch and effort
e-transfer	electronic transfer of data
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999* (Cth)
ERA	ecological risk assessment – an assessment process that evaluates the relative risk posed by fishing on species, habitats and communities within a fishery
GBRMP	Great Barrier Reef Marine Park
GBRMPA	Great Barrier Reef Marine Park Authority
GBRWHA	Great Barrier Reef World Heritage Area
GVP	gross value of production – the value placed on recorded production at the wholesale prices realised in the marketplace
IAS	impact analysis statement
independent data validation	comparison of 2 data sets – one provided by fishers and the other derived independently – to confirm data accuracy and reliability
IOM	independent onboard monitoring – can include fisheries observers and electronic monitoring
logbooks	commercial fishers are required to complete daily catch and effort logbooks – detailing where, when and how fishing took place, and what was caught
MSC	Marine Stewardship Council
NER	net economic return
NPV	net present value
non-retained catch	includes non-target species and any target or byproduct species that are not retained (e.g. because they are too small)
output controls	direct limits on the number or weight of fish harvested from a fishery
PV	present value
protected species	a protected animal under the *Nature Conservation Act 1992,* or an animal that is listed as a threatened species, listed migratory species, or a listed marine species under the EPBC Act

protected species interaction	any physical contact between fishing gear or a vessel and a protected species
QBFP	Queensland Boating and Fisheries Patrol
QSIA	Queensland Seafood Industry Association
Qld eFisher app	approved electronic logbook for reporting commercial fishing and TEP species interactions, instead of using paper logbooks
RTI Act	*Right to Information Act 2009*
TEP species	a threatened, endangered and protected species is a protected animal under the *Nature Conservation Act 1992,* or an animal that is listed as a threatened species, listed migratory species, or a listed marine species under the EPBC Act
TEP species logbook	logbook used to monitor interactions with non-target species that are subject to mandatory reporting requirements – the TEP species logbook replaced the species of conservation interest logbook in 2021
UNESCO	United Nations Educational, Scientific and Cultural Organization
WTO	wildlife trade operation

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