FRDC
FISHERIES RESEARCH & DEVELOPMENT CORPORATION

Best practice guidelines for Australian fisheries management agencies

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In submitting this report, the researcher has agreed to FRDC publishing this material in its edited form.

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Project steering committee: Neil MacDonald, Heather Brayford, Jo-Anne McCrea, Simon Nicol, Ilona Stobutzki.

Workshop participants: Attendees at the Tasmanian, South Australia, and Canberra workshops.

Case study participants: Belinda McGrath-Steer (PIRSA), Brian Boyle (NT), Matt Bradshaw (Tas), Tom Roberts (QLD), Darren Reynolds (NSW), Steve Bolton (AFMA), Melissa Schubert (Vic), Kim Walshe (WA).

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Jurisdictional supporters: Claire Andersen (QLD), Dallas D'Silva (Vic), Bryan McDonald (NT), Doug Ferrell (NSW), Matt Bradshaw (Tas). Note that SA, WA and AFMA representatives were members of the project team or steering committee.

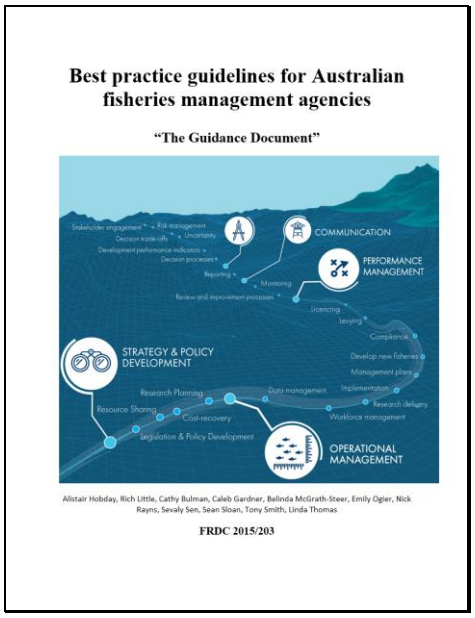
Executive Summary

The project was developed in consultation with the Australian Fisheries Management Authority and State/Territory fisheries agencies. The idea of a publicly available set of standards or guidelines for marine fishery management agencies has been under discussion within fisheries agencies for some time and is consistent with broader directions in government policy and expectations of stakeholders and the broader community. The main output of this project is a set of guidelines provided in a **Guidance Document**, which are provided as a stand-alone component of this final report (**Box 1**). This final report provides only a high level overview of the project for reporting purposes, and we suggest most readers will get all they need from the Guidance Document.

Use of these Guidelines offers a range of benefits for Fishery Agencies including to demonstrate best practice and support continuous improvement, inform strategic planning, structural and legislative reform, harmonise or coordinate functions between jurisdictions, and build credibility and transparency with external parties, such as media and general public. The Guidelines can assist with reporting and justification of management costs including highlighting efficiencies and cost savings, development of co-management approaches by clearly describing key functions for each partner, and support external certification processes.

Box 1. The stand-alone **Guidance Document** is the main product from this project. The Guidance Document**:**

1. Outlines the need for Guidelines and their context
2. Describes how the functions were identified and tested
3. Describes the functions
4. Shows application to agencies
5. Provides guidance on how to implement these Guidelines
6. Shows application to fisheries via a set of case studies



Potential fishery and community benefits include increased support for fisheries as a result of management transparency and increased community understanding of how fisheries operate. Market benefits resulting from Agency use of the Guidelines might include information provision for consumer-facing seafood guides and seafood sourcing schemes. Finally, there may be International benefits resulting from Agency use including benchmarking Australian management relative to international management approaches and performance.

As a step towards creating a national standard for fisheries management, this project has focused on creating a best practice method, through the development of Fisheries Management Agency Guidelines. The Guidelines provide a framework regarding the approaches and information that will help them achieve best practice and ultimately lead to the development of a standard if sought in the future. We note the difference between a *product* standard, and a *process* standard. There are many fishery product standards, applicable to a range of fisheries and the seafood they harvest, but there are fewer process standards relating to how fisheries are managed. As a step towards creating standards for fisheries management, a *best practice* is a method or technique that has been generally accepted as superior to any alternatives because it produces results that are better than those achieved by other means. In this sense, the Guidelines provide information to fishery management agencies and their stakeholders regarding the approaches that will help agencies pursue their objectives.

It is important to note that the **application of these Guidelines is voluntary** for fisheries management agencies and as with many new concepts may require further development as new information becomes available. Thus, this project has developed these fisheries management process guidelines for Australian fisheries management agencies noting that the intent of good 'process' must always be to drive good 'outcomes'. These Guidelines are designed for agencies that manage wild capture marine fisheries, and do not cover management aspects related to aquaculture or ranching.

The specific **project objectives** were to:

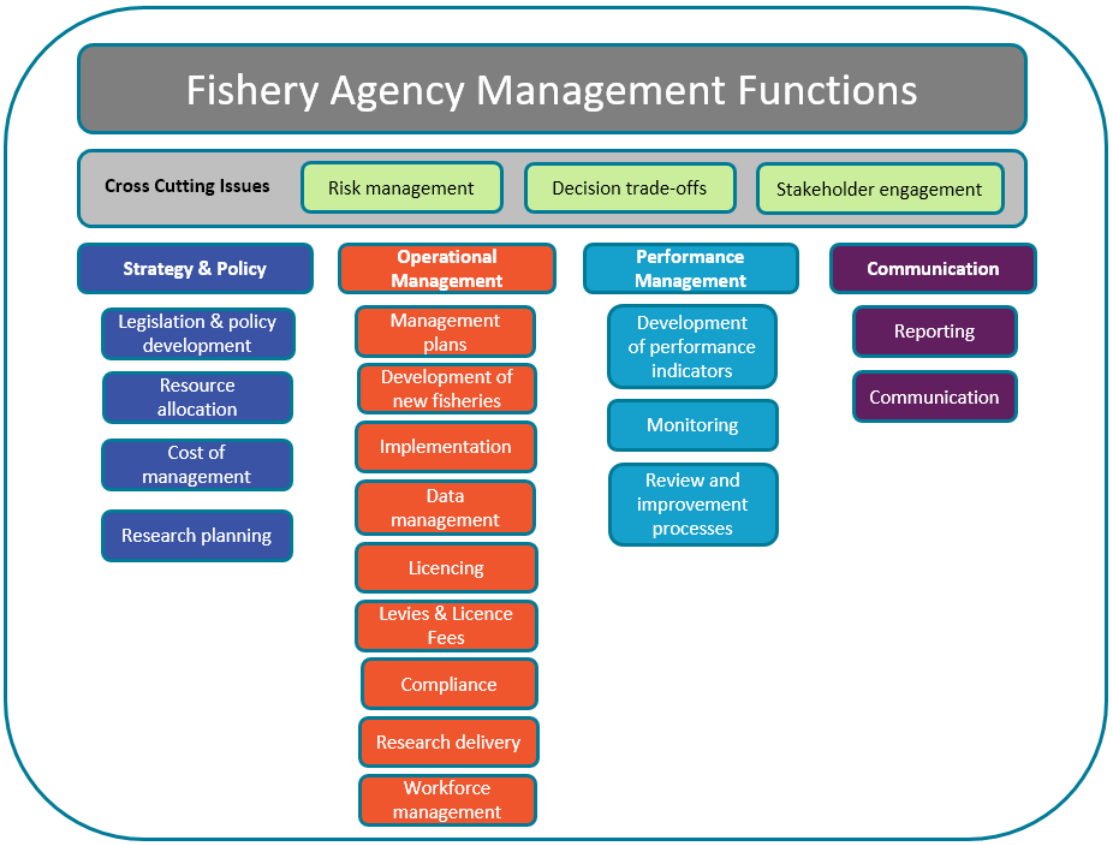
1. Review existing and emerging guidelines and standards as they relate to fisheries management agencies
2. Compare current management systems including regulatory frameworks, policies and guidelines across all Australian fishery management jurisdictions
3. Identify options and develop a national set of guidelines for fisheries management in Australia
    - Test these guidelines for the Commonwealth (AFMA) and two states (South Australia, Tasmania) – revised August 2017 to include all the states and the Northern Territory.

On the basis of a comprehensive review of existing domestic and international regulatory frameworks, policies, standards and guidelines, **a core set of 21 functions of fisheries management agencies** were identified in five categories:

1. Development of policy and legislation – Setting the stage for good management
2. Operational management – Day-to-day functions for management agencies
3. Review and Performance evaluation – Checking Agency performance
4. Communication and reporting – Outward-facing agency communication
5. Cross cutting – issues that are explicit or implicit in many management functions

A description of each function and best practise features is accompanied by examples of how Australian fisheries management agencies currently seek to implement each function. Further, examples of evidence that could demonstrate that the function has been successfully delivered are also provided.

The application of the Guidelines to agencies was tested via review of existing agency legislation, policy and other documents and ten case studies spanning Australia's fishery jurisdictions. Undertaken in partnership with fishery managers, these case studies showed that the Guidelines are also relevant to fisheries managed by an Agency, regardless of fishery attributes, such as size, species, and sector. Evidence to demonstrate that the functions were being performed at a fishery level was also perceived as readily available for most functions.



An agency that successfully implements these management functions in accordance with the guidelines will be well-placed to deliver the goal of "sustainable fisheries".

The application of the Guidelines to agencies was tested at two scales, the first relating to the functions described above via review of existing agency legislation, policy and other documents, and the second through the direct application of ten case studies chosen to span both the diversity of fishery management arrangements and breadth of fisheries currently managed in Australia. These case studies showed that the Guidelines are relevant to individual fishery agencies and fisheries, regardless of their attributes such as

size, gear-type, species, or sector. Evidence to demonstrate that the functions were being performed at a fishery level was also perceived to be readily available.

These **Guidelines should be reviewed and updated** on a five year basis, as best practice will certainly evolve over that period of time.

Keywords

Performance reporting, process guidelines, fisheries management, sustainability, communication, strategy and policy

Introduction

Australia's marine and inland waters support a diverse range of natural resources including fish, invertebrates, sharks and rays which are managed by fisheries agencies in eight jurisdictions. These species support a large number of commercial, recreational and indigenous fisheries, which vary from large industrial scale fisheries to small scale and data-limited operations delivering seafood to domestic and international markets. Recreational and Indigenous fishers also depend on wild fish stocks. In many cases, less information is available for recreational fishing than for commercial fisheries, and different management approaches used. Many species also support a recreational and indigenous fishing sector.

In general, State and Northern Territory fisheries extend from the coast to a distance of three nautical miles from the coast, and the Commonwealth manages fisheries that extend from three nautical miles to the 200 nautical mile EEZ limit. The Commonwealth also manages Australian vessels fishing on the high seas. The jurisdictional boundaries are set out under the 1982 Offshore Constitutional Settlement, a package of uniform national, state and territory laws outlining responsibilities for offshore fisheries, mining, shipping and navigation. In some situations where fisheries or fish stocks fall within more than one jurisdiction, the default jurisdictional boundaries may not be compatible with sensible efficient and effective management of these fish stocks. Where possible in these cases, the Commonwealth, State and Northern Territory governments have developed arrangements to assign management responsibility to one jurisdiction.

At a jurisdictional level, the structure and nature of the bodies responsible for fisheries policy and management varies. The Commonwealth has established a statutory body to manage and enforce compliance on Commonwealth fisheries, the Australian Fisheries Management Authority (AFMA), whereas the policy settings for Commonwealth are developed by the Department of Agriculture and Water Resources. In other jurisdictions the policy and management functions can be delivered by a single government department. In some cases, functions can be outsourced to other departments (e.g. compliance may be delivered by a police department).

A range of high level national initiatives provide coherence across the jurisdictions that are responsible for management of marine fisheries. These include a National harvest strategy policy and guidelines – harvest strategies are an accepted common feature of modern fisheries management, specifically in relation to decision making - and a National ESD reporting framework – all fisheries legislation includes ESD objectives, requiring ESD to be taken account in decision making and managing risk. Some elements of management are also shared (e.g. FRDC national co-management working group). Recently, the national fish stock status reporting framework was also established (SAFS) and has improved the reporting aspects of fish stock status. Collectively, these documents provide strong guidance for agencies and represent a platform on which the development of agency Guidelines can stand.

Fisheries management in Australia is considered world-leading in range of aspects, including overall stock status, management structures such as use of harvest strategies and scientific development of assessment

tools, however, this varies between agencies and functional areas. While there are examples of best practice for particular functions of fisheries management within individual jurisdictional management agencies, high standards are not in place across all elements in all fisheries agencies. Thus, these proposed Guidelines offer value in in harmonising and then documenting best practice across all management functions to guide continued improvement towards consistent best practice nation-wide. In the development of these Guidelines, the range of management arrangements and information available for different agencies and fisheries was considered, as less information is often available for recreational, indigenous and exploratory fishing activities than for established commercial fisheries. This approach was important to ensure that the Guidelines would be useful under different management approaches used by Australian fisheries agencies.

The need for best practise management guidelines

A **best practice** is a method or technique that has been generally accepted as superior to any alternatives because it produces results that are superior to those achieved by other means. In this sense, the Guidelines provide information to fishery management agencies and their stakeholders regarding the approaches that will help agencies pursue their objectives. An agency that successfully implements these functions represents a necessary step towards management of "sustainable fisheries"

As the Guidelines cover the important management functions, and if an agency is doing them (well), fisheries should also be well managed. Exceptions may exist as there may be influences outside the agency control that affect the sustainability of fisheries (e.g. Murray River water flow). In such cases, the power within a fishery agency is one of policy coordination with external agencies/authorities with interests in fisheries resources (as is the case between Queensland and GBRMPA) to achieve horizontal policy coherence. Failure to achieve the desired objectives may also occur when functions are emphasized rather than legislated, and so application is less than required to achieve the desired goals.

Objectives

Objective 1. Review existing and emerging standards for fisheries management

Objective 2. Benchmark current management practices regulatory processes, policies, guidelines and standards across all Australian fishery management jurisdictions

Objective 3. Identify options for a national set of auditable standards for fisheries management in Australia

Revised – December 2015

Objective 3 (revised). Identify options and develop a national set of guidelines for fisheries management in Australia

a. Test these guidelines for the Commonwealth (AFMA) and two states (South Australia, Tasmania)

Revised – December 2017

Objective 3 (revised). Identify options and develop a national set of guidelines for fisheries management in Australia

b. Test these guidelines for fisheries in all state and commonwealth jurisdictions.

Methods

These Guidelines were developed over a three year period by a project team composed of representatives from a range of science and management agencies. As with the development of the National Harvest Strategy Guidelines (FRDC: 2010/061), the following broad approach was followed

1. A project team was established to oversee the project and was the main vehicle for doing the work, as described more specifically below and in the Guidelines.

In addition

2. A project steering committee was used as a sounding board for sections and reviewed draft versions through the project lifetime. Regular updates were provided to keep them and other stakeholders appraised of progress.
3. A series of workshops were held with representation from Australian jurisdictions to refine and test the Guidelines.
4. The Guidelines were presented at FRDC National Priority 1 workshops, Seafood Directions 2017, the AFMF fisheries management sub-committee, and with heads of fisheries agencies.
5. The guidelines were reviewed by experts appointed by the project team and FRDC, and then updated by the project team (January 2018 to May 2019).

This project involved a range of methods, which are summarised as follows relative to each objective. Detailed methods, where appropriate, are provided in the **Guidance Document**.

To review existing and emerging guidelines and standards as they relate to fisheries management agencies (**Objective 1**), the team undertook a systematic review of national and international reports, publications and standards. Discussion at team meetings, with stakeholders and the steering committee was followed by analysis of the patterns, which are reported in the appendices for the Guidance document. A comparison of current management systems including regulatory frameworks, policies and guidelines across all Australian fishery management jurisdictions (**Objective 2)** was completed using desktop review, and is reported in the Guidance document (Benchmarking the Guidelines). The identification of options and development of a national set of guidelines for fisheries management in Australia (**Objective 3)** was completed via synthesis following Objective 1 and 2 and is delivered as the Guidance document, which has been widely

reviewed and updated following feedback. Finally, the guidelines were tested for fisheries the Commonwealth (AFMA), and all marine states (South Australia, Tasmania, Queensland, NSW, Victoria, and Western Australia) and the Northern Territory (**Objective 3b)**.

Results, Discussion and Conclusion

The project successfully achieved all three objectives. The results of the project are the development of the Guidance Document, which is delivered as a stand-alone document accompanying this final report. With regard to the third objective, testing of the guidelines for at least one fishery in each marine jurisdiction was completed with the cooperation and engagement of representatives from each fishery.

Full details are provided in the **Guidance Document**.

The Guidelines will be useful to Fisheries management agencies in a range of ways, and also to other fisheries interest groups (**Box 2**). By using consistent Guidelines, an Agency can demonstrate best practice, support continuous improvement processes, build credibility with stakeholders, and streamline formal assessment approaches. Agencies that use these Guidelines will help build positive perceptions of fisheries management, which will benefit fisheries and the communities that depend on these fisheries. The seafood market will also benefit, as information for consumers and wholesalers may be enhanced. Assessment of Australia's management performance will be improved in International reviews. Australia also has a role to play in improving management in neighbouring regions, and if useful, these Guidelines may also assist other nations, particularly those with whom Australia shares fisheries stocks and management arrangements.

A total of ten case studies were completed across all Australian fishery jurisdictions to examine the expression of agency management functions at a fishery level. Overall, the application to the fisheries (**Appendix 4 – case studies)** was generally easy and evidence was reported as readily and publicly available in policies, reports and other documents. The information required to undertake these case studies was readily available to the fishery managers who participated. Between 16 and 21 (of a possible 21) management functions were relevant to the case study fisheries. There was little difference between fishery types – the Guidelines are robust to the range of species and fishery types described earlier. Evidence was considered to be available in almost all cases for these management functions, with very few having no evidence (**see Guidance Document - Figure 4**). Of the functions considered relevant to a fishery (n=183 in total across the case studies), there was available information to justify the application of the management function (score 2) in 78% of cases, and partially available (score 1) for an additional 20%.

Implications

The Guidelines will be useful to fisheries management agencies in a range of ways, and also to other fisheries interest groups (**Box 2)**. By using consistent Guidelines, an Agency can demonstrate best practice, support continuous improvement processes, build credibility with stakeholders, and streamline formal assessment approaches. Agencies that use these Guidelines will help build positive perceptions of fisheries management, which will benefit fisheries and the communities that depend on these fisheries. The seafood market will also benefit, as information for consumers and wholesalers may be enhanced. Assessment of Australia's management performance will be improved in International reviews. Australia also has a role to play in improving management in neighbouring regions, and if useful, these Guidelines may also assist other nations, particularly those with whom Australia shares fisheries stocks and management arrangements.

Box 2. Benefits to different groups of the using these Guidelines.

- Agency benefits
    - Demonstrate best practice
    - Support continuous improvement
    - Support structural and legislative reform
    - Support strategic planning
    - Help harmonise or coordinate functions between jurisdictions
    - Credibility and transparency with external parties, such as media and general public
    - Reporting against and justification of management costs (use a "checklist" of effort against function), including highlighting efficiencies and cost savings
    - Reporting up to government and showing evidence of processes that can support department approach
    - Streamline other approaches (streamline EPBC, export certification)
    - Support co-management approaches by clearly describing key functions for each partner
    - Support external certification processes (e.g. MSC, ISO)
    - Capacity building of staff
    - As a stepping stone to a "fisheries agency standard"
    - As a defence against "process complaints"
- Fishery and community benefits
    - Credibility for fisheries as a result of management transparency
    - Increased community understanding of how fisheries operate
- Market benefits resulting from agency use
    - Provide information sought for consumer-facing seafood guides
    - Provide information sought for seafood sourcing decisions
    - Support for business to business initiatives for co-managed fisheries
- International benefits resulting from agency use
    - Exemplar for RFMOs and emerging management agencies, particularly when sharing stocks
    - Information for benchmarking Australian management relative to international management approaches and performance

Recommendations

These Guidelines are designed for agencies that manage wild capture marine fisheries, but the Guidelines do not cover aspects related to aquaculture or ranching.

The Guidelines developed in this project are process Guidelines, which are similar to process Standards in that they focus on the system rather than a product (see **Guidance Document**, **Box 1**). Guidelines are also different from Standards (see **Guidance Document**, **Box 2**). This document describes voluntary Guidelines for functions that are the responsibility of fisheries management agencies. Although standards and guideline are often used interchangeably, we consider Guidelines as an earlier stage of a process that might ultimately lead to a Standard.

How to use the Guidelines

With regard to agencies, an important use of these Guidelines is as a resource for information on management functions. Descriptions of each of the functions provide an overview of the roles and responsibilities of management agencies. The Guidelines provide examples of the best operational descriptions of how these functions are codified in domestic (**Guidance Document Appendix 3**) and international documents (**Guidance Document Appendix 2**). The Guidelines can support the process of continuous improvement, by identifying weak points and/or seeking examples of best practice from Australian jurisdictions and internationally examples. Australian fishery management agencies are continually revising and updating their processes, and these Guidelines can fit within existing initiatives.

An Agency may use these Guidelines when undertaking a self-assessment such as a readiness test for certification or for internal performance assessment of some kind. This self-assessment could take a range of forms from informal discussion with Agency employees about the internal strengths and weaknesses of each function, through to a self-audit. This self-audit could involve examination of how the Agency implements and achieves the functions. As described above, an Agency could then improve areas of weakness by drawing on examples elsewhere (as described in the document) and developing an implementation plan.

An Agency could use these Guideline to direct an external assessment whereby an independent reviewer documents how these management functions are implemented and verified for an Agency and its fisheries. The assessment form will be influenced by any "external" approval process (e.g. ISO 9001), and so could be for internal purposes or external release.

An Agency could also undertake a fishery level assessment, by checking how each of its fisheries is implementing these management functions. As revealed by the case studies (**Guidance Document Appendix 4**) application to individual fisheries can reveal coverage and gaps of the functions. One response might be development of an improvement plan which could be initiated for a few fisheries in the beginning, before scaling to all fisheries.

These assessments could then be used as evidence of achievement, which may also serve as an endorsement of the priorities of fisheries management agencies.

Extension and Adoption

Extension activities took place over the life of the project, with workshops, conference presentations, and discussion at the Australian Fisheries Management Forum (AFMF) fishery management sub-committee. These Guidelines have been noted by the Australian Fisheries Management Forum, and will be sent to the AFMF fishery management sub-committee for dissemination within agencies when the final report is accepted.

The Guidelines have not been formally adopted and there is no obligation for use, however, agency use is already occurring.

These Guidelines represent best practice – defined as a method or technique that has been generally accepted as superior to any alternatives because it produces results that are superior to those achieved by other means. In this sense, the Guidelines provide information to fishery management agencies and their stakeholders regarding the approaches that will help agencies pursue their objectives. An agency that successfully implements these functions represents a necessary step towards management of "sustainable fisheries".

These Guidelines have already been used by AFMA to assist with development of co-management arrangements, and to consider approaches across fisheries. We understand that state jurisdictions have found the Guidelines to be useful, and will inform both strategic and tactical planning. One agency noted;

> *We will be using it to guide self-assessment and business planning in the future to focus on key gaps and to improve management performance.*

These Guidelines represent our current understanding of best practice. Agency requirements, expectations and priorities will change in time (e.g. animal welfare in fisheries may become prominent), and so functions may need to be updated in future. There may be a need to add functions, although specific issues or activities that arise may still fit within existing functions.

Review of these Guidelines should be considered within a **five year period** to maintain relevance, as occurs with other guidance documents. There may also be a continual improvement process, where minor changes can be implemented without comprehensive consultation, which will be considered during the formal review period. If there is a move to create national Fishery Agency Standards, then these Guidelines may be contribute to the development or be replaced by such a Standard.

We recommend that agencies be contacted in one year to see if there is interest in developing more formal recommendations around adoption.

The project team will also prepare a peer-reviewed publication, which will raise international awareness for these efforts, and may also provide stimulus for a small review of satisfaction and uptake in approximately one year from May 2019.

Project materials developed

Fact sheets that documented the progress of the project for the steering committee and stakeholders. They were included in each milestone report. The six fact sheets are included as **Appendix 1** in this final report.

The **Guidance document** is the substantive project materials developed, and is included with this report.

Appendix 1

Fact sheets updating progress on the project.

Towards consistent standards for Australian fisheries management

FRDC Project 2015-203

Update No. 1
February 2016

This two year project will run until October 2017. The project was developed in consultation with the Australian Fisheries Management Authority and State fisheries agencies. The idea of a standard for fishery management has been under discussion within fisheries agencies for some time and is consistent with broader directions in government and expectations in the community.

Project Team: Alistair Hobday, Rich Little, Cathy Bulman, Tony Smith, Shijie Zhou, Linda Thomas, David Smith (CSIRO); Caleb Gardner, Emily Ogier (IMAS); Nick Rayns (AFMA); Sevaly Sen (Consultant); Sean Sloan (PIRSA)

Steering Committee: Neil MacDonald (NMAC), Heather Brayford (WA Fisheries), JoAnne McCrea (WWF), Ilona Stobutzki (ABARES)

Project Objectives (updated Dec 2015)

1. Review existing and emerging guidelines and standards as they relate to fisheries management agencies
2. Compare current management systems including regulatory frameworks, policies and guidelines across all Australian fishery management jurisdictions
3. Identify options and develop a national set of guidelines for fisheries management in Australia
    - Test these guidelines for the Commonwealth (AFMA) and two states (South Australia, Tasmania)

Progress to date

At the first project meeting held in November, the team scoped the landscape of related projects to identify synergy (see Figure 1); worked to understand and develop definitions of standards, benchmarks and guidelines; reviewed market place trends and discussed the implications of all of these on Australian fisheries. The meeting brought out differing views on project scope and on what type of standard would be developed.

One of the main discussion points was the difference between a *product* standard, and a *process* standard. There was broad agreement that there are many fishery product standards, applicable to a range of fisheries (less so for small-scale, low-value, data-deficient fisheries), but there are fewer process standards relating to how fisheries are managed.

Further clarification also resulted in the definition of terms where

A **standard** is a published document established by consensus and approved by a recognized body that provides for a common and repeated use rules aimed at achieving optimal order.

- Standards can be audited, may be voluntary or legislated.
- Developing a Standard is a two – five year major consultative process.
- A Publically Available Specification (PAS) is a fast track process and may be a precursor to establishing a standard.

A **guideline** is a "weak" standard, that cannot be independently audited.

A **benchmark** defines equivalence between standards, and is not audited against.

An **assessment tool**: is a way to assess the fishery/fishery management system and is based on standards and guidelines

As a result of this first meeting, the project team has reformulated the project need, objectives and deliverables. The project will focus on development of process guidelines for fisheries management.

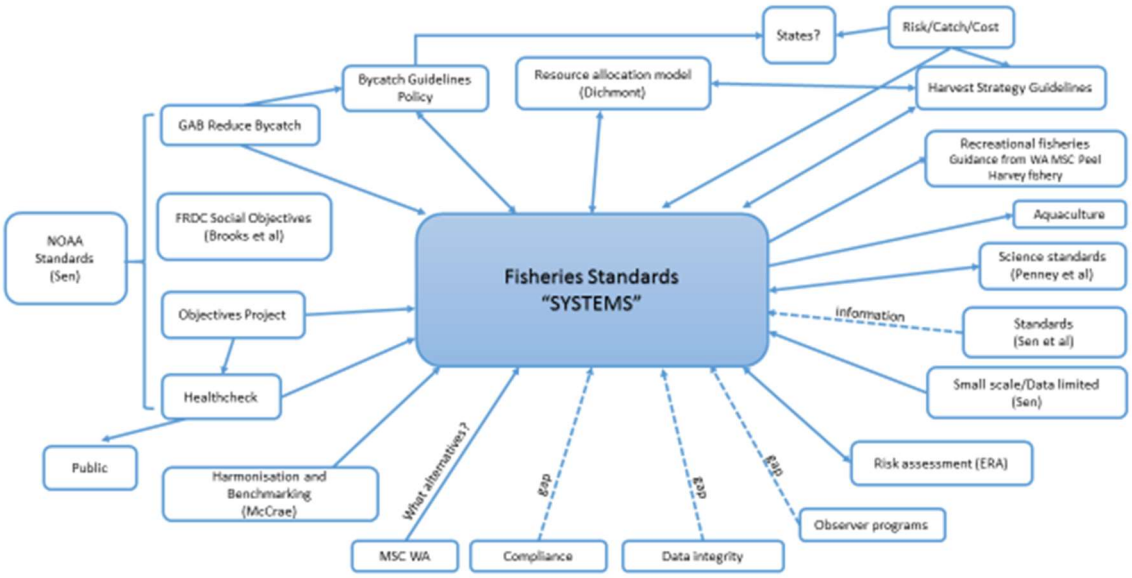


Figure 1 Project interactions identified to date – standards, assessments, and guidelines intersect with many existing projects, and understanding these synergies is critical.

Current focus of the project team

The next steps in the project are:

- Review relevant international and national practices, plans, guidelines and standards
- Develop a framework reflecting key elements of fisheries management - these are the potential areas of focus for a future set of guidelines
- Develop the project extension and communication plan
- Plan discussions with states and commonwealth senior managers

For further information, please contact Alistair Hobday, Alistair.hobday@csiro.au

Towards consistent standards for Australian fisheries management

FRDC Project 2015-203

Update No. 2
April 2016

This two year project will run until October 2017. The project was developed in consultation with the Australian Fisheries Management Authority and State fisheries agencies. The idea of a standard for fishery management has been under discussion within fisheries agencies for some time and is consistent with broader directions in government and expectations in the community.

Project Team: Alistair Hobday, Rich Little, Cathy Bulman, Tony Smith, Shijie Zhou, Linda Thomas, David Smith (CSIRO); Caleb Gardner, Emily Ogier (IMAS); Nick Rayns (AFMA); Sevaly Sen (Consultant); Sean Sloan (PIRSA)

Steering Committee: Neil MacDonald (NMAC), Heather Brayford (WA Fisheries), JoAnne McCrea (WWF), Ilona Stobutzki (ABARES)

Project Objectives (updated Dec 2015)

1. Review existing and emerging guidelines and standards as they relate to fisheries management agencies
2. Compare current management systems including regulatory frameworks, policies and guidelines across all Australian fishery management jurisdictions
3. Identify options and develop a national set of guidelines for fisheries management in Australia
    - Test these guidelines for the Commonwealth (AFMA) and two states (South Australia, Tasmania)

Progress to date

Since the last update, we have been focused on the first objective: Review relevant international and national practices, plans, guidelines and standards and evaluate matches to management functions. The team has drafted descriptions of management functions, which also address a range of **compulsory and discretionary external conditions** or drivers:

- Compulsory – legislation (jurisdiction-specific fishery legislation, EPBC, safety, HSE, biosecurity), international obligations; and
- Discretionary – external seafood supply, technological changes, business structures, certification processes, industry expectations, social expectations, international trade, other marine uses, fishery-aquaculture blurring/stocking/enhancement, cultural practices

The **core management functions**[1] of fishery management agencies have been divided into four broad categories. In brief, these functions[2] are:

1. **Strategy and policy development (pre-operational; management design)**. Policy development – These are the formal principals, which include objectives of fisheries management and access to fish, which guide State, Territory and Commonwealth governments with their Acts of Parliament and high level policies, and can include.

   1.1 Resource sharing – The direct and deliberate distribution of a specified fisheries resource between identifiable, discrete user groups.
   1.2 Research planning – Commissioned research by fisheries management authorities to support evidenced-based management.
   1.3 Cost-recovery – An agreed proportion of the costs associated with fishery management, stock assessment, compliance and monitoring are recovered by government agencies from those who benefit directly.

2. Operational management

   2.1 Compliance with regulations – Programs that seek to ensure that regulations are observed and illegal activity is minimised, community expectations are met and habitats are preserved.
   2.2 Levying – Setting of levies and collection of funds from those who harvest the resource to help support management, research, compliance, prosecution, membership fees, access fees and special projects.
   2.3 Implementation – Legal management plans, regulations, determinations and directions that dictate fishery wide measures.
   2.4 Development of new fisheries – Commercial potential of previously unexploited fisheries through special management plans.
   2.5 Data management – Identification, collection, storage and retrieval of relevant and useful information to support fisheries management.
   2.6 Licencing – Authorisation of fishers to access the resource (fish/stock) consistent with relevant fisheries legislation, including issuing scientific permits, foreign fishing licences, permits under foreign fishing agreements and treaties.
   2.7 Research delivery – Role of management agencies and stakeholders in planning and checking research into fisheries.
   2.8 Management plans – Plans for management agencies that follow State, Territory and Commonwealth legislative requirements and international obligations.
   2.9 Workforce management – The recruitment and retention of staff in a work environment that allows them to achieve their potential.

3 Performance management

   3.1 Monitoring – Checking that the fishery, those who fish, managers and legislation are performing to expectations.
   3.2 Review & improvement processes – The means of providing feedback on how the fishery, stakeholders and legislation are operating against various expectations.

[1] These functions are more fully described in a companion project summary.

[2] We recognise there are a number of cross-function processes that are explicit or implicit in each of the management functions, including, risk management, stakeholder engagement, trade-offs in decision making, processes of decision making, and development of performance indicators. It is likely that these processes will be relevant in many functions.

4 Communication

4.1 Reporting – Undertaken by agencies for the purposes of accounting for the status of fisheries resources, the performance of fisheries management, and for corporate governance requirements.

4.2 Communication – Undertaken by fisheries agencies to inform public and stakeholders of specific information.

Current focus of the project team

The next steps in the project are:

- Receive feedback from Steering Committee on the management functions document
- Review relevant international and national practices, plans, guidelines and standards and match these to the management functions
- Schedule discussions with state and commonwealth senior fishery managers

For further information, please contact Alistair Hobday, alistair.hobday@csiro.au

Towards consistent standards for Australian fisheries management agencies

FRDC Project 2015-203

Update No. 3
February 2017

This two year project will run until October 2017. The project was developed in consultation with the Australian Fisheries Management Authority and State fisheries agencies. The idea of a standard for fishery management has been under discussion within fisheries agencies for some time and is consistent with broader directions in government and expectations in the community.

Project Team: Alistair Hobday, Rich Little, Cathy Bulman, Tony Smith, Shijie Zhou, Linda Thomas, David Smith (CSIRO); Caleb Gardner, Emily Ogier (IMAS); Nick Rayns (AFMA); Sevaly Sen (Consultant); Sean Sloan (PIRSA)

Steering Committee: Neil MacDonald (NMAC), Heather Brayford (WA Fisheries), JoAnne McCrea (WWF), Ilona Stobutzki (ABARES – seeking replacement)

Project Objectives

1. Review existing and emerging guidelines and standards as they relate to fisheries management agencies
2. Compare current management systems including regulatory frameworks, policies and guidelines across all Australian fishery management jurisdictions
3. Identify options and develop a national set of guidelines for fisheries management in Australia
    - Test these guidelines for the Commonwealth (AFMA) and two states (South Australia, Tasmania)

Progress to date

Objective 1: The project team has now finished the review of relevant international and national practices, plans, guidelines and standards. The goal of this review was to seek example descriptions of the management functions for fisheries agencies. These functions were listed in Project Update 2, and revised following feedback from our steering committee following this last update. The list of functions can be considered 90% "complete", and the groupings and inclusion of functions will be revisited again as Objective 2 and 3 are completed.

Objective 2: We have identified an extensive set of regulatory frameworks, policies and guidelines relevant to Australian fishery management jurisdictions – some 90 documents. We are in the process of matching these to the management functions identified in Objective 1, in order to determine the degree to which Australian fisheries agencies already have guidance or a requirement to address each of the functions. The next step is to discuss our matching with fishery managers in our test jurisdictions (Tasmania, Commonwealth, South Australia).

Objective 3: We have not yet developed a draft national set of guidelines for fisheries management in Australia. When this draft is complete, we test these guidelines for the selected Commonwealth (AFMA) and state (South Australia, Tasmania) fisheries. This test will be a desktop evaluation of how the agency guidelines would apply to each fishery. The Northern Prawn fishery is one nominated test case.

Current focus of the project team

The next steps in the project are:

- Schedule discussions with state and commonwealth senior fishery managers to complete objective 2.
- Select the test fisheries in discussion with fishery managers.

For further information, please contact Alistair Hobday, alistair.hobday@csiro.au

Towards consistent standards for Australian fisheries management agencies

FRDC Project 2015-203
Update No. 4
June 2017

This two year project will run until October 2017. The project was developed in consultation with the Australian Fisheries Management Authority and State fisheries agencies. The idea of a standard for fishery management has been under discussion within fisheries agencies for some time and is consistent with broader directions in government and expectations in the community.

Project Team: Alistair Hobday, Rich Little, Cathy Bulman, Tony Smith, Linda Thomas (CSIRO); Caleb Gardner, Emily Ogier (IMAS); Nick Rayns (AFMA); Sevaly Sen (Consultant); Sean Sloan (PIRSA)

Steering Committee: Neil MacDonald (NMAC), Heather Brayford (WA Fisheries), JoAnne McCrea (WWF), Simon Nicol (ABARES)

Project Objectives

1. Review existing and emerging guidelines and standards as they relate to fisheries management agencies
2. Compare current management systems including regulatory frameworks, policies and guidelines across all Australian fishery management jurisdictions
3. Identify options and develop a national set of guidelines for fisheries management in Australia, and test these guidelines for the Commonwealth (AFMA) and two states (South Australia, Tasmania)

Progress to date

Milestone Report 2 was delivered June 20, 2017. We summarise that progress here:

Objective 1 (achieved): Our international review of existing standards and guidelines against the 23 management functions has focused on guidelines and standards such as the FAO Code of Conduct and the Marine Stewardship Council standard. We completed an extensive compilation of more than 100 potentially relevant documents and undertook in-depth analysis of nine documents. Each document had relevance for between 10 and 20 of the 23 draft management functions. Each function was identified in between zero and 9 documents (**Table 1**). For example, no document contained guidance on Levying, while all nine addressed Stakeholder Engagement.

Objective 2 (achieved): We have completed a review of national fishery management documents that are used to guide fishery management agencies in Australia. We considered some 83 documents for each state and the Northern Territory. We then reviewed most of these documents (n=76) as many seemed potentially relevant to the 23 management functions. Of the 76 documents reviewed, each of the 23 functions was identified in between 5% (communication; workforce management) and 49% (licencing) of documents (**Table 1**). Individual documents identified fewer functions than the International documents, with between 1 and 17 of the 23 functions identified in single documents. Some states had particular gaps and we will discuss these at upcoming stakeholder meetings. The lower number of functions in each domestic document reflects the more specific nature of jurisdictional documents.

Table 1. Frequency of management functions identified in each of nine International fisheries management and 76 Australian jurisdictional management documents.

Category of Function	Management Function	Domestic	International
Cross cutting	Risk management	13%	67%
	Stakeholder engagement	17%	100%
	Trade-offs in decision making	9%	78%
	Process of decision making	16%	100%
	Development of performance indicators	12%	78%
	Uncertainty	9%	44%
Strategy & policy development	Legislation and policy development	13%	67%
	Resource sharing	12%	78%
	Research planning	13%	56%
	Cost-recovery	12%	44%
Operational management	Compliance with regulations	22%	67%
	Levying	17%	0%
	Implementation	16%	44%
	Development of new fisheries	8%	22%
	Data management	12%	67%
	Licencing	49%	22%
	Research delivery	8%	33%
	Management plans	12%	56%
	Workforce management	5%	11%
Performance management	Monitoring	9%	78%
	Review and improvement processes	5%	56%
Communication	Reporting	8%	44%
	Communication	5%	44%

Current focus of the project team

The next stage in the project is to address steps required for Objective 3. We will develop exemplars for each of the management functions, as represented in the International and Jurisdictional documents, and plan the structure and content of the Guidance Document (our main output for the project). These 23 functions may still be refined following synthesis and review by stakeholders and our steering committee.

We have scheduled initial discussions with fishery managers and policy experts responsible for management in Tasmania, South Australia, and Commonwealth fisheries (Project Step 4). Additional meetings will follow these three separate meetings scheduled for July, which will seek to:

- Describe the project and the draft 23 management functions and discuss their relative importance
- Review State/Commonwealth documents that we think reflect the importance of many of these the management functions and identify overlooked documents for the project team to consider.
- Determine if gaps in recognition of the functions (where they exist) are because they are not relevant, have been deliberately being ignored, are being addressed, or are considered issues for the future.
- Develop the design of the Australian guidelines (Project Step 5).
- Discuss how the case studies will be selected that will be used to test the use of the Guidelines (Project Step 6).

For further information, please contact Alistair Hobday, alistair.hobday@csiro.au

Best practice guidelines for Australian fisheries management agencies

[The project formerly known as: *Towards consistent standards for Australian fisheries management agencies]*

FRDC Project 2015-203
Update No. 5
Sept 2017

This two year project will run until December 2017. The project was developed in consultation with the Australian Fisheries Management Authority and State fisheries agencies. The idea of consistent guidelines for fishery management agencies has been under discussion within fisheries agencies for some time and is consistent with broader directions in government and community expectations.

Project Team: Alistair Hobday, Rich Little, Cathy Bulman, Tony Smith, Linda Thomas (CSIRO); Caleb Gardner, Emily Ogier (IMAS); Nick Rayns (AFMA); Sevaly Sen (Consultant); Sean Sloan, Belinda McGrath-Steer (PIRSA)

Steering Committee: Neil MacDonald (NMAC), Heather Brayford (WA Fisheries), JoAnne McCrea (WWF), Simon Nicol (ABARES)

Project Objectives

1. Review existing and emerging guidelines and standards as they relate to fisheries management agencies
2. Compare current management systems including regulatory frameworks, policies and guidelines across all Australian fishery management jurisdictions
3. Identify options and develop a national set of guidelines for fisheries management in Australia, and test these guidelines for the Commonwealth and States (August 2017: revised to include all states and the NT)

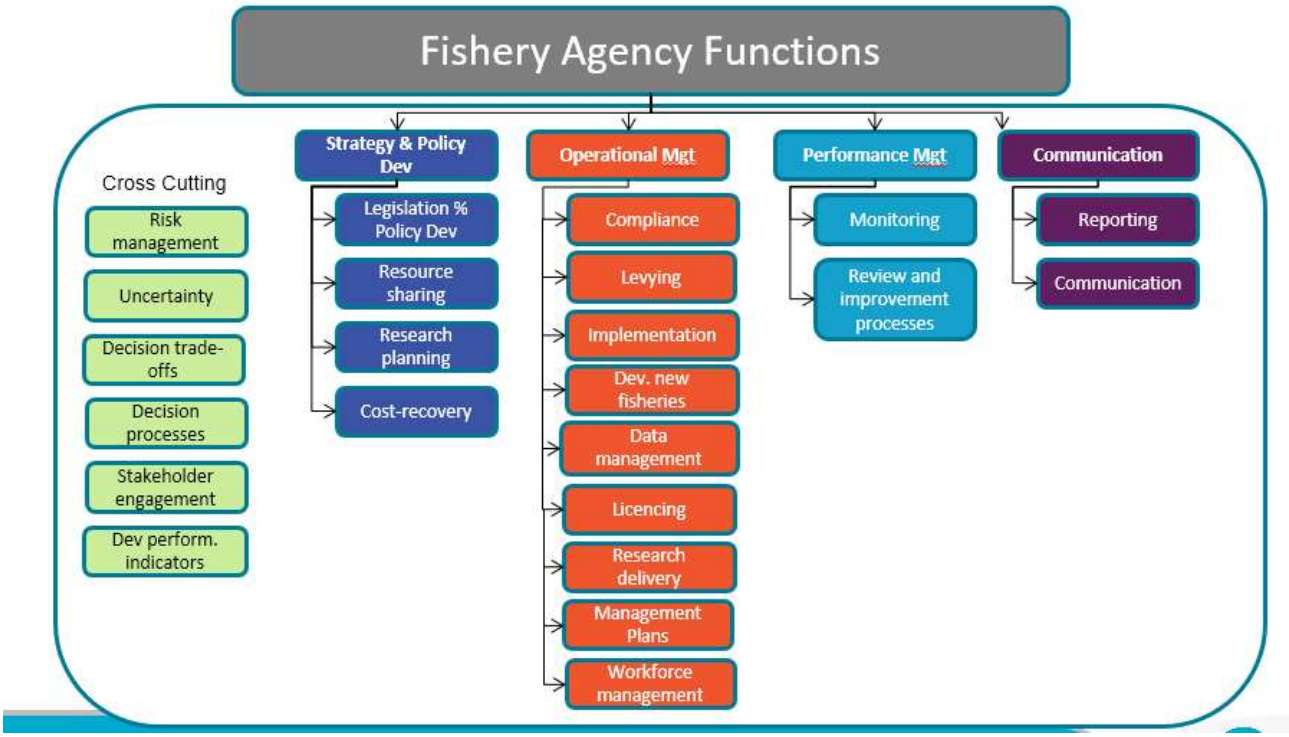
Progress to date

Milestone Report 3 was delivered September 6, 2017. Detailed progress against Objective 1 and 2 have been covered in previous Project Updates. We summarise recent progress here, focusing on Objective 3:

Objective 1 (achieved): Our international review of existing standards and guidelines against the 23 management functions has focused on guidelines and standards such as the FAO Code of Conduct and the Marine Stewardship Council standard. We completed an extensive compilation of more than 100 potentially relevant documents and undertook in-depth analysis of nine documents.

Objective 2 (achieved): We have completed a review of national fishery management documents that are used to guide fishery management agencies in Australia. We considered some 83 documents for each state and the Northern Territory. In discussion with agency staff, we have identified some additional documents to consider that will be included as part of case study activity (Objective 3).

As a result of project discussion and reviews as part of Objective 1 and 2, we propose that fishery management agencies consider the following as relevant functions (**Figure below)**



Objective 3 (underway): We have developed examples of exemplars for each of the management functions, as represented in the International and Jurisdictional documents, and are now discussing the structure and content of the Guidance Document (our main output for the project). These 23 management functions may still be refined following synthesis and review by stakeholders and our steering committee. During July and August, we held workshops with managers representing the Commonwealth, South Australia and Tasmania to discuss these functions, development of the Guidelines, and possible case study fisheries.

Current focus of the project team

In discussion with the jurisdictions, FRDC, and the steering committee, we have agreed to expand the coverage of the case studies (Objective 3) to include all Australian fishery jurisdictions. We are selecting the case studies to evaluate the Guideline functions, in partnership with the jurisdictions. These case studies will reveal the suitability of the functions we have identified. Methods for this evaluation are being developed by the project team. We also continue to:

- Review State/Commonwealth documents that we think reflect the importance of many of these the management functions and identify overlooked documents for the project team to consider.
- Determine if gaps in recognition of the functions (where they exist) are because they are not relevant, have been deliberately being ignored, are being addressed, or are considered issues for the future.
- Undertake workshops with additional jurisdictions to check and finalise each case study.
- Develop the design of the Australian guidelines (Project Step 5).
- Discuss the project with a range of stakeholders, including the AFMF and at Seafood Directions.

For further information, please contact Alistair Hobday, alistair.hobday@csiro.au

Best practice guidelines for Australian fisheries management agencies

[The project formerly known as: *Towards consistent standards for Australian fisheries management agencies]*

FRDC Project 2015-203
Update No. 6
May 2018

The project was developed in consultation with the Australian Fisheries Management Authority and State fisheries agencies. The idea of consistent guidelines for fishery management agencies has been under discussion within fisheries agencies for some time and is consistent with broader directions in government and community expectations.

Project Team: Alistair Hobday, Rich Little, Cathy Bulman, Tony Smith, Linda Thomas (CSIRO); Caleb Gardner, Emily Ogier (IMAS); Nick Rayns (AFMA); Sevaly Sen (Consultant); Sean Sloan, Belinda McGrath-Steer (PIRSA)

Steering Committee: Neil MacDonald (NMAC), Heather Brayford (WA Fisheries), JoAnne McCrea (WWF), Simon Nicol (ABARES)

Project Objectives

1. Review existing and emerging guidelines and standards as they relate to fisheries management agencies
2. Compare current management systems including regulatory frameworks, policies and guidelines across all Australian fishery management jurisdictions
3. Identify options and develop a national set of guidelines for fisheries management in Australia, and test these guidelines for the Commonwealth and States (August 2017: revised to include all states and the NT)

Progress to date

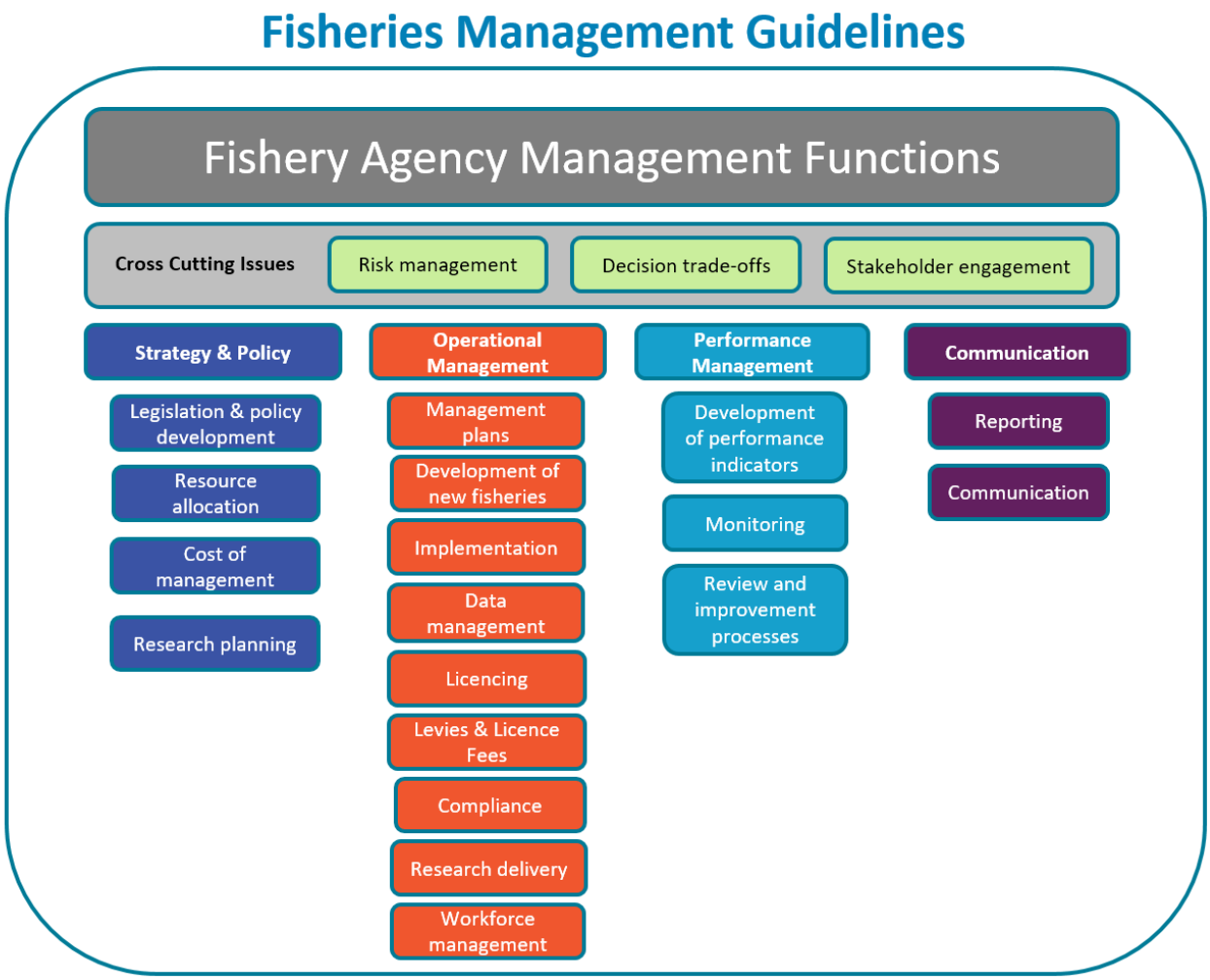
This two year project has now entered the final stage – consideration of the Draft Guidelines document by jurisdictions. A draft of this report was delivered to FRDC in December 2017, and has since been reviewed by our steering committee, as part of a six month process of improvement and revision.

Objective 1 (achieved): Our international review of existing standards and guidelines against the proposed management functions (initially 23) focused on guidelines and standards such as the FAO Code of Conduct and the Marine Stewardship Council standard. We completed an extensive compilation of more than 100 potentially relevant documents and undertook in-depth analysis of nine documents.

Objective 2 (achieved): We completed a review of national fishery management documents that are used to guide fishery management agencies in Australia. We considered some 83 documents for each state and the Northern Territory. In discussion with agency staff, additional documents were included as part of case study activity (Objective 3).

Objective 3 (completed): We illustrate each of the management functions with representative exemplars, taken from the International and Jurisdictional documents. During July and August, we held workshops with managers representing the Commonwealth, South Australia and Tasmania to discuss these functions, development of the Guidelines, and identify possible case study fisheries. In October we held a workshop with representatives of Australian fisheries management jurisdictions and tested the Guidelines on one or two fisheries for each (total of 10 case studies). The functions were relevant to each of the jurisdictional case studies, regardless of attributes such as size, gear type, species or sector with between 14 and 20 applicable (summarised in the draft Guidelines). We have produced a draft Guidance Document (our main output for the project), which has now been reviewed by the steering committee and is ready for wider jurisdictional consideration.

As a result of project discussion and reviews, we propose that fishery management agencies consider the following 21 as relevant functions (**Figure below).**



Current focus of the project team

- Offer the draft Guidelines for wider review, until November 2018.
- Agencies and the AFMF consider endorsement of these Guidelines

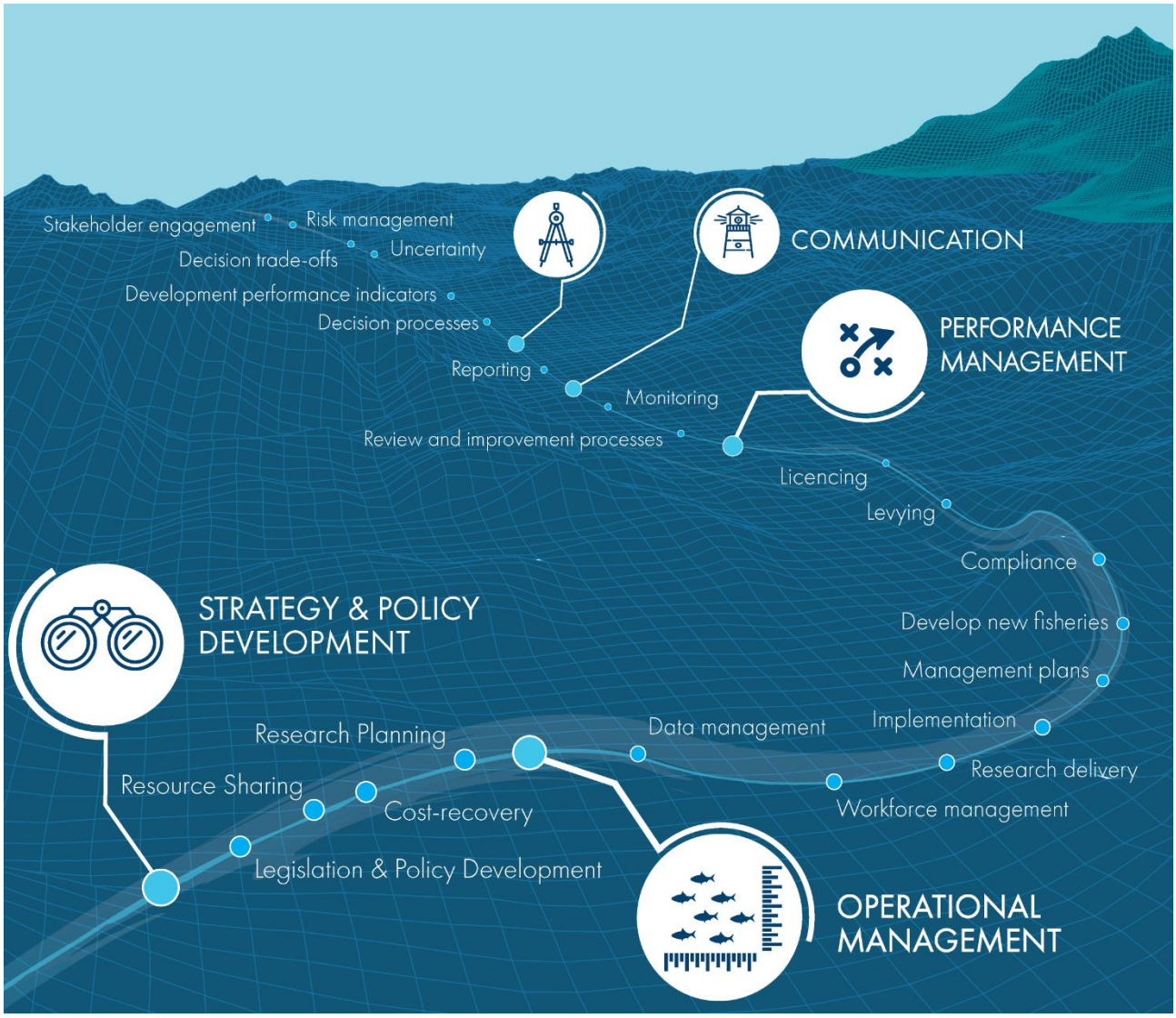
For further information, please contact Alistair Hobday, alistair.hobday@csiro.au

Appendix 2

The Guidance Document.

Best practice guidelines for Australian fisheries management agencies

"The Guidance Document"



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FRDC 2015/203

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This document is an output of the FRDC project, and a summary is provided in that final report.

Review process:
This document has undergone national peer review, by senior managers and fishery agency leads, and through the Australian Fisheries Management Forum over the period May 2018-March 2019.

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Executive Summary

The project was developed in consultation with the Australian Fisheries Management Authority and State/Territory fisheries agencies. The idea of a publicly available set of standards or guidelines for marine fishery management agencies has been under discussion within fisheries agencies for some time and is consistent with broader directions in government policy and expectations of stakeholders and the broader community.

Use of these Guidelines offers a range of benefits for Fishery Agencies including to demonstrate best practice and support continuous improvement, inform strategic planning, structural and legislative reform, harmonise or coordinate functions between jurisdictions, and build credibility and transparency with external parties, such as media and general public. The Guidelines can assist with reporting and justification of management costs including highlighting efficiencies and cost savings, development of co-management approaches by clearly describing key functions for each partner, and support external certification processes. Potential fishery and community benefits include increased support for fisheries as a result of management transparency and increased community understanding of how fisheries operate. Market benefits resulting from Agency use of the Guidelines might include information provision for consumer-facing seafood guides and seafood sourcing schemes. Finally, there may be International benefits resulting from Agency use including benchmarking Australian management relative to international management approaches and performance

As a step towards creating a national standard for fisheries management, this project has focused on creating a best practice method, through the development of National Fisheries Management Guidelines. The Guidelines provide a framework regarding the approaches and information that will help them achieve best practice and ultimately lead to the development of a standard if sought in the future. We note the difference between a *product* standard, and a *process* standard. There are many fishery product standards, applicable to a range of fisheries and the seafood they harvest, but there are fewer process standards relating to how fisheries are managed. As a step towards creating standards for fisheries management, a *best practice* is a method or technique that has been generally accepted as superior to any alternatives because it produces results that are better than those achieved by other means. In this sense, the Guidelines provide information to fishery management agencies and their stakeholders regarding the approaches that will help agencies pursue their objectives.

It is important to note that the application of these Guidelines is voluntary for fisheries management agencies and as with many new concepts may require further development as new information becomes available. Thus, this project has developed these fisheries management process guidelines for Australian fisheries management agencies noting that the intent of good 'process' must always be to drive good 'outcomes'. These Guidelines are designed for agencies that manage wild capture marine fisheries, and do not cover management aspects related to aquaculture or ranching.

The specific project objectives were to:

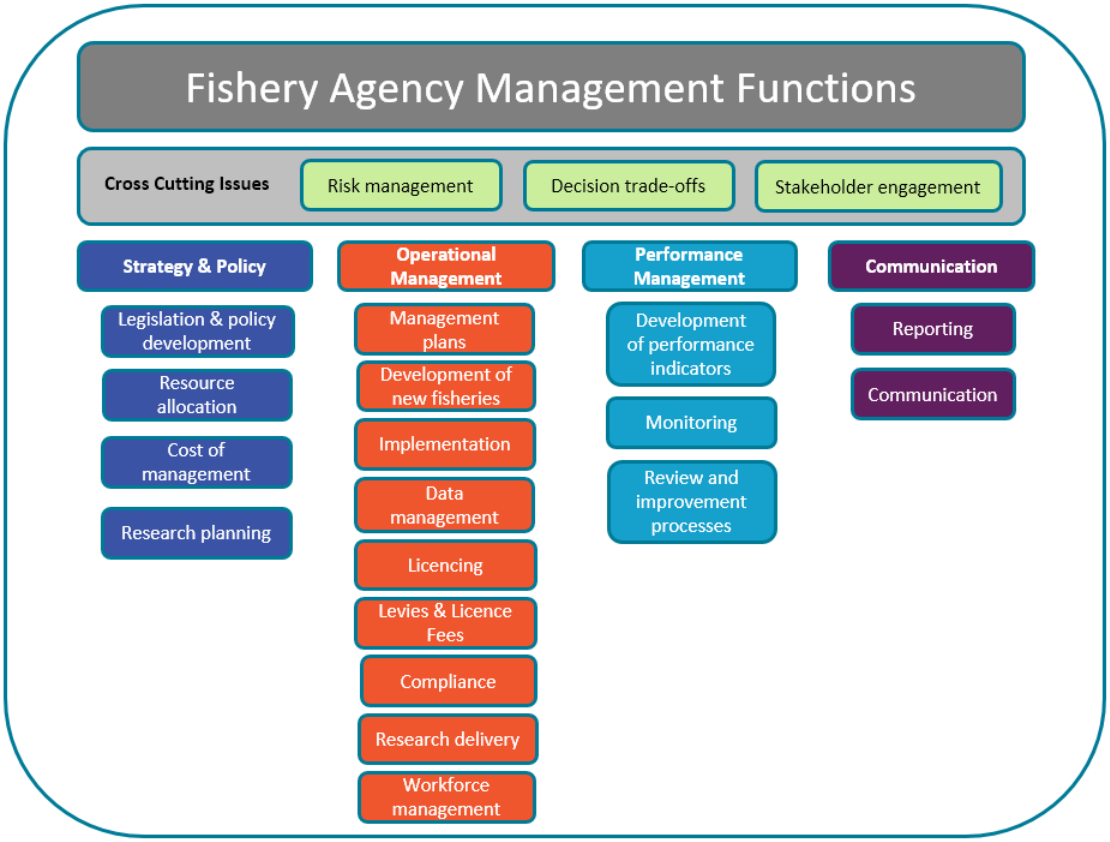
1. Review existing and emerging guidelines and standards as they relate to fisheries management agencies
2. Compare current management systems including regulatory frameworks, policies and guidelines across all Australian fishery management jurisdictions
3. Identify options and develop a national set of guidelines for fisheries management in Australia

- Test these guidelines for the Commonwealth (AFMA) and two states (South Australia, Tasmania) – revised August 2017 to include all the states and the Northern Territory.

On the basis of a comprehensive review of existing domestic and international regulatory frameworks, policies, standards and guidelines, a core set of 21 functions of fisheries management agencies were identified in five categories:

1. Development of policy and legislation – Setting the stage for good management
2. Operational management – Day-to-day functions for management agencies
3. Review and Performance evaluation – Checking Agency performance
4. Communication and reporting – Outward-facing agency communication
5. Cross cutting – issues that are explicit or implicit in many management functions

A description of each function and best practise features is accompanied by examples of how Australian fisheries management agencies currently seek to implement each function. Further, examples of evidence that could demonstrate that the function has been successfully delivered are also provided. The application of the Guidelines to agencies was tested via review of existing agency legislation, policy and other documents and ten case studies spanning Australia's fishery jurisdictions. Undertaken in partnership with fishery managers, these case studies showed that the Guidelines are also relevant to fisheries managed by an Agency, regardless of fishery attributes, such as size, species, and sector. Evidence to demonstrate that the functions were being performed at a fishery level was also perceived as readily available for most functions.



An agency that successfully implements these management functions in accordance with the guidelines will be well-placed to deliver the goal of "sustainable fisheries".

The application of the Guidelines to agencies was tested at two scales, the first relating to the functions described above via review of existing agency legislation, policy and other documents, and the second through the direct application of ten case studies chosen to span both the diversity of fishery management arrangements and breadth of fisheries currently managed in Australia.

Undertaken in partnership with fishery managers, these case studies showed that the Guidelines are relevant to individual fishery agencies and fisheries, regardless of their attributes such as size, gear-type, species, or sector. Evidence to demonstrate that the functions were being performed at a fishery level was also perceived to be readily available.

In summary, this document:

1. Outlines the need for Guidelines and their context
2. Describes how the functions were identified and tested
3. Describes the functions
4. Shows application to agencies
5. Provides guidance on how to implement these Guidelines
6. Shows application to fisheries via a set of case studies

These Guidelines should be reviewed and updated on a five year basis, as best practice will certainly evolve over that period of time.

Acknowledgements

The following individuals were critical to the development, review and improvement of these Guidelines over the project period, and we are grateful for their contribution.

Project steering committee: Neil MacDonald, Heather Brayford, Jo-Anne McCrea, Simon Nicol, Ilona Stobutzki

Workshop participants: Attendees at the Tasmanian, South Australia, and Canberra workshops.

Case study participants: Belinda McGrath-Steer (PIRSA), Brian Boyle (NT), Matt Bradshaw (Tas), Tom Roberts (QLD), Darren Reynolds (NSW), Steve Bolton (AFMA), Melissa Schubert (Vic), Kim Walshe (WA)

AFMF: Fisheries management subcommittee & Bryan McDonald, and reviews from Ian Dutton (Tas), Ian Curnow (NT), David McPherson (NSW), Danielle Thompson and Paul Murphy (DoEE), and Tony Harman (DAWR).

Jurisdictional supporters: Claire Andersen (QLD), Dallas D'Silva (Vic), Bryan McDonald (NT), Doug Ferrell (NSW), Matt Bradshaw (Tas). Note that SA, WA and AFMA representatives were members of the project team or steering committee.

Abbreviations

AFMA	Australian Fisheries Management Authority
ARC	AFMA Research Committee
AFMF	Australian Fisheries Management Forum
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAWR	Department of Agriculture and Water Resources
ESD	Ecologically Sustainable Development
EPBC	Environmental Protection and Biodiversity Conservation Act, 1999
ERA	Ecological Risk Assessment
FAC	Fishery Advisory Council
FAO	Food and Agriculture Organisation of the United Nations
FRDC	Fisheries Research and Development Corporation
GSSI	Global Sustainable Seafood Initiative
HS	Harvest Strategy
ISO	International Standards Organisation
MSC	Marine Stewardship Council
RAG	Research Advisory Group
WTO	World Trade Organisation

Glossary of terms

Accreditation: A process by which an authoritative body gives formal recognition of the competence of a certification body to provide certification services against an international standard.

Assessment tool: a way to assess the fishery/fishery management system and is ideally based on standards and guidelines.

Australian Fishing Zone (AFZ): The area extending seaward of coastal waters (that is, from three nautical miles from the territorial sea baseline) to the outer limits of the Exclusive Economic Zone (EEZ). In the case of external territories, such as Christmas Island, the AFZ extends from the territorial sea baseline to the outer limit of the EEZ. The AFZ is defined in the *Fisheries Management Act 1991* (Cth), which also specifies a number of 'excepted waters', notably in Antarctica and the Torres Strait, that are excluded from the AFZ.

Benchmark: defines equivalence between standards, and is not audited against.

Best management practice (BMP): Management practices aimed at improving the quantity, safety and quality of products taking into consideration animal health and welfare, food safety, environmental and socio-economical sustainability. BMP implementation is generally voluntary. The term "better" is preferred by some, rather than "best" because management practices are continuously improving (today's 'best' is tomorrow's 'norm').

Certification: Procedure by which certification body or entity gives written or equivalent assurance that a product, process or service conforms to specified requirements.

Certification body: A provider of certification services, accredited to do so by an accreditation body.

Code of Practice: A statement of an industry's or group's commitment to conduct its activities or business in accordance with specified principles of good practice.

Continuous improvement: Continuous improvement is a process of getting closer to achieving desired objectives over time. Continuous improvement is also about responding to new information, research, and technological change.

Fishery: A unit determined by an authority or other entity that is engaged in raising and/or harvesting fish. Typically, the unit is defined in terms of some or all of the following: people involved, species or type of fish, area of water or seabed, method of fishing, class of boats and purpose of the activities.

Fisheries co-management: Fisheries co-management is an arrangement in which responsibilities and obligations for sustainable fisheries management are negotiated, shared and delegated between government, fishers, and other interest groups and stakeholders.

Fisheries management agency: Institution responsible for fisheries management, including the formulation of the rules that govern fishing activities. The fishery management agency may also be responsible for a range of ancillary services, such as the collection of information, its analysis, stock assessment, monitoring, control and surveillance, consultation with interested parties, application and/or determination of the rules of access to the fishery, and resource allocation.

Guideline: a "weaker" version of a standard.

Harmonisation: activities aligned to achieve the same goal, or where processes are similar.

Internal audit: Internal audits, sometimes called first-party audits, are conducted by, or on behalf of, the organization itself for management review and other internal purposes, and may form the basis for an organization's self-declaration of conformity. In many cases, particularly in smaller organizations, independence can be demonstrated by the freedom from responsibility for the activity being audited.

Legal framework: A legal framework is defined as a broad system of rules that governs and regulates decision making, agreements, laws etc. It includes a set of rules, procedural steps, or test, often established through precedent in the common law, through which judgments can be determined in a given legal case. In a fisheries context this can be regarded as the framework of legal instruments required for the exercise of responsible fisheries and to formulate and implement appropriate measures.

Management measures: Specific controls applied in a fishery to contribute to achieving the objectives, including input controls (fishing effort limitations), output controls (catch quotas), technical measures (gear regulations, closed areas and time closures), and socio-economic incentives (access and use rights).

Management system: The framework of processes and procedures used to ensure that an organization can fulfil all tasks required to achieve its objectives. Includes, but is not restricted to, agencies or entities involved in the management of the fishery, the legislative framework within which the fishery is undertaken, the management measures implemented and the processes and procedures that enable the collective functioning of the various components.

Monitoring, surveillance, control and enforcement (MCS): Activities undertaken by the fishery enforcement system to ensure compliance with fishery regulations. "Enforcement" refers generally to the enforcement of rules and regulations, and can be regarded as part of the overarching term "MCS"

Precautionary approach: A set of agreed measures and actions, including future courses of action that ensures prudent foresight and reduces or avoids risk to the resource, the environment, and the people, to the extent possible, taking into account existing uncertainties and the potential consequences of being wrong.

Product standard is a set of criteria with which a product or a family of products must comply. The Australian Fish Names standard is a product standard.

Process standards are either management system standards or performance standards. Management system standards set criteria for management procedures, for example for documentation for monitoring and evaluation procedures. They do not set criteria for the performance of the management system in terms of outcomes. ISO-14001 is an example of management system standards.

Publicly available: Obtainable by any person, without unreasonable barriers of access. NOTE – Information that is published on an organisation's website and can be found through a basic and quick search is considered to be publicly available. 'Available on request' is not the same as publicly available.

Seafood certification scheme: An organisation in the seafood sector, which is responsible for the processes, systems, procedures and activities related to standard setting, accreditation and implementation of certification.

Stakeholder: An individual or group of individuals, whether at institutional or personal level, who has an interest or claim that has the potential of being impacted by or having an impact on a given activity. This interest or claim can be stated or implied and direct or indirect. Stakeholders and stakeholder groups can be at the household, community, local, regional, national, or international levels.

Standard. A published document established by consensus and approved by a recognized body that provides for a common and repeated use rules aimed at achieving optimal order. It provides, for common and repeated use, rules, guidelines or characteristics for products or related processes and production methods.

Validation: An activity to obtain evidence that a requirement is controlled effectively.

Verification: A confirmation, through the review of objective evidence that requirements have been fulfilled.

Introduction

Australia's marine and inland waters support a diverse range of natural resources including fish, invertebrates, sharks and rays which are managed by fisheries agencies in eight jurisdictions. These species support a large number of commercial, recreational and indigenous fisheries, which vary from large industrial scale fisheries to small scale and data-limited operations delivering seafood to domestic and international markets. Recreational and Indigenous fishers also depend on wild fish stocks. In many cases, less information is available for recreational fishing than for commercial fisheries, and different management approaches used. Many species also support a recreational and indigenous fishing sector.

In general, State and Northern Territory fisheries extend from the coast to a distance of three nautical miles from the coast, and the Commonwealth manages fisheries that extend from three nautical miles to the 200 nautical mile EEZ limit. The Commonwealth also manages Australian vessels fishing on the high seas. The jurisdictional boundaries are set out under the 1982 Offshore Constitutional Settlement, a package of uniform national, state and territory laws outlining responsibilities for offshore fisheries, mining, shipping and navigation. In some situations where fisheries or fish stocks fall within more than one jurisdiction, the default jurisdictional boundaries may not be compatible with sensible efficient and effective management of these fish stocks. Where possible in these cases, the Commonwealth, State and Northern Territory governments have developed arrangements to assign management responsibility to one jurisdiction.

At a jurisdictional level, the structure and nature of the bodies responsible for fisheries policy and management varies. The Commonwealth has established a statutory body to manage and enforce compliance on Commonwealth fisheries, the Australian Fisheries Management Authority (AFMA), whereas the policy settings for Commonwealth are developed by the Department of Agriculture and Water Resources. In other jurisdictions the policy and management functions can be delivered by a single government department. In some cases, functions can be outsourced to other departments (e.g. compliance may be delivered by a police department).

A range of high level national initiatives provide coherence across the jurisdictions that are responsible for management of marine fisheries. These include a National harvest strategy policy and guidelines – harvest strategies are an accepted common feature of modern fisheries management, specifically in relation to decision making - and a National ESD reporting framework – all fisheries legislation includes ESD objectives, requiring ESD to be taken account in decision making and managing risk. The Department of Environment and Energy also plays a role in sustainable fisheries, particularly in undertaking the ecological-focused sustainability assessments for the export approvals of relevant fisheries through a process described in the *Guidelines for the Ecologically Sustainable Management of Fisheries* (2nd Edition – see references). This extensive assessment involves checking each fishery against a range of biological elements. Since 2000, this process has assisted in the implementation of ecosystem based fisheries management and continuous improvement in fishery management performance. For example, around 70 of the 110 currently EPBC Act approved fisheries are now considered to be of low risk to the environment and are on 10 year assessment cycles. This is a considerable achievement by fisheries managers, scientists, NGOs and the commercial fishing industry.

Some elements of management are also shared (e.g. FRDC national co-management working group). Recently, the national fish stock status reporting framework was also established (SAFS)

and has improved the reporting aspects of fish stock status. Collectively, these documents provide strong guidance for agencies and represent a platform on which the development of agency Guidelines can stand.

Fisheries management in Australia is considered world-leading in range of aspects, including overall stock status, assessment of ecological sustainability and risks, management structures such as use of harvest strategies and scientific development of assessment tools, however, this varies between agencies and functional areas. While there are examples of best practice for particular functions of fisheries management within individual jurisdictional management agencies, high standards are not in place across all elements in all fisheries agencies. Thus, these proposed Guidelines offer value in in harmonising and then documenting best practice across all management functions to guide continued improvement towards consistent best practice nation-wide. In the development of these Guidelines, the range of management arrangements and information available for different agencies and fisheries was considered, as less information is often available for recreational, indigenous and exploratory fishing activities than for established commercial fisheries. This approach was important to ensure that the Guidelines would be useful under different management approaches used by Australian fisheries agencies.

Main goals of fishery management

There are a range of definitions of fisheries management, and most are relatively general. Fisheries management seeks to manage fisheries resources and the ecosystems that support them in the face of a naturally dynamic environment that is subject to a range of anthropogenic effects, uncertainty, and to balance multiple and often competing objectives (FRDC 2010-061). The FAO (1997) notes that fisheries management is:

> *"The integrated process of information gathering, analysis, planning, consultation, decision-making, allocation of resources and formulation and implementation, with enforcement as necessary, of regulations or rules which govern fisheries activities in order to ensure the continued productivity of the resources and accomplishment of other fisheries objectives.*

While this definition is effective at recognising the processes which encapsulate fisheries management, it does not sufficiently capture the intent of fisheries management which does not stop at 'productivity'. Rather, it is now widely accepted that the intent of fisheries management is to ensure ecological sustainability of environments and ecosystems affected by fisheries activities and not just manage for the continued productivity of species regarded as 'resources'.

In Australia, the goals of fishery management are formally encompassed in the objectives stated in legislation, such as Fishery Management Acts. These Acts vary by jurisdiction in the specificity of objectives with regard to the different management objectives. For example, Commonwealth legislation is clear on economic and biological sustainability objectives, but does not explicitly state social objectives. South Australian legislation explicitly places sustainability of the resource above other objectives, but is clear a resource must be managed for the benefit of the community.

To balance the objectives of fisheries management, agencies usually develop management arrangements and are organised in such a way as to deliver key functions aimed at ensuring sustainability whilst also providing optimal benefits for local, State or regional users. The functions of management agencies that are described in these Guidelines help an agency to

demonstrate these overarching objectives that can lead to more effective and responsible fisheries management.

Policy documents (including management plans) may also be developed to complement legislation, or independently as a result of other drivers, and provide further guidance on how management objectives will be met, and can be agency-level or fishery-specific. Overall, the main goals for fisheries management in Australia are to pursue (i) ecological, (ii) economic, and (iii) social sustainability. All Australian jurisdictions have a core objectives that focuses on resource sustainability and may also have specific objectives seeking to address social and economic aspects as well as other drivers such as Ecosystem Based Fisheries Management (EBFM).

The act of achieving sustainable fisheries involves a complex and diverse set of tasks including a range of management activities, services or functions which — if undertaken well — contribute towards achievement of the objectives. Previous efforts (e.g. FRDC 2006) have classified the range of management functions, activities and services into six groups (administration; compliance; research and development; monitoring and assessment; management planning and policy; communication and extension). As described in subsequent sections, we consolidated these broad headings, but retain the functions in each.

Over time, new aspects for fisheries agencies may be emphasised or modified informally or formally. An example of formal modification to legislation is the *Fisheries Legislation Amendment (Representation) Bill 2017* (Cth) which amends the *Fisheries Administration Act 1991* and the *Fisheries Management Act 1991* to require the Minister and the Australian Fisheries Management Authority (AFMA) to to have regard to accounting for the interests of commercial, recreational and Indigenous fishers when making management decisions about fisheries. The Bill also provides for the AFMA Commission to include commissioners with expertise in recreational or Indigenous fishing, and to try to include recreational fishers on relevant advisory committees (indicating an expansion to cover recreational issues).

Informal and external drivers, as described in the next section, also influence the goals of fishery management agencies.

The external context for fisheries management

In some instances it is necessary for fisheries management agencies to respond to challenges and opportunities that influence fish stocks or market access. Agencies must not only meet their compulsory legislative requirements but also adjust their management responsibilities in response to external drivers. Compulsory requirements are specified in legislation and includes areas such as environmental stewardship (e.g. EPBC Act 1999), food quality and safety, operational health and safety, biosecurity, marine parks, and maritime safety. A range of international obligations also drive fisheries legislation and government policy (e.g. FAO 1995 - Code of conduct for responsible fisheries). Fisheries management actions are also influenced by requirements of the EPBC Act, the Department of Environment and Energy *Guidelines for the ecologically sustainable management of fisheries*, or other guidelines (such as Threat Abatement Plans or National Action Plans). The FAO Code of conduct (1995) is particularly important as Australia is a signatory, and the code is used internationally by both government and private sector as a reference when managing fisheries (e.g. European Union) or assessing them (e.g. MSC, GSSI).

External drivers can also be non-compulsory and lead to discretionary management actions. For example, environmental change (e.g. climate change, disease outbreaks, pollution and habitat loss) can all lead to changes in the application of management functions. Technological change (e.g. effects on catching, processing and distribution) might lead to a change in management arrangements, while changes in management can also be influenced by business structures (effects on supply chain, globalization, and integration). Eco-certification processes (e.g. MSC) influence behaviours of agencies and fisheries, and fishers, and management functions may be emphasized in order to meet these certification needs. Industry (e.g. harvest stability) and societal expectations (e.g. less bycatch) can inform the emphasis on management functions such as quota setting and observer programs. In different parts of Australia, cultural practices (demographics, e.g. barramundi release; species of choice) are also important considerations. Fisheries represents one use of a shared marine environment, and is often deemed subordinate in interaction with other users (e.g. aquaculture, telecommunications, oil and gas, transport) adding complexity and emphasising the need for communication and coordination.

Collectively, these drivers shape the nature of the management functions (as well as vice versa), and should be recognized as influential in an agency pursuing the goals of fishery management.

Continuous improvement and the functions of fisheries management

Continuous improvement is about getting closer to achieving desired objectives over time. In fisheries management this process can take a wide variety of forms such as (i) achieving a greater number of sustainably managed fish stocks over time, (ii) fewer protected species interactions through time, (iii) progressively greater efficiency in service delivery to stakeholders, or (iv) increasing market access. Continuous improvement is also about responding to new information, research, and technological change. Thus, 'best practice' changes over time as capacities increase and as what was once best practice becomes 'average' practice and a new level is set by industry or regulatory leaders. With respect to these Guidelines, there may be continuous improvement in demonstrating delivery of each of the management functions and the activities captured under each function.

As resources for improvement may be limited, continuous improvement also requires decisions about prioritisation. Questions need to be answered first about what improvements need to be made (these may arise from legislation, policy and/or stakeholders), acceptable risks or standards (to measure improvement against, e.g. stock-based reference points) and the cost-benefit of any improvements (what is the best dollar-cost course of action to make the improvements).

Measuring improvement is not always easy as it requires data and the quality of data needs to be well understood since this drives the analytical tools that can be used and the conclusions that can reasonably be drawn about any improvement. Using the example of protected species interactions, these are usually regarded as rare events, so commonly used management tools, such as fisher logbooks, are often not appropriate for measuring improvement. A fishery may introduce a mitigation device and assume 100% compliance, while logbooks may continue to show large variations in protected species interactions so that it is hard to measure any improvement resulting from the mitigation device. In this example, development of an independent observer program or deployment of on-board cameras that improve data accuracy and precision are two possible solutions to reducing the variation and allow measurement of any improvement. Generic adaptive management cycles are also useful in considering the process of continuous improvement and how to measure it (**Figure 1**).

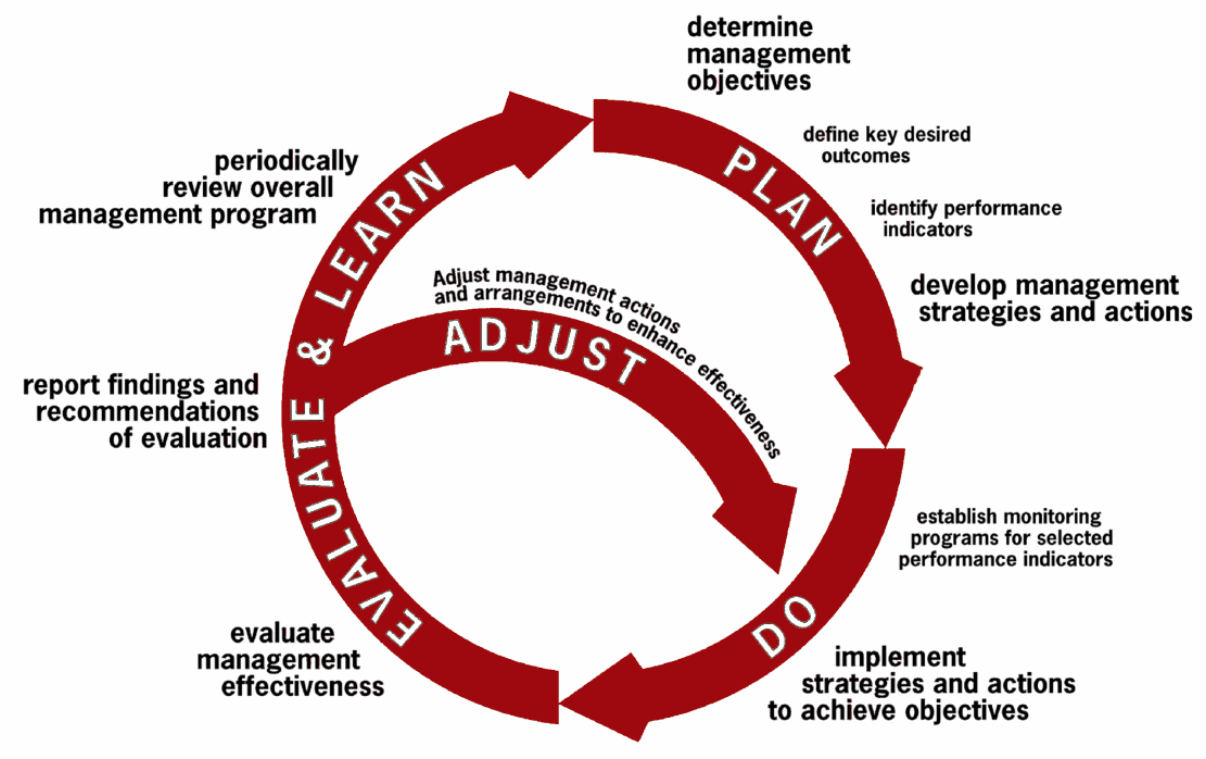


Figure 1. The iterative process of fisheries management involves review and revision of many of the functions over time. (Source: http://www.cmar.csiro.au/research/mse/). Management objectives are often driven by legislation and policy relevant to each fishery jurisdiction, or by external factors, as discussed in the text.

The need for best practise management guidelines

A **best practice** is a method or technique that has been generally accepted as superior to any alternatives because it produces results that are superior to those achieved by other means. In this sense, the Guidelines provide information to fishery management agencies and their stakeholders regarding the approaches that will help agencies pursue their objectives. An agency that successfully implements these functions represents a necessary step towards management of "sustainable fisheries" (see section **Benchmarking the Guidelines**).

As the Guidelines cover the important management functions, and if an agency is doing them (well), fisheries should also be well managed. Exceptions may exist as there may be influences outside the agency control that affect the sustainability of fisheries (e.g. Murray River water flow). In such cases, the power within a fishery agency is one of policy coordination with external agencies/authorities with interests in fisheries resources (as is the case between Queensland and GBRMPA) to achieve horizontal policy coherence. Failure to achieve the desired objectives may also occur when functions are emphasized rather than legislated, and so application is less than required to achieve the desired goals.

The Guidelines described in this document are process Guidelines, which are similar to process Standards in that they focus on the system rather than a product (**Box 1**). Guidelines are also different from Standards (**Box 2**). This document describes voluntary Guidelines for functions that are the responsibility of fisheries management agencies. Although standards and guideline are often used interchangeably, we consider Guidelines as an earlier stage of a process that might ultimately lead to a Standard.

These Guidelines are designed for agencies that manage wild capture marine fisheries, but the Guidelines do not cover aspects related to aquaculture or ranching.

Box 1. Process or Product Standards

A **product standard** is a set of criteria with which a product or a family of products must comply. The Australian Fish Names standard is a product standard.

Process standards are either management system standards or performance standards. Management system standards set criteria for management procedures, for example for documentation for monitoring and evaluation procedures. They do not set criteria for the performance of the management system in terms of outcomes. ISO-14001 is an example of management system standards.

How long will these Guidelines remain relevant?

These Guidelines represent our current understanding of best practice. Agency requirements, expectations and priorities will change in time (e.g. animal welfare in fisheries may become prominent), and so functions may need to be updated in future. There may be a need to add functions, although specific issues or activities that arise may still fit within existing functions.

Review of these Guidelines should be considered within a **five year period** after any National endorsement to maintain relevance, as occurs with other guidance documents. There may also be a continual improvement process, where minor changes can be implemented without comprehensive consultation, which will be considered during the formal review period. If there is a move to create national Fishery Agency Standards, then these Guidelines may be contribute to the development or be replaced by such a Standard.

Box 2. Guidelines or Standards?

Both standards and guidelines documents set out specifications and procedures designed to ensure products, services and systems are safe, reliable and meet performance objectives. They should establish a common language, be based on experience and be regularly reviewed to ensure they keep pace with the advances in the core subject. Both set out agreed principles or criteria so that their users can make reliable assumptions about a particular product or process.

While there are some elements in common, Guidelines represent a less formal process than required for Standards. Standards Australia defines a Standard, as per the International Standards Organisation (ISO), as a *"document, established by consensus and approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context."* A particular process to develop a standard has to be followed as described by Standards Australia in their publication, Rules for the Structure and Drafting of Australian Standards (www.standards.org.au). In general, for Standards,

- Compliance can be mandatory (regulated by government) or voluntary
- Does not have to lead to certification
- Can be international, regional, national or private
- Follow a formal and technically robust development process

Australian Standards can be developed by Standard Development Organisations (SDOs) which have been accredited by the Accreditation Board for Standards Development Organisations (ABSDO) or by other Standards Setting Organisations (SSOs). ABSDO is the coordination body for SDOs in Australia. FRDC is the accredited SDO "to develop Australian Standards in the fields of terminology, sustainability, and operational practices in the fishing industry" and now owns the Australian Fish Names Standard. Private standards are voluntary and are developed by entities other than government (companies, NGOs, stakeholder associations). They differ in content, focus, certification and verification methods and also in how they are developed. The Marine Stewardship Council is a private standard.

In contrast these Guidelines can be easily refined and updated, used in part or in full, and publically or privately as an agency-improvement tool.

Source: FRDC 2012/746 - A short primer on Standards.

Methods – Developing the Guidelines

These Guidelines were developed over a two year period by a project team composed of representatives from a range of science and management agencies. As with the development of the National Harvest Strategy Guidelines (FRDC: 2010/061), the following broad approach was followed

1. A project team was established to oversee the project and was the main vehicle for doing the work, as described more specifically in the following Method sections.

In addition

2. A project steering committee was used as a sounding board for sections and reviewed draft versions through the project lifetime. Regular updates were provided to keep them and other stakeholders appraised of progress.
3. A series of workshops were held with representation from Australian jurisdictions to refine and test the Guidelines.
4. The Guidelines were presented at FRDC National Priority 1 workshops, Seafood Directions 2017, the AFMF fisheries management sub-committee, and with heads of fisheries agencies.
5. The guidelines were reviewed by experts appointed by the project team and FRDC, and then updated by the project team (January to May 2018).

In future, there may be;

6. Endorsement of the Guidelines by AFMF as National Guidelines

and potentially;

7. Endorsement of the Guidelines at a meeting of National Fisheries Ministers as National Guidelines.

Draft management functions

A set of candidate management functions were developed over a series of project team workshops which involved experienced representatives of science and management agencies. Review of existing agency structure and functions informed this stage, as did experience with different jurisdictional activities. A description for each management function was also developed. The list and description of the draft management functions were reviewed by the project steering committee, and based on feedback with fishery stakeholders, modified in parallel with review of existing international and domestic literature relevant to fisheries management functions.

In selecting the functions, it is important to recognize that Fisheries agencies, as with any public agency have a range of functions that are not central to fisheries management per se. These include functions related to finance (e.g. payroll), legal, information technology (IT), health and safety (**Figure 2)**. We have focused on the functions that are central to the fisheries management aspect, but have also included some functions that are related to these non-core areas in the case where they can have influence on successful fisheries management relative to their successful execution in any public agency. An example that is discussed below is workforce management – retention of trained and trusted staff with relevant fishery knowledge is important for agency credibility with stakeholders.

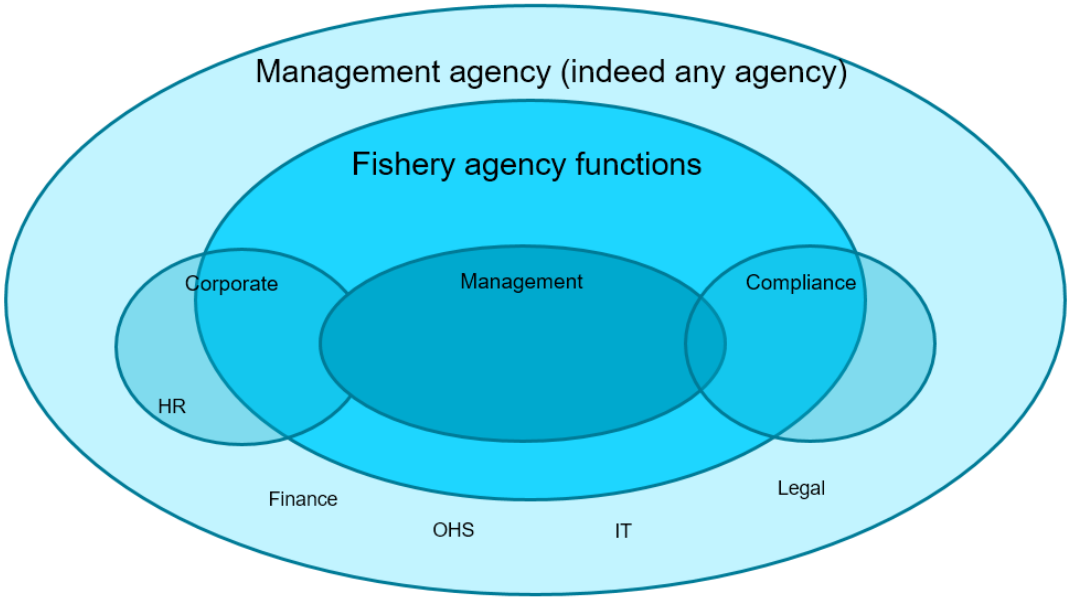


Figure 2. Management agencies encompass a wide range of functions – in the Guidelines the focus is on this activities that are core to a fisheries management agency.

Reviewing international and domestic literature

Development of the draft management functions and the Guidelines was informed by review of international guideline and standard documents. The goal of this stage was to seek examples of descriptions of management functions specified in these documents, extract examples of best-practice and consider gaps in the draft functions.

The project team considered over 100 potential international documents. A subset of nine documents representing a broad cross section of these documents was selected for detailed analysis relative to the draft management functions (**Appendix 2 -International**).

To ensure consistency, each international document was reviewed independently by two project members, and information within each document was mapped to the draft set of management functions. In selecting the relevant sections from the documents, three main questions were asked:

1. Does it identify the function?
2. Does it provided a definition of the function?
3. What guidance is given about core attributes for each function?

Each document's detailed analysis was summarized and discrepancies between the team members noted, and resolved in discussion between the project members. These results can be reviewed in **Appendix 2**.

Domestic management documents relevant to each State and Territory, along with the Commonwealth, were also reviewed. Legislation that was a primary (general) source of information regarding fisheries, as well as those documents that were a potential secondary source or specific to a function were identified by the project team, and reviewed by jurisdictions for completeness in several workshops. The review was not exhaustive but intended to cover the range of documents and ensure that we collated examples for each management function and could summarize relative coverage of the proposed management

functions for each jurisdiction. Overall, some 94 Australian documents were reviewed by the project team.

We considered the same questions and took the same analytical approach as the international review when mapping document elements to proposed management functions;

1. Does it identify the function?
2. Does it provided a definition of the function?
3. What guidance is given about core attributes for each function?

This review was intended to cover a range of documents and ensure that we collated examples for each management function and could summarize relative coverage of the proposed management functions for each jurisdiction, but was not intended as an exhaustive review. Results can be reviewed in **Appendix 3**.

Selecting examples describing the implementation of functions

Examples of operational implementation for both International and Domestic documents and were selected by the project team for each management function. These were then collated to illustrate "in practice implementation" of each management function. We selected a range of domestic and international examples, which are provided with the description of each management function (see section **Functions for fisheries management agencies**). These examples may be used when creating specific implementation guidance by an Agency interested in any of the functions. In addition, we describe the evidence that may be used to show that the function is being executed by an Agency.

Applying the Guidelines

This section explains the benefits of the guidelines and how Agency and fishery performance could be evaluated.

Why use the Guidelines?

The Guidelines will be useful to Fisheries management agencies in a range of ways, and also to other fisheries interest groups (**Box 3**). By using consistent Guidelines, an Agency can demonstrate best practice, support continuous improvement processes, build credibility with stakeholders, and streamline formal assessment approaches. Agencies that use these Guidelines will help build positive perceptions of fisheries management, which will benefit fisheries and the communities that depend on these fisheries. The seafood market will also benefit, as information for consumers and wholesalers may be enhanced. Assessment of Australia's management performance will be improved in International reviews. Australia also has a role to play in improving management in neighbouring regions, and if useful, these Guidelines may also assist other nations, particularly those with whom Australia shares fisheries stocks and management arrangements.

How to use the Guidelines

With regard to agencies, an important use of these Guidelines is as a resource for information on management functions. Descriptions of each of the functions provide an overview of the roles and responsibilities of management agencies. The Guidelines provide examples of the best operational descriptions of how these functions are codified in domestic (**Appendix 3**) and international documents (**Appendix 2**). The Guidelines can support the process of continuous improvement, by identifying weak points and/or seeking examples of best practice from Australian jurisdictions and internationally examples. Australian fishery management agencies are continually revising and updating their processes, and these Guidelines can fit within existing initiatives.

An Agency may use these Guidelines when undertaking a self-assessment such as a readiness test for certification or for internal performance assessment of some kind. This self-assessment could take a range of forms from informal discussion with Agency employees about the internal strengths and weaknesses of each function, through to a self-audit. This self-audit could involve examination of how the Agency implements and achieves the functions. As described above, an Agency could then improve areas of weakness by drawing on examples elsewhere (as described in the document) and developing an implementation plan.

An Agency could use these Guideline to direct an external assessment whereby an independent reviewer documents how these management functions are implemented and verified for an Agency and its fisheries. The assessment form will be influenced by any "external" approval process (e.g. ISO 9001), and so could be for internal purposes or external release.

An Agency could also undertake a fishery level assessment, by checking how each of its fisheries is implementing these management functions. As revealed by the case studies (**Appendix 4**) application to individual fisheries can reveal coverage and gaps of the functions. One response might be development of an improvement plan which could be initiated for a few fisheries in the beginning, before scaling to all fisheries.

These assessments could then be used as evidence of achievement, which may also serve as an endorsement of the priorities of fisheries management agencies.

Box 3. Benefits to different groups of the using these Guidelines.

- Agency benefits
  - Demonstrate best practice
  - Support continuous improvement
  - Support structural and legislative reform
  - Support strategic planning
  - Help harmonise or coordinate functions between jurisdictions
  - Credibility and transparency with external parties, such as media and general public
  - Reporting against and justification of management costs (use a "checklist" of effort against function), including highlighting efficiencies and cost savings
  - Reporting up to government and showing evidence of processes that can support department approach
  - Streamline other approaches (streamline EPBC, export certification)
  - Support co-management approaches by clearly describing key functions for each partner
  - Support external certification processes (e.g. MSC, ISO)
  - Capacity building of staff
  - As a stepping stone to a "fisheries agency standard"
  - As a defence against "process complaints"
- Fishery and community benefits
  - Credibility for fisheries as a result of management transparency
  - Increased community understanding of how fisheries operate
- Market benefits resulting from agency use
  - Provide information sought for consumer-facing seafood guides
  - Provide information sought for seafood sourcing decisions
  - Support for business to business initiatives for co-managed fisheries
- International benefits resulting from agency use
  - Exemplar for RFMOs and emerging management agencies, particularly when sharing stocks
  - Information for benchmarking Australian management relative to international management approaches and performance

Guidelines: Functions for fisheries management agencies

Fisheries management agencies charged with management of marine resources differ in coverage, but most have oversight of domestic commercial, recreational and indigenous fisheries and may also contribute to international management discussions (i.e. AFMA). As noted earlier, there are many structures or classifications that have been developed for the range of functions, activities and services that make up fisheries management (e.g. **Appendix 1**; FRDC 2006). After reviewing a range of options, a five category structure was selected as the most parsimonious, and reflecting a common structure around the world. Importantly, the focus is on the management functions, and so this five category classification is for organisation only. The same functions could be classified in alternative ways with no substantive difference to the benefits provided by having clear Guidelines.

The following sections describe the core functions of fisheries management agencies divided into five categories (**Figure 3)**, as follows:

1. Strategy and policy development
2. Operational management – day-to-day management functions
3. Performance evaluation – underpinning continual improvement
4. Reporting and communication – outward facing communication
5. Cross-cutting – issues that apply broadly to an Agency and influence the delivery of functions across categories.

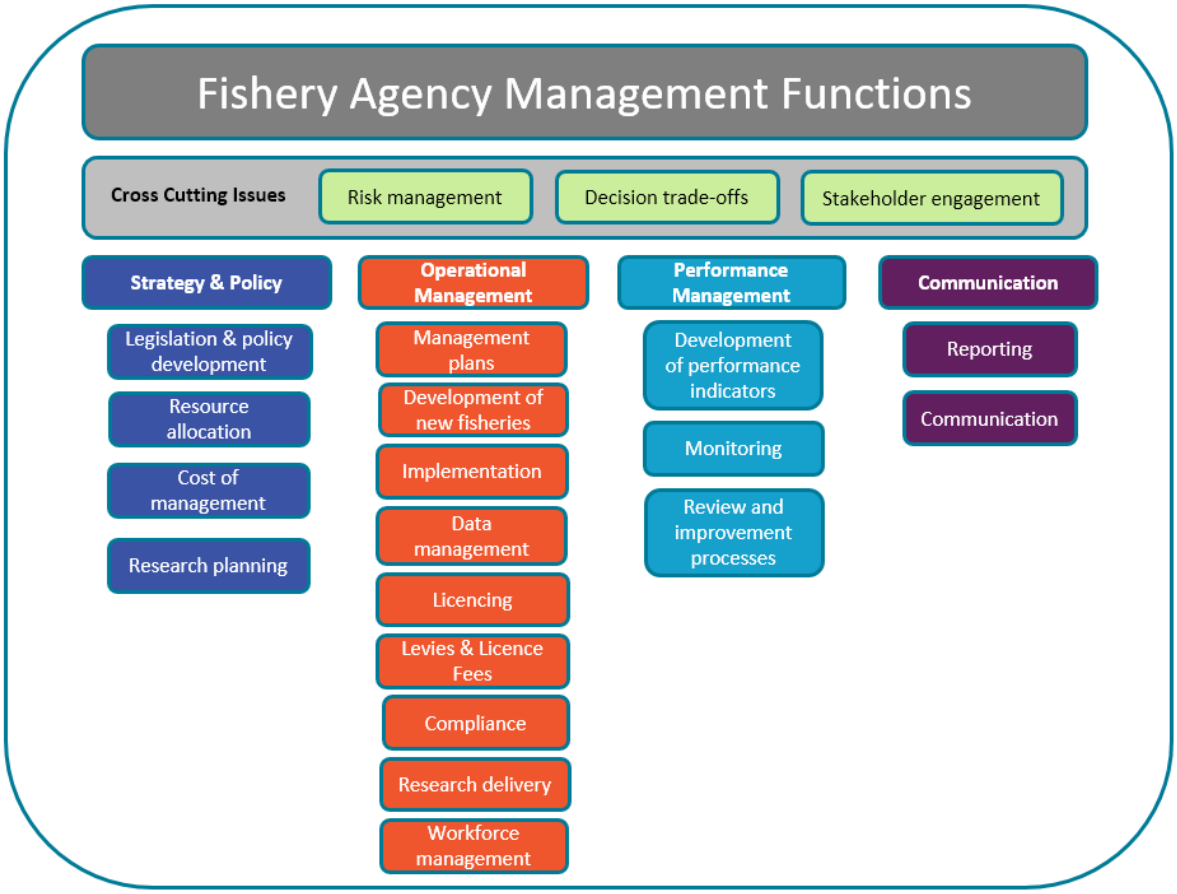


Figure 3. The fishery agency management functions described in the Guidelines.

Review of the formal structure of each fishery management Agency in Australia revealed a range of structures (**Appendix 1: Management Agency Structures**). As a result, the functions in each category listed above may be actioned within different parts of an Agency. For example, 'strategy and policy development' includes aspects that might be separated between a policy department (even in a different Agency) and the operational policy and strategy group within a fishery agency.

1. Strategy and policy development

Legislation and policy development

> *States should ensure that an effective legal and administrative framework at the local and national level, as appropriate, is established for fisheries resource conservation and fisheries management. (FAO 1995 7.7.1)*
>
> *States should ensure that an appropriate policy, legal and institutional framework is adopted to achieve the sustainable and integrated use of the resources, taking into account the fragility of coastal ecosystems and the finite nature of their natural resources and the needs of coastal communities (FAO 1995 10.1.1)*

Australian jurisdictions formalise the principles which guide the management of fisheries resources within their jurisdictions via Acts of Parliament (legislation) and high-level government policy documents. These principles include the objectives of fisheries management, the instruments for enabling access to fish, and the basis upon which access is granted. The primary legislation in each jurisdiction also identifies to which Minister and/or Authority the power to regulate fisheries is granted, and in some instances, which regulatory instruments those agencies may use. The objectives and instruments guiding fisheries management require periodical review as required. This review process is often intended to ensure the public interest and those of key stakeholders are being served in the management of the community's fisheries resources. Note in some jurisdictions, management plans are statutory documents, also established as formal legislative instruments, while in others they are an established practice used by the management agency.

Example of the function

In the Commonwealth jurisdiction, AFMA was established by the Fisheries Administration Act 1991 and the objectives, powers and functions of the Minister and AFMA are defined by the Fisheries Management Act (1991). Other federal Acts are also relevant to fisheries management such as Environment Protection and Biodiversity Conservation Act 1999 and the Fishing Levy Acts 1991. A range of fisheries management regulations and plans are also relevant. DAWR is responsible for developing fishery policies that are approved by the Minister, such as for harvest strategies, and bycatch. AFMA is responsible for many operational policies that are consistent with legislation and government policy. Similarly, fisheries or aquatic resources Acts and Regulations exist in all State jurisdictions, under which policies and guidelines are developed by the relevant agency.

Evidence of the function

Legislation, regulations, policies, directions, and guidelines represent evidence for this function. Reporting on the development of policy and legislation may also be provided in Annual Reports and compliance reporting by all jurisdictions.

Resource allocation

> *Unambiguous rules in the definition, allocation and implementation of rights of access is determinant for the acceptability of policies that necessarily impose limitations if overuse of marine resources and the exhaustion of these resources are to be faced adequately (OECD 2016).*

Fisheries resource allocation is a direct and deliberate distribution of a specified fisheries resource between identifiable, discrete user groups. It is guided by legislation or policy and informed by economic, social and ecological objectives. Best practice allocation approaches are based on the best available science and information, and explicitly state:

- legislative objectives to be met,
- sectors involved,
- allocation criteria used
- the method(s) of allocation, and;
- processes for adjusting allocations between sectors

Percentage of catch by weight (at relevant temporal and spatial scales) is usually the preferred unit for allocating the resource between users in different sectors. Australian sectors may include one or more commercial, recreational and traditional/indigenous fisher groups, as well as non-consumptive users.

Example of the function

For the Commonwealth fisheries, AFMA establishes and allocates commercial fishing rights following its legislation and management plans. A state example is the Fisheries Resource Sharing in NSW Policy 2015 which guides decision making on resource sharing between user groups (but not the determination of the size of the proportion of fisher resources available for harvest). In SA, the Resource Allocation Policy 2011 details how the optimum utilisation and equitable distribution of aquatic resources to the benefit of the community is determined.

Evidence of the function

Allocation may be reported in annual reports, stock assessments and reviewed periodically within management plans or as required. AFMA grants statutory fishery rights that are held in a public register. This describes the relevant fishery and the species/stock the rights relate to.

Cost of Management

> *Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication. (NOAA 2007)*

Fisheries resources are community resources, which are managed by government agencies on behalf of the entire community while recognising key stakeholders such as the commercial, recreational and traditional fishing sectors. The cost of this management is covered in several ways, which is typically specified at a high level by State or National governments. For example, some Australian jurisdictions support management via direct government funding, with others have adopted formal cost recovery policies and associated legislative mechanisms to enable the recovery of the costs that may be directly attributable to fishing sectors. For the purposes of cost recovery, fishery management, stock assessment, compliance and monitoring, as well as other services such as research, licensing, etc. are considered attributable costs. The premise of

such policies is that those stakeholders that are the most direct beneficiaries of the services provided by fisheries management agencies, such as fishery management, scientific stock assessment, compliance, monitoring, research and licensing, should pay for the services, or a proportion of the services, rather than the wider community paying for such services through general government revenue.

Example of the function
In South Australia, the PIRSA Cost Recovery Policy establishes principles that enable PIRSA to make consistent decisions on the appropriate recovery of the cost of PIRSA goods and services. The policy aims to improve the consistency, transparency and accountability of existing and future cost recovery arrangements, assist in establishing the appropriate levels of service delivery, and promote the efficient and equitable allocation of resources. In contrast, for the Northern Territory, there are no formal policies but an informal agreements exists between industry and management. Cost of management is met by cost recovery from the fishing industry for all AFMA fisheries in accordance with a 'cost recovery implementation statement' reviewed by Department of Finance, agreed by the Minister for Agriculture and Water Resources and annually updated.

Evidence of the function
Reporting against management and compliance activities in Annual Reports such as financial statements and cost recovery implementation statements may be provided where policies exist and there may also be reporting to advisory committees, industry associations, whether or not there are formal policies in place.

Research planning

> *"States" should establish an appropriate institutional framework to determine the applied research which is required and its proper use (FAO 1995).*

Fisheries management has a long history of using research, and adopting evidence-based management. All Australian jurisdictions have well-established channels for sourcing research in support of fisheries management. A key issue is quality assurance for research informing fisheries management, and a recent project has drafted a national set of guidelines (FRDC 2014/009) to underpin quality assurance. Important topics under these national guidelines cover:

- Peer review
- Impartiality and integrity (including conflict of interest)
- Relevance and reliability
- Access, transparency and reporting
- Communicating uncertainty

Best practice involves a fisheries agency reviewing the research needs at a jurisdictional, bioregional and fisheries level, using decision making tools to assign priorities and considering the most appropriate means and timeframes for research implementation.

Example of the function
State jurisdictional management bodies have strategic research planning processes, such as the NSW Strategic Research Plan 2014-2018 and the Queensland DAF Sustainable Fisheries Strategy 2017-27. Western Australia has a Science and Resource Assessment Division that provides information to support management of fishery resources. In Tasmania, Fishery Advisory Committees (FACs) are established by the Minister to provide advice on fishery-related issues including research needs and priorities; annual fishery assessments and stock monitoring. Commonwealth RAGs identify information gaps and advise on priorities areas for research. They recommend to the AFMA ARC on research proposals for funding through FRDC and provide advice to the Commission, under the Framework for Delivering Cost Effective Research Information for AFMA's Fisheries.

Evidence of the function
Minutes and reports of the relevant research advisory groups and advisory committees (RAGs, RACs). Research planning might be reported in stock assessment reports and supported through the implementation of the fishery management plan.

2. Operational management

Management plans (or their equivalent) for existing fisheries

> *[Management plans] …. should identify what the [plan] is designed to accomplish (i.e., the management objectives to be attained in regulating the fishery under consideration) (NOAA (2007).*

Management plans or their equivalent, document the process of determining fishery goals, and creating a realistic, detailed plan of action for meeting those goals. The basic steps involve outlining what must be accomplished to meet its overall objectives. Management plans are important tools that support transparent management of fisheries by agencies to operationalise legislative requirements (e.g. Australia's *Fisheries Administration Act 1991, Fisheries Management Act 2007* (South Australia) and international obligations. However, management plans are not required by all jurisdictions, which may instead rely on legislative direction (e.g. Tasmania). Where used, a plan of management should involve specification of:

- an explicit life and prescribed process / timelines for review / renewal
- provision for variation during the life of the Plan and prescribe a process to achieve this
- management goals and objectives
- management strategies, such as harvest strategies
- zones or areas covered
- performance indicators and reference points
- decision processes
- data collection and analysis
- entitlements
- resource shares and allocations
- processes to identify research needs and priorities; and
- the resources required to implement the plan

Typical approaches to achieve management plans include:

- advertising the intention to prepare a plan
- engaging stakeholders in the development of the plan
- offering the opportunity for public feedback including
    - written submissions
    - holding public hearings

There is a growing need to have more economic and social drivers and needs integrated into management plans and decision making.

Example of the function
All jurisdictions allow for preparation of Fishery Management Plans (FMPs) under their relevant Acts or within the Acts. For the Commonwealth, FMPs are legislated and amended periodically. In SA, the Fisheries Act allows the Minister to prepare a Management Plan that is consistent with the objectives of the Act and requires the Minister to manage commercial and recreational fishing activities in accordance with any such management plan. It details the procedures for their preparation. In Tasmania, Management Plans are not mandatory unless specifically named in the Act, however subordinate legislation is implemented for specific fisheries.

Evidence of the function
Fishery-specific management plans or their equivalent.

Development of new fisheries

> *In the case of new or exploratory fisheries, States should adopt as soon as possible cautious conservation and management measures, including, inter alia, catch limits and effort limits. Such measures should remain in force until there are sufficient data to allow assessment of the impact of the fisheries on the long-term sustainability of the stocks, whereupon conservation and management measures based on that assessment should be implemented. The latter measures should, if appropriate, allow for the gradual development of the fisheries (FAO 1995).*

In developmental fisheries, where a previously unexploited species, or species of minor importance, shows commercial potential, there is a special need for management arrangements to capture baseline data, such as catch and effort information, the spatial extent of the fishery, interactions and effects on the ecosystem, as well as document the rights, risks and responsibilities of those undertaking the commercial development. New fisheries also require monitoring and research to provide a basis for future resource assessment and management. In time, full management plans may also be developed if these new fisheries prove to be commercially viable.

Example of the function
The Fisheries Management Policy No 5 sets out the process for exploration of Commonwealth fishery resources with the objective of achieving optimum utilisation but underpinned by a program to gain information to assess the resource. In state jurisdictions, new and exploratory fisheries may be permitted within the Acts. For example in South Australia, amendments to fishery regulations under the Fisheries Management Act 2007 have been made to provide for the issuing of permits for exploratory and developmental fishing activities. The new regulations (SA Fisheries Management (Misc. Developmental Fisheries) Regulations 2013) will allow greater regulatory flexibility to support the development of new and emerging fisheries in South Australia.

Evidence of the function
The development of exploratory fisheries may be evidenced by documents such the NSW Commercial Fishing Activity Development Plan, Guidelines for Environmental Assessment of Fishing Related Activities, and Review of Environmental Factors Pro-forma for Fishing Related Activities. Information is provided in public policy documents or reports such as the "NT Fishery Report No. 60 Updated June 2005".

Implementation of management actions

> *Management objectives should be translated into management actions ….and states should implement effective fisheries monitoring, control, surveillance and law enforcement including observer programs, inspections schemes and VMS (FAO 1995)*

Management actions must be implemented effectively if they are to achieve the stated objectives in an existing management plan or for a developmental fishery. Fishery-wide measures such as season start dates, total allowable catches and area closures can be implemented through legislative instruments, statutory management plans, regulations, determinations and directions. Often licence or concession conditions are introduced to implement operational requirements such as fishing gear restrictions and observer requirements. Vessel-specific arrangements, such as seabird management plans or vessel management plans, may be developed to minimise bycatch given the particular operational settings of that vessel. Some measures, particularly those requiring cooperation of vessel masters and crew, can be implemented in conjunction with the fishing industry under co-management arrangements. Alternatively, industry may choose to implement some measures through codes of practice.

An important management action is the assessment of a fishery's performance, and where available appropriate modelling to undertake this assessment. This requires the collection or access to up-to-date data, for example, of target and non-target catches, broken down by species, area and gear, as well as some measure of fishing effort. In addition to supporting fisheries management, reliable statistics are also required for effective policy-making and sectoral planning. Any country taking part in a multinational fishery must be able to assess such data or scientific advice it if it is to have an independent voice in the allocation of quotas and management of stocks by fisheries bodies. Monitoring can be fishery-dependent and / or independent, and utilise a range of approaches, including observers, e-monitoring, logbooks, surveys, markets, and so on.

Example of the function
All state jurisdictions have Acts and legislation that require them to develop and manage their fisheries, with supporting rules and regulations e.g. the SA Fisheries Management Act 2007 Section 42 allows the Minister to prepare a Management Plan and Section 50 requires the Minister to manage commercial and recreational fishing activities in accordance with any relevant management plan (SA Fisheries Management Act 2007), and then Regulations establish the classes of fishing activities, describe the rules relating to the devices able to be used, sale, possession, purchase and protection of aquatic organisms (SA Fisheries Management (General) Regulations 2007).The federal Fisheries Management Act 1991 legislates that AFMA manage efficiently, cost-effectively and sustainably Commonwealth fisheries through such regulations and policies such as Harvest Strategy Policy and Guidelines 2007.

Evidence of the function
Implementation may be detailed in relevant fisheries management plans, strategies, determinations, regulations and policies. Fishery-specific measures such as seasonal and spatial closures may be documented in operational/closure booklets provided to fishers. Performance against FMP may be reported in Fishery Status reports, Annual Reports.

Data Management

> *The organization should establish and maintain processes to gather reliable and useful data and for converting such data into the information necessary for decision making. This includes the processes needed for the storage, security, protection, communication and distribution of data and information to all relevant parties (Bureau of Indian Standards 2009).*

Data management involves collection, storage and retrieval of sufficient and relevant information used by the fisheries agency for making informed decisions required by legislation and policy documents. Typical approaches to achieve that function include:

- Data policy (guiding framework for data management i.e. ownership, access, security, use, liability, disposal)
- Data organisation (databases, roles of data users, custodians etc.)
- Data quality assurance (procedures for quality assurance, quality control, data validation, standardisation)
- Metadata for each dataset
- Data lifecycle (maximise data use for long data life)
- Data confidentiality arrangements

Best practice involves efficient data gathering and management, including via digital means, real time collection and management.

Example of the function
All jurisdictions administer fishery-specific logbook programs, collate catch and effort information for fisheries and are responsible for quality assurance processes. These data are routinely used in reporting, stock assessment, research and can be usually be accessed for research purposes under confidentiality agreements. Commonwealth fishery specific data management plans exist for key fisheries (e.g. NPFI Data Management Plan). The Australian National Data Service commissioned the "Research Data Management Practice Guide". A research data management plan is part of the research process and this guide suggest the major roles and responsibilities of the individual researcher, the hosting institution, and those of a joint nature with regard to data management.

Evidence of the function
Data management plans or policies that may be agency, fishery-specific or more general government guides.

Licensing

> *The concept of licensing as a fishery management tool is setting the maximum permissible number of fishing licences issued to fishery enterprises or individual fishers in order to protect the fishery resources (De Young 2007), however, licencing alone does not lead to sustainable fishing.*

Licensing is used to identify participant in a fishery, and may be used to raise revenue to offset management costs or to regulate access to a resource. It is a formal authorisation for fishers to access the resource (fish/stock), including boats, gear and crew consistent with relevant fisheries legislation, including issuing licences and scientific permits. This involves issuing certificates to persons who are granted a fishing right by the regulatory body and best practice involves maintaining records of fisher details on service and qualifications, catch history, certificates of competency etc. Licensing can occur independent of collection of any fees. Conditions can be attached to the licence that limit the fishing activity in time or space, or to particular species, and even sizes and sexes. Best practice would include a review of behaviour by the licence holder, such that poor compliance would result in loss of privileges and even cancellation of a licence.

Example of the function
All states and territories have acts and legislation that cover all aspects of licencing. For example, for federally-managed fisheries, the *Fisheries Management Act 1991* requires that where “a plan of management provides for the management by AFMA of a fishery by means of a system of statutory fishing rights, AFMA is to establish and administer such a system in accordance with the plan”.

Evidence of the function
Many acts and legislations that cover all aspects of licencing may exist in all jurisdictions as evidence of this function. All states and territories have (public) registers that contain details of licence holders and licence conditions.

Levies and Licence Fees

A levy or licence fee is defined as the cost imposed on users of the resource for management, research or other purposes. The levy or licence fee may be collected as part of recovering the cost of management. Levying or setting a licence fee involves the collection of funds from the individuals and companies entitled to harvest fish in the fishery. Fees are typically for three services: management, research and compliance. Levies can also be used for additional services or payments such industry peak body membership fees to support co-management functions, special projects (e.g. enhancement or marketing), or payment for access (e.g. royalty). The process of setting fees is important for two significant purposes in management of natural resources, namely

i. the recovery of public investment (see Cost of Management); and
ii. deriving a private benefit from a privately-utilised public resource.

Example of the function
At Federal level, the Fisheries Levy Act and the Fisheries Levy Regulations prescribe levying in Commonwealth fisheries. State jurisdictions also have legislation covering fees, royalties and levies e.g. SA Fisheries Management Act 2007 stipulates that fees must accompany an application for an authority, and be paid annually. It also provides for a fee or levy to be paid to the Fisheries Research and Development Fund.

Evidence of the function
Financial statements in Annual reports, reports to relevant advisory committees.

Compliance with regulations

> *States should establish effective mechanisms for fisheries monitoring, surveillance, control and enforcement to ensure compliance with their conservation and management measures, as well as those adopted by sub-regional or regional organisations or arrangements. Also that fishing should be regulated in such a way as to avoid conflict among fishers (FAO 1995)*

Regulatory compliance is important to fisheries management agencies because, if fisheries management arrangements are not adhered to they are less likely to be effective at pursuing sustainable management of fish stocks and the ecosystems that support them. To this end, compliance programs seek to ensure conformity with management arrangements and where necessary ensure that illegal activity is minimised. This helps to ensure fishing access rights are maintained and community expectations are met in relation to demonstrating sustainable resource-use.
Compliance in fisheries management involves: deterrence, monitoring; and enforcement.
Typical approaches to ensure that fisheries comply with regulations include:

- collecting and analysing compliance intelligence
- regular monitoring and inspection programs
- risk assessment and management
- maintaining working relationships with stakeholders
- effective communication; education and awareness activities
- maintaining organisational capacity and capability
- defining and imposing enforcement actions

- measuring and reporting on compliance effectiveness
- review of deterrent, monitoring and enforcement regime
- encouraging self-compliance

Example of the function

Compliance with fisheries regulations and policies in all jurisdictions incorporates a range of deterrence, monitoring, enforcement, quota management, and licencing administration in accordance with the relevant fisheries Acts. For example, the Qld Fisheries Act Part 8 (Enforcement) outlines the functions of inspectors, powers, limits of powers, & conditions of their appointment and Part 5 outlines the main fisheries offences. Similarly, the SA Fisheries Management Act 2007 in Part 8 Enforcement provides all the authorities and powers to undertake compliance activities including those of fisheries officers and scientific observers and Part 7 outlines the key offence related provisions including offences related to temporary prohibitions, disturbance of habitat and aquatic reserves. These sections along with the interpretation of the regulation of commercial fishing (Part 6) form the basis of compliance activities relating to taking aquatic organisms. The responsibility for compliance and enforcement may be vested in various Departments e.g. Northern Territory Department of Police, Fire and Emergency Services and more specifically, the Water Police Section (WPS), PIRSA - Fisheries and Aquaculture Division, NSW DPI Fisheries Compliance Unit (FCU), Vic Compliance Branch. Recently, The National Fisheries Compliance Committee (NFCC) released a report that establishes 'voluntary compliance' and 'effective deterrence' as the key objectives for fisheries compliance in Australia. Voluntary compliance encompasses the notion of education, community stewardship etc. and effective deterrence encompasses fisheries intelligence, response capacity etc.

Evidence of the function

Compliance activities in all jurisdictions may be reported in annual report, annual compliance risk assessments, and documentation for WTO/EPBC Act, Rules and Regulations, operational booklets for fishers. Summaries of the activities may also be incorporated into annual stock assessment reports.

Research delivery

Fisheries management aims to be objective and based on science-based and thus relies on implementing research results and findings (FRDC 2014/009). For this reason, management agencies and key stakeholders have a major role in planning and evaluating of fisheries research programs and their outputs. Research projects are ideally independently reviewed regularly to ensure that information used and its outputs are precise and accurate (e.g. the external review of fishery assessment models and stock assessment reports).

Example of the function
AFMAs Fisheries Administration Paper no 12 includes the interactive processes between the AFMA Commission, RAGs and MACs that in the research delivery it obtains best quality information and provide expert advice based on evidence. The RAGs main role is to peer-review scientific data and information. RAG advice usually goes to the MACs and then to the Commission.

Evidence of the function
Reports to RAGs, MACs, Annual reports, fishery status reports, agency technical reports, FRDC reports (e.g. FRDC 2014/009).

Workforce management

> *Workforce management is the most important activity a management agency undertakes because it makes the difference between it being average and being exceptional (workshop comment).*

Workforce management is important to management agencies because of government, operational, stakeholder and public needs for ongoing consistency in delivering a high-standard of fisheries management. It involves the recruitment and retention of passionate and intelligent people who are willing to invest a large part of their lives into their organisation and Australian fisheries. Management officers require the capacity to effectively engage stakeholders and need to be supported by clear policy frameworks and a culture that empowers them in leading decision making processes and frameworks to provide confidence and certainty for all parties. Typical approaches to achieve that function include; having an organisational culture that inspires people to reach their full potential, thrives on diversity, creates resilient people through robust internal debate, sees value where others do not, is forgiving of failure and regards it as a learning experience for all involved. Recruitment processes can be public, to select groups, or targeted at individuals. Retention of key staff is assisted through agencies offering training, work related opportunities and career paths. This approach to workforce management is more likely to build better stakeholder relationships and can contribute to generating a positive feedback loop for management.

Example of the function
Both federal and state jurisdictions generally adhere to the principle of investing in staff development and a performance management program, supporting staff training through capability development plans. For example WA, Objective 3 (Management excellence) of their strategy is to ensure their greatest assets (their people) are valued and their welfare is a priority. However, not all are clearly articulated and may come under a more general government requirement. In Qld, succession planning is recognised as extremely important especially to clients / industry.

Evidence of the function
Performance and development plans/agreements for staff which include training and career development. Processes may exist that provide a structured formal plan to monitor review and continuously improve staff performance whilst also enhancing their professional development of staff.

3. Review and Performance evaluation

Development of performance indicators

Fisheries management agencies may be required to develop performance indicators for a range of functions, stakeholder values, and management objectives. In order to explicitly recognise the trade-offs resulting from a decision, a quantifiable performance indicator of the value or objective is required. Without measureable performance indicators, evaluation of performance will not be transparent and consistent. Many of the functions will need performance indicators to match the goals for the Agency and to achieve the functions. Examples of performance indicators include measures of staff retention time and diversity employment targets (e.g. workforce management), number of port visits (e.g. stakeholder engagement), time periods for processing licensing applications (e.g. licencing), and management costs not to exceed a percentage value of the fisheries (e.g. cost of management). Best practice involves review and enhancement (see **Figure 1**) to ensure performance indicators are useful and responsive to management and fisher actions.

Example of the function
The selection of appropriate key performance indicators and monitoring methodology is critical for success of the measurement and analysis process. The methods used for collecting information regarding key performance indicators should be practicable and appropriate to the organization. Factors that are within the control of the organization and critical to its sustained success should be subject to performance measurement and identified as key performance indicators (KPIs). The KPIs should be quantifiable and should enable the organization to set measurable objectives, identify, monitor and predict trends and take corrective, preventive and improvement actions when necessary. Top management should select KPIs as a basis for making strategic and tactical decisions. The KPIs should in turn be suitably cascaded as performance indicators at relevant functions and levels within the organization to support the achievement of top level objectives. Australian agencies already undertake reporting against objectives and management functions, particularly in annual reports. Use of performance indicators in these reports is variable, and changes over time. Agency reporting may be enhanced in future if these Guidelines are followed.

Evidence of the function
Performance indicators for the management agency, where they exist, are typically described in Annual Reports.

Monitoring management performance

> *Management should establish and maintain processes for monitoring the organization's environment, and for collecting and managing the information that is necessary for identifying and understanding the present and future needs and expectations of all relevant interested parties, assessing strengths, weaknesses, opportunities and threats, and determining the need for alternative approaches* (*Bureau of Indian Standards 2009).*

Monitoring is the second step in providing feedback to management regarding operation performance against Agency performance indicators, and ultimately the Agency's objectives and legislation. This function is distinct from monitoring the performance of the fisheries under the agencies purview.

Example of the function
Management agencies report annually to responsible Ministers against KPIs that are linked to their overarching objectives e.g. WA Department of Fisheries Annual Report to Parliament 2016/17 reports against three objectives spanning both resource management and agency performance of 1) community and stakeholder benefits, 2) sustainability, and 3) management excellence. Jurisdictions also require periodic review of Management Plans e.g. in Tasmania under the Living Marine Resources Management Act 1995, the management plans of Tasmania's wild fisheries are reviewed at legislated intervals.

Evidence of the function
Performance indicators for the management agency are typically described in Annual Reports.

Review and improvement processes

> *Factors that are within the control of the organization and critical to its sustained success should be subject to performance measurement and identified as key performance indicators (KPIs). The KPIs should be quantifiable and should enable the organization to set measurable objectives, identify, monitor and predict trends and take corrective, preventive and improvement actions when necessary (Bureau of Indian Standards 2009)*

Review processes are important to management agencies as they provide a means of continuous improvement that involves agency staff, government, stakeholders and expert reviewers. Reviews can target different management elements including management performance, financial performance, fishery performance or stakeholder engagement. Some reviews are self-initiated, others required by law, and still others are government sponsored. Many decisions made by fisheries agencies are reviewable through formal mechanisms such as; internal agency review, independent tribunals, the responsible Minister, the courts and the parliament. The types of reviews commonly undertaken include; granting of licenses and/or fishing quota, areas that can be fished and the type of gear used when fishing.

Example of the function

The South Australian *Fisheries Management Act 2007* provides for certain decisions of the Minister to be reviewed if required. A person who is unhappy with a decision of the Minister to issue, renew, transfer, or to impose conditions on an authority may apply to have the decision reviewed within 28 days. If the person is not satisfied with the outcome of the review, they may appeal to the Administrative and Disciplinary Division of the District Court against the decision. A written statement of the reasons for the review decision must be provided to the applicant within the 28 day timeframe. With regard to the Commonwealth, each year AFMA contracts an independent audit firm to conduct reviews of several aspects of AFMA's business. The areas to be audited are selected by the AFMA Executive (including the CEO) in consultation with AFMA's Audit & Risk Committee (ARC). The ARC comprises members of the AFMA Executive, independent members and is chaired by the Deputy Chair of the AFMA Commission. The audit reports, including its recommendations for improvement, are reviewed by the ARC and the AFMA Commission. Once the audit report is finalised relevant AFMA staff implement the recommendations and report progress to the Commission on a regular basis. A recent example was the performance review of AFMA's research processes.

Evidence of the function

Specific or Annual Reports. Reports by the internal auditors are generally available on request from AFMA and are reported in AFMA's Annual Report which is a public document.

4. Communication and Reporting

Reporting

> *[Reports] provide … a summary of scientific information concerning the most recent biological condition of stocks, stock complexes, and marine ecosystems in the fishery management unit ….and the social and economic condition of the recreational and commercial fishing interests, fishing communities, and the fish processing industries.*

They should be prepared and updated or supplemented as necessary whenever new information is available to inform management decisions (NOAA (2007).

Management agencies have formal reporting requirements to show performance against management objectives (e.g. see AFMA and WA annual reports). Reporting is undertaken by managing agencies for the purposes of accounting for the status of fisheries resources, the performance of fisheries management, and for corporate governance requirements. Annual or biannual fisheries status or stock assessment reports (e.g. SAFS), State of the Environment reports, and reporting against the *Guidelines for the Ecologically Sustainable Management of Fisheries* as required for fishery assessments under the EPBC Act, provide a publicly accessible assessment of the sustainability of fisheries. In these reports, a range of performance indicators may be used to evaluate the state of the fishery in addition to biological status. These indicators can include ecological, economic and social performance in relation to objectives for the management of fisheries (e.g. Healthcheck; FRDC 2016/060). Further reporting is undertaken by fisheries with World Trade Organisation export approval to account for the performance of fisheries management in meeting the requirements of the EPBC Act. Reporting may also be required in response to Government reviews of fisheries management arrangements and policies. Annual corporate reports delivered by managing agencies are the mechanism by which agencies account for the costs of fisheries management and their actions in meeting statutory requirements for fisheries management. Reporting should also account for the activities undertaken with funds collected through fees and levies to ensure services provided are efficient.

Example of the function

In Commonwealth and State fisheries, annual reporting can be through either Annual reports, or publically available issue-specific reports such as stock assessment or a status report. For example, AFMA is to report on the implementation of the Harvest Strategy Policy and of fishery-specific harvest strategies consistent with the Policy in its Annual Reports and otherwise as requested by the Minister for Fisheries, Forestry and Conservation (Commonwealth Harvest Strategy Policy and Guidelines 2007). In SA, stock status is reported in the National Stock Status Assessment and as a part of export approval pursuant to the EPBC Act. Also, the economic performance of fisheries is reported on annually through provision of an Econsearch report which is available publically.

Evidence of the function

Reporting is provided through annual stock status reports, economic performance, reports and is often publicly available via websites. ABARES annual fishery status report, corporate financial reports.

Communication

"States" and subregional or regional fisheries management organizations and arrangements should give due publicity to conservation and management measures and ensure that laws, regulations and other legal rules governing their implementation are effectively disseminated. The bases and purposes of such measures should be explained to users of the resource in order to facilitate their application and thus gain increased support in the implementation of such measures. (FAO 1995).

It is now a societal expectation that fisheries agencies report on their activities to the community at large. Agencies should ensure that all actions and decisions are effectively

communicated to ensure that there is a clear unambiguous understanding of the decisions and rationale that drove them. Communication may also include provision of specific information on new fishing regulations, such as size limits and closed seasons, for commercial and recreational fishers. Media releases, smart phone applications, and contributions to dedicated communication channels (e.g. departmental websites) and occasional channels (e.g. fishing magazines, scientific publications) are examples of how a management agency communicates. Other forms include representation at conferences, planning days, fishing fora, and other public events.

Example of the function
This function is not formally required for most jurisdictions, so documents describing the planned communication efforts are rare. The evidence is the primary means of assessing attention given to this function.

Evidence of the function
A range of communications methods are used to engage stakeholders and the evidence may include a wide range of forms including;
- Media releases
- Website updates
- Instructional videos
- Pre-season briefings
- Social media (e.g. Facebook)
- Fishery fact sheets
- Email and SMS notifications
- Industry association newsletter updates
- Advisory body/working group meeting outcomes & proposals

5. Cross Cutting Issues

These are issues that could be relevant to functions in any of the above categories. They are broad and applicable as part of the overall fisheries management agency philosophy, and can also be demonstrated as being applied in the fisheries managed by the agency. They are often supported by broader government policy.

Risk management

Uncertainty about outcomes requires a risk-based approach, across the spectrum of uncertainty. This uncertainty can be categorised into elements of the scientific process underpinning management decision, such as process uncertainty which is the natural variability that populations and species are subject to; measurement uncertainty which is the consequence of imperfect measurement and monitoring processes; model and parametric uncertainty which is associated with how well we understand stock and environmental processes, and thus affects our assessment of them. In contrast, implementation uncertainty is associated with how well management actions have the consequences that are intended, and is strongly influenced by human individual and institutional behaviour. How fisheries management deals with these uncertainties, and consequences to reduce the associated risks is represented as the **risk management approach**. An Agency may have formal guidance (e.g. legislation) with regard to the application of the precautionary principle 'where then are threats of serious or

irreversible environmental damage or lack of scientific certainty, and may also have adopted risk assessment approaches to underpin risk management across a wide set of the activities described in this Guidance document. An explicit statement about the risk management approach taken by an Agency would represent best practices, as would evidence of how risk management tools were used across the Agency in decision-making.

Example of the function

Risk management is explicit in management of fisheries. Federally, the Commonwealth Fisheries HSP and Guidelines (2007) provides a framework that allows a strategic, science–based approach to setting total allowable catch levels in all Commonwealth fisheries on a fishery-by-fishery basis. It incorporates the requirements of the FM Act 1991, the FA Act 1991, the EPBC Act 1999, and the UN Fish Stocks Agreement and FAO Code of Conduct. It specifies the risk levels acceptable to the Australian Government in the use of Commonwealth fishery resources. It has been recently reviewed and is widely regarded as having been a very successful initiative for improving the management of Commonwealth fisheries, meeting or exceeding the standards of relevant international obligations and continues to represent best practice in most respects. Other processes can be implemented such as Ecological Risk Assessments (ERA) and ecological risk management responses. The new WA Aquatic Resources Management Act 2016 focusses on a risk-based management approach (to commence on 1 Jan 2019). Currently WA fisheries report annually against a KPI to improve the fish stocks (to 97%) not at risk or vulnerable through exploitation. In SA, identification, assessment and strategies for addressing risk of impacts or potential impacts of a fishery are required when developing a Management Plan.

Evidence of the function

Identification of ecological, economic and social risks for the fishery and the risk-management procedures can be documented in a range of forms. ERA and other management response documents e.g. bycatch strategy, quarterly reports to the AFMA Commission, and Annual Reports. Compliance risk assessments, Harvest strategies, Management Plans may also identify, assess and have strategies for addressing risk of impacts or potential impacts of a fishery.

Trade-offs in decision making

Trade-offs are a principal concern in contemporary fisheries management because fisheries are increasingly operating in a shared space, with a broad range of stakeholders and their associated values. There is also a growing need to have economic and social drivers and expectations integrated into management decision making. Stakeholders may often have different and conflicting objectives for the resource. The decisions that management is confronted with usually involves balancing the needs of one stakeholder group against another. Certainty in decision making reduces conflict and provides a platform for shared management outcomes between stakeholders. A documented Agency position on trade-offs which addresses areas such as resource shares, allocations and principles for adjustment can provide explicit guidance and confidence with regard to:

- How will trade-offs be evaluated? Is there formal guidance?
- What will be the process of decision making? In making a decision all considerations must be transparent, accounting for other non-prescribed considerations or trade-offs.

- How does liaising and negotiating on behalf of fisheries interests with other users or areas competing for spatial or temporal access to the aquatic environment have an impact on decision making?

Example of the function
Trade-offs can be made for a range of decisions. For example, AFMA adopts a risk-catch-cost approach to fisheries harvesting decisions. This means that the fishing industry can choose to balance catch levels with investment in information – within the constraint of limit reference points.

Evidence of the function
In some jurisdictions, trade-offs are reported through TAC setting and other fishery-specific strategies that are approved by the AFMA Commission or Ministers – e.g. harvest strategy policies, bycatch strategy policies. MSE is a preferred approach in Commonwealth fisheries to evaluate the trade-offs between economic, ecological and social as a result of different management actions. Reports from and minutes of MACS, RAGS can describe trade-offs, but evidence for this function is often sparse.

Stakeholder engagement

Stakeholder engagement is the process by which management informs, consults or includes stakeholders in a fishery with the management decisions, and the reasons for making them. This engagement also includes cross-area integration and coordination. For example, a fisheries manager might consult with compliance experts when developing a particular management arrangement to ensure that it optimises compliance capability.

Fishers are the primary stakeholders in fisheries, and they and their organisations are likely to be the only stakeholders to whom direct management of a fishery is delegated under co-management arrangements. Thus, co-management arrangements can also be critical in facilitating and supporting the process of stakeholder engagement and decision making (FRDC 2006/068). Other individuals or entities that, irrespective of their interest in a fishery or the context in which it operates, are unlikely to be directly involved in the fishery's management, although they are likely to be involved in policy, consultative or advisory processes.

Stakeholder engagement is also important to ensure transparency in decision-making, and to recognise, and reason the trade-offs that any decision might have. Engagement may be important in successful execution of many of the management functions in the other categories. Key elements include a position on the approach of the agency to stakeholder engagement in the development of policy and management arrangements, the importance of standard or ad hoc, regular or irregular consultation periods, and processes for identifying and including relevant stakeholders, and the development of co-management arrangements. All jurisdictions require stakeholder engagement and/or public consultation in one form or another.

Example of the function

In the Commonwealth, the Fisheries Act describes legislative consultation principles and the level of consultation required and which sectors need to be considered. In NSW, the Fisheries Act requires the Minister to give the public an opportunity to make submissions on any proposed management plan or supporting plan (or proposed new plan), and to consult on the proposed plan with any advisory councils or advisory groups representing commercial or recreational fishing interests, indigenous interests or conservation interests that the Minister considers to have a sufficient interest in the plan. Similar, the Northern Territory fishery resource framework requires relevant stakeholders to be consulted and have adequate opportunity for involvement in the resource sharing process including targeted consultation in regional communities. Outcomes should be fully transparent and be subject to public consideration, including the engagement in development of co-management arrangements.

Evidence of the function

Formal engagement evidence via letters and associated documentation for ministerial advisory councils, working groups, Management Advisory Committee minutes, Resource Assessment Group minutes, commercial fishing advisory councils, industry associations, meeting papers and minutes for example, as published on the agency website. Engagement activities are often reported in jurisdiction Annual Reports.

Evaluating the Guidelines

As described in the Method section, the project team reviewed international and domestic literature, checked overlap with one sustainability standard used in Australia (MSC), and evaluated application at a fishery level (case studies). These activities took place in parallel with continual refinement of the Guidelines, and informed that refinement. Thus, these results are discussed here for context as much for specificity.

Functions as represented in International and Domestic documents

At the time of the review of these documents (early in the project), the number of functions and organisation within categories, differed slightly from the final draft presented in the previous section. Thus, these results are indicative of the coverage across the literature – but do not exactly match the draft set of functions. Overall, however, this analysis showed that the preliminary set of functions are represented in international guidance documents, and are also represented across the range of domestic guidance.

The international review of existing standards and guidelines against the 23 management functions has focused on guidelines, standards or initiatives such as the Global Sustainable Seafood Initiative (GSSI), FAO Code of Conduct, the Marine Stewardship Council standard, and national initiatives in New Zealand, the US, Europe and Canada. The project team sourced an extensive compilation of more than 100 potentially relevant documents. In depth analysis of nine documents identified the functions in each. Each document had relevance for between 10 and 20 of the functions. Each function was identified in between zero and 9 documents (**Table 1**). No document contained guidance on Levying, while all nine commented on Stakeholder engagement (**Table 1**).

The review of national fishery management documents that are used to guide fishery management agencies in Australia covered some 83 documents for each state and the Northern Territory. We then reviewed most of these documents (n=76) as many seemed potentially relevant to the 23 management functions. Of the 76 documents reviewed, each of the 23 functions was identified in between 5% (communication; workforce management) and 49% (licencing) of documents (**Table 1**). Individual documents identified fewer functions than the International documents, with between 1 and 17 of the 23 functions identified in single documents. The lower number of functions in each domestic document reflects the more specific nature of these documents.

The guidance and descriptions in these documents was used to develop the descriptions of each function, compile examples of use, and the evidence that could be provided to support the execution of each function. This has been reflected in the previous sections describing the functions.

Table 1. Frequency of management functions identified in each of nine International fisheries management and 76 Australian jurisdictional management documents.

Category of Function	Management Function	Domestic	International
Cross cutting	Risk management	13%	67%
	Stakeholder engagement	17%	100%
	Trade-offs in decision making	9%	78%

	Process of decision making	16%	100%
	Development of performance indicators	12%	78%
	Uncertainty	9%	44%
Strategy & policy development	Legislation and policy development	13%	67%
	Resource sharing	12%	78%
	Research planning	13%	56%
	Cost-recovery	12%	44%
Operational management	Compliance with regulations	22%	67%
	Levying	17%	0%
	Implementation	16%	44%
	Development of new fisheries	8%	22%
	Data management	12%	67%
	Licencing	49%	22%
	Research delivery	8%	33%
	Management plans	12%	56%
	Workforce management	5%	11%
Performance management	Monitoring	9%	78%
	Development of performance indicators	12%	78%
	Review and improvement processes	5%	56%
Communication	Reporting	8%	44%
	Communication	5%	44%

Benchmarking the Guidelines

These Guidelines can be considered relative to requirements of seafood certification schemes which have been recognised by the Global Sustainable Seafood Initiative (GSSI; **Box 4**). To date, the Marine Stewardship Council fishery certification scheme (https://www.msc.org/documents/scheme-documents/fisheries-certification-scheme-documents/fisheries-standard-version-2.0) is the only globally applicable scheme recognized by GSSI. For this reason, the Guidelines were benchmarked against the MSC Fisheries Standard to determine whether they addressed fisheries management criteria as required by GSSI-recognised schemes.

The Guidelines cover all MSC Principle 3 (Effective management) criteria and the relevant Principle 1 and Principle 2 criteria (**Table 2**). A total of 10 management functions map to the MSC standard. Some of these are fishery-specific rather than whole of agency; consistent with the assessment approach of third party certification schemes. Thus, if there was sufficient evidence that a fishery management agency and a fishery were performing all the functions suggested in these Guidelines, the fishery should be able to meet the relevant criteria for a GSSI recognised global certification scheme, such as MSC. An advantage of the Guidelines is broader coverage of management functions, such that they will be robust to changes in the requirements of future assessment schemes or modification.

Box 4. The GSSI.

The Global Sustainable Seafood Initiative (GSSI' http://www.ourgssi.org/) is a benchmarking tool to evaluate the quality of seafood certification schemes. The mission of the GSSI is to ensure confidence in the supply and promotion of sustainable seafood to consumers worldwide as well as promote improvement in the various certification schemes. The GSSI Objectives are to (i) create an internationally agreed set of criteria and indicators to measure and compare the performance of seafood certification and labelling programs, in order to facilitate their implementation and use; (ii) provide an international multi-stakeholder platform for collaboration and knowledge exchange in seafood sustainability; and (iii) increase affordability and flexibility within the supply chain by eliminating redundancy and improving operational efficiency of seafood certification and labelling programs.

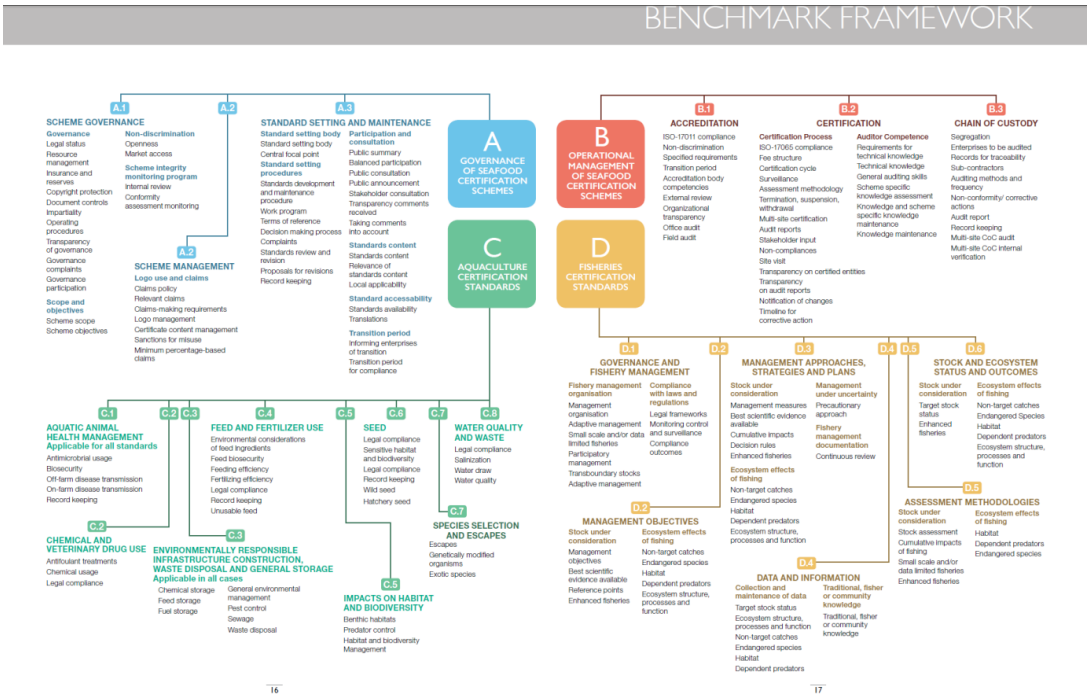


Table 2. Coverage of the Marine Stewardship Council (MSC) criteria relative to the management functions suggested in these Guidelines. A '-' indicates the management function is not covered by the MSC criteria.

Guidelines Management Function	Addresses MSC Criteria	MSC Reference	Notes from MSC criteria
Cross-Cutting			
Risk management	✓	Principle 2 criteria and 3.1.3 ; 3.2.2	The management policy has clear long-term objectives to guide decision-making that are consistent with MSC Fisheries Standard, and incorporates the precautionary approach.(3.1.3) .The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives and has an appropriate approach to actual disputes in the fishery.(3.2.2)

Guidelines Management Function	Addresses MSC Criteria	MSC Reference	Notes from MSC criteria
Stakeholder engagement	✓	3.1.2	The management system has effective consultation processes that are open to interested and affected parties. The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties.
Trade-offs in decision making	-	Mentions trade-offs but only in relation to fishery objectives	Compliance of the fishery with MSC requirements can be determined by how well these variously formulated objectives align with achieving sustainability as expressed by MSC Principles 1 and 2. Objectives that are defined to meet social needs may in some cases be consistent with achieving sustainability as articulated in Principles 1 and 2. However, to be considered as consistent with achieving sustainability, such objectives should not be designed to meet social needs at the expense of ecological considerations
Strategy and Policy Management			
Legislation and policy development	✓	3.1.1	The management system exists within an appropriate and effective legal and/or customary framework which ensures that it's capable of delivering sustainability in the UoA(s);- Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and Incorporates an appropriate dispute resolution framework.(3.1.1.)
Resource sharing	-		
Research planning	-		
Cost-recovery	-		
Operational management			
Compliance with regulations	✓	3.2.3	"Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with".
Levying	-		
Implementation	-		
Development of new fisheries	-		
Data management	-		
Licencing	✓		Implicit (see Legislation and policy development)
Research delivery	-		

Guidelines Management Function	Addresses MSC Criteria	MSC Reference	Notes from MSC criteria
Management plans	✓ *	1.2.1;1.2.1	There is a robust and precautionary harvest strategy in place. There are well defined and effective harvest control rules (HCRs) in place.
Workforce management	-		
Performance management			
Development of performance indicators	✓ *	3.2.1	The **fishery specific management** system has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2. (3.2.1). The requirement for a Harvest Strategy (1.2.1) and HCRs (1.2.2) implies the development of performance indicators.
Monitoring	✓ *	3.2.4	There is a system for monitoring and evaluating the performance of the **fishery specific management system** against its objectives. There is effective and timely review of the fishery specific management system.
Review and improvement processes	✓ *	3.2.4	There is a system for monitoring and evaluating the performance of the fishery specific management system against its objectives. There is effective and timely review of the fishery specific management system.
Communication			
Reporting	✓ *	3.2.2 (d)	Accountability and transparency of management system and decision making process
Communication	-		

* Fishery-specific functions only

Guideline application to fisheries: Case studies

Case studies were used to examine how these management functions, which are relevant to fishery management agencies, are reflected in the management of individual fisheries by these agencies. Not all of the functions might be expressed at a fishery level, and some functions may not be relevant to all fisheries. The case study approach also allowed in depth interaction with fishery managers from each marine fisheries jurisdiction which led to improvements in the Guidelines in general. A total of ten case studies, spanning all jurisdictions, were completed (**Appendix 4 - Case Studies)**. While selection of one or two case studies per jurisdiction provides breadth, these case studies are not intended to be a comprehensive evaluation of an agencies application of management functions to its fisheries (each agency alone manages more than 10 fisheries). The selected fisheries do not reflect an agency "average", "best" or "worst" performing fishery, rather, in partnership with management agencies a range of case study fisheries that spanned a range of features were selected (**Table 3**), including

- Value: Small-scale or large fisheries (value >$10 million per year)
- Data: limited or comprehensive

- Gear: single or multiple
- Species: single or multiple
- Species: invertebrate or finfish
- Sectors: single or multiple (commercial, recreational, indigenous)
- Management: agency-central or co-managed
- Management: input or output controls (e.g. effort or quota)
- Eco-certified – no or yes (including EPBC Act if in World Heritage Area)
- Market – domestic or export (and/or EPBC Act accredited)

Table 3. Case study summary against a range of fishery attributes. Note that some fisheries supply both domestic and international markets.

	Value (high/low)		Data (sufficient/limited)		Gear (single / multiple)		Species (single / multi)		Sectors (single / multi)		Management (agency or co-managed)		Eco-certified[1]		Market (domestic or international, or both)	
	H	L	S	L	S	M	S	M	S	M	A	C	Y	N	D	I
Abalone (TAS)	√		√		√		√		√		√			√		√
Lakes and Coorong (SA)		√	√			√		√		√		√	√		√	(√)
Offshore snapper (NT)	√			√		√		√		√	√			√	√	(√)
Mud crab (NT)		√		√		√	√			√	√			√	√	(√)
Rock Lobster (Vic)	√		√		√		√			√	√			√	(√)	√
Northern Prawn (AFMA)	√		√		√			√	√			√	√		(√)	√
Spanner Crab (NSW)		√		√	√			√	√		√		*	√	√	
Coral reef fin fish (QLD)	√		√		√			√		√	√			√	(√)[2]	√
Turbo (SA)		√		√	√		√		√		√			√	√	
Abalone (WA)	√		√		√			√		√	√		√		(√)	√
Total	6	4	6	4	7	3	4	6	4	6	7	2	4	6	5	5

1. This category refers to formal eco-certification, such as by the Marine Stewardship Council. Fisheries may also be export-certified under the Australian EPBC Act, and we note these with a *.
2. The coral trout is predominately exported, but other species and dead coral trout (10% of the catch) is sold domestically.

Thus, the features of the case study fisheries just allowed exploration of the application of the management functions to different types of fisheries. Fishery managers provided an assessment relative to the management descriptions, but as part of the case studies we did not seek formal evidence for the application of each function by sighting and judging the evidence. However, we evaluated the availability of the evidence that each function was addressed at the fishery level with a simple scoring rubric:

0 – no evidence available to support the claim of application of the function
1 – some evidence exists; or in the process of creating the evidence
2 - clear documentation for the application of the management function

This simple scoring allows a summary of the evidence available for each function at a fishery level, and is described below.

Lessons from the case studies

A total of ten case studies were completed across all Australian fishery jurisdictions to examine the expression of agency management functions at a fishery level. Overall, the application to the fisheries (**Appendix 4 – case studies)** was generally easy and evidence was reported as readily and publicly available in policies, reports and other documents. The information required to undertake these case studies was readily available to the fishery managers who participated. For some case studies, several documents contained most of the relevant supporting evidence, while in others a wide range of documents would provide the evidence. Between 16 and 21 (of a possible 21) management functions were relevant to the case study fisheries. There was little difference between fishery types – the Guidelines are robust to the range of species and fishery

types described earlier. Evidence was considered to be available in almost all cases for these management functions, with very few having no evidence (**Figure 4**). Of the functions considered relevant to a fishery (n=183 in total across the case studies), there was available information to justify the application of the management function (score 2) in 78% of cases, and partially available (score 1) for an additional 20%.

Figure 4. Case Study results: Data availability to provide evidence that the management function was applied at a fishery level (0= no data available, 1=partial, old, or future; and 2=available).

Not all functions were formally required under legislation, but in many case studies, functions were still exercised in the fishery. In some case studies, functions were slightly problematic to interpret or apply due to the function not being formally legislated or required but the agency deemed relevant to its functions and operations (e.g. stakeholder engagement and collaboration). The hardest functions to be specific about at a fishery-level were cross cutting functions, such as **Trade-offs in decision making** as a clear "process" paper trail for documenting the decision process was not available for all fisheries. While evidence does exist that trade-offs are considered, it would have to be created from the material available, and so evidence for the function was considered implicit rather than explicit. **Risk management** was also hard to interpret for some fisheries, and the description has been subsequently revised. Functions that were less relevant at a fishery level included the **Policy-making** and **Development of performance indicator** functions, although in some cases a fishery did provide information (e.g. a TAC) that was then "legislated" each year. Other functions varied widely in application between fisheries, such as **Research planning**, while **resource sharing**, **development of new fisheries**, and **workforce management** were not relevant at the fishery level, but were at the agency level. Some functions, such as development of **Management plans** may become less relevant in some jurisdictions, as they seek more flexibility and agility in decision making.

The availability of evidence was not substantially different across each of the 21 management functions based on the case studies (**Figure 5**). Evidence was always available (score 2) for reporting and communication, monitoring, stakeholder engagement, legislation and policy development. Less evidence was available for review and improvement processes, and resource sharing decisions (**Figure 5)**. As part of the case study process and in response to feedback, the description of the management functions was refined for improved clarity. For some fishery jurisdictions, the functions were seen as duplicates and the ordering of the functions could be improved (e.g. **Operational management** could be followed by **Compliance**). Adjustment of the wording, classification and ordering followed this feedback.

As some fisheries are in a process of changing management arrangements, these case studies can be considered as an illustrative snap shot, and should not be used outside the context of these Guidelines (for example, as a management summary).

Overall, application at a fishery level was seen as important given growing interest among public with regard to the impact of commercial fishing impact on the marine environment. A standard approach at agency level should increase confidence that the agency is addressing concerns and interests. The case studies were also useful in understanding how other agencies and fisheries operate and for considering potential application to other fisheries in a jurisdiction, particularly with regard to fisheries with substantial indigenous and/or recreational interaction and participation.

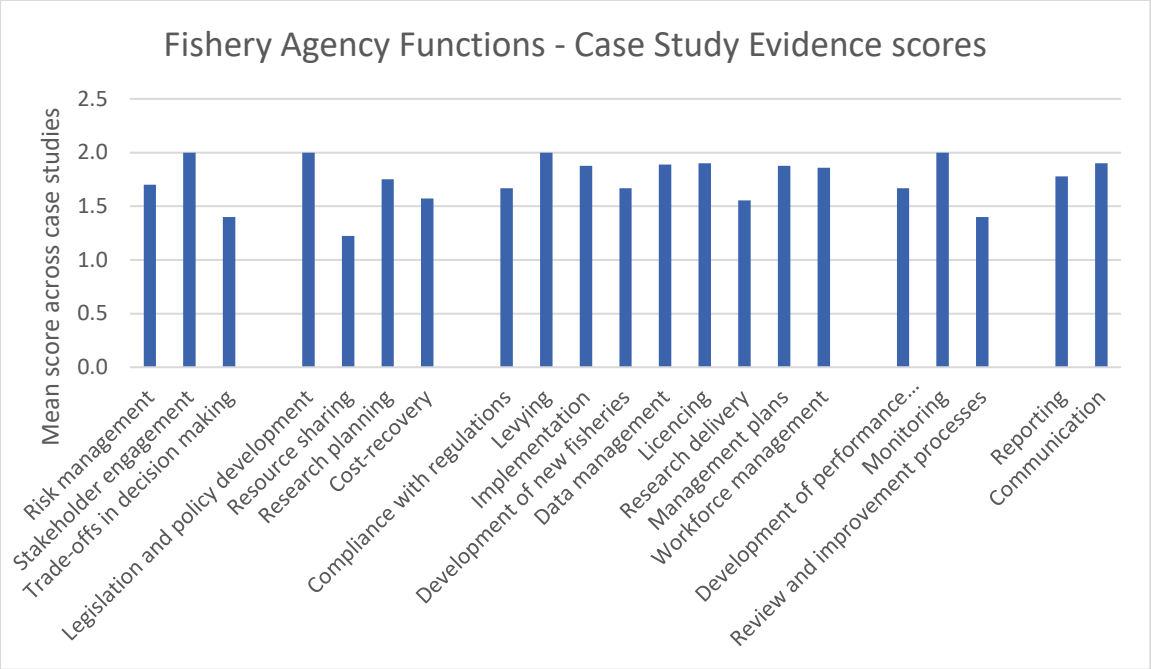


Figure 5. Case study results. Summary of the mean "availability of evidence" across the 21 management functions resulting from the case study fisheries.

References

Bureau of Indian Standards (2009). ISO 9004-2009 Managing for the sustained success of an organisation

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FRDC 2014-009. Penney AJ, D. Bromhead, G. Begg, I. Stobutzki, R. Little and T. Saunders (2016) Development of guidelines for quality assurance of Australian fisheries research and science information. FRDC Project 2014-009, 123 pp.

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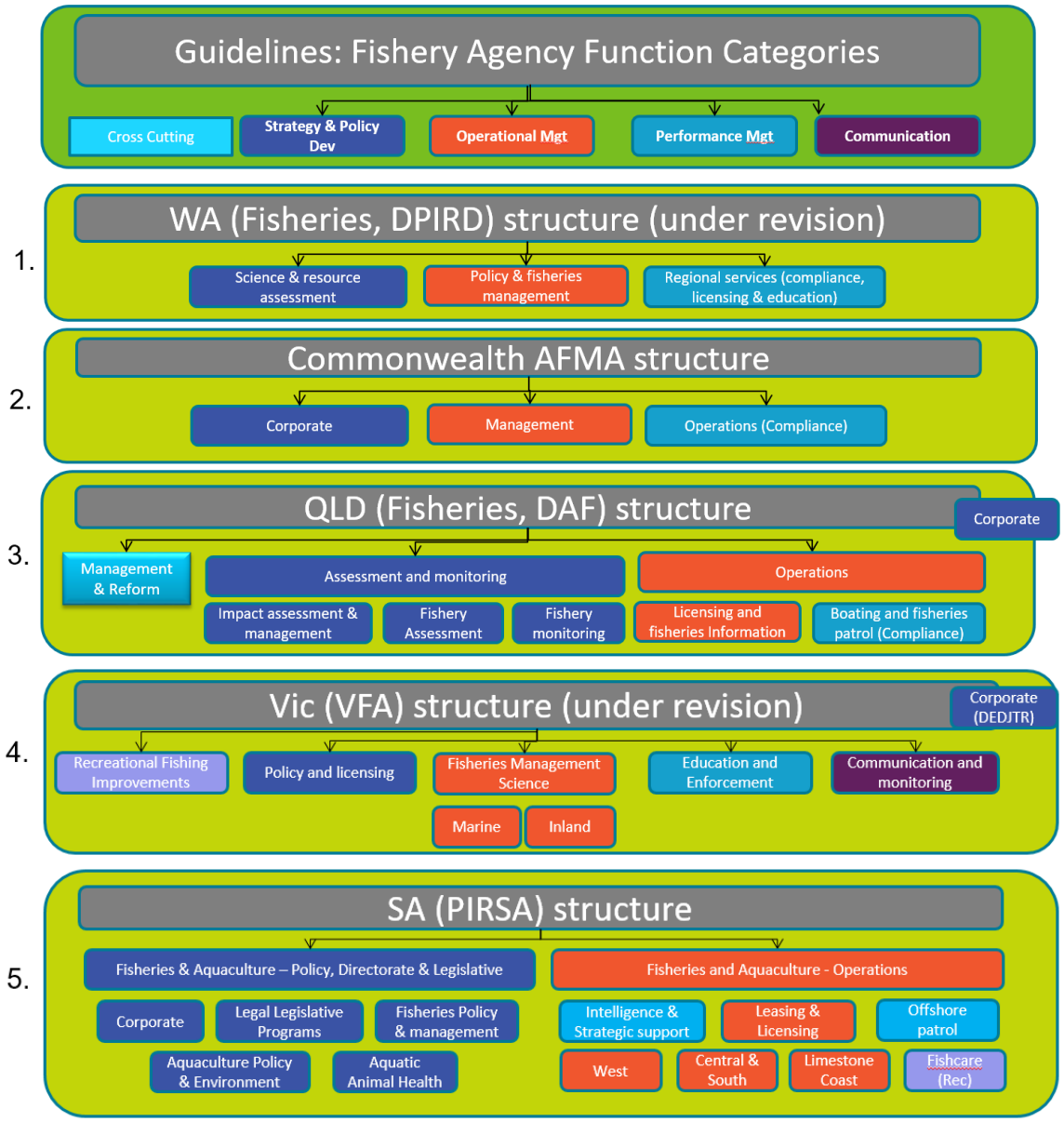
- Following consultation with governments and environmental groups, a revised approach to the fishery assessment process under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was approved by the Hon. Malcolm Turnbull, Minister for the Environment and Water Resources in August 2007. The updated version of the *Guidelines for the Ecologically Sustainable Management of Fisheries* - Edition 2 (the Guidelines) includes a revised streamlined process for reporting and submission requirements for fishery assessments under the EPBC Act.

Appendix 1 – Management Agency Structures

The structure of fishery management agencies differs around Australia, and we sought to check that the management functions we identified in the Guidelines were covered by agencies despite varying organisational structures. Regardless of a particular agency structure, responsibility for the management functions can be mapped to a part of the organisational structure of agency. These are schematic representations only, and should not be used as formal agency descriptions. Note that restructuring is also underway in several of the jurisdictions. Colours indicate similar functions across agencies, approximately matching the colours used for the fishery management functions shown in **Figure 3**.



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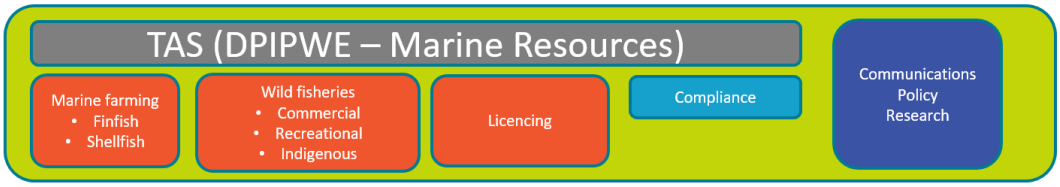
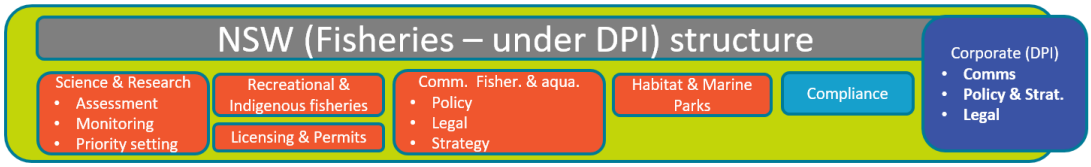
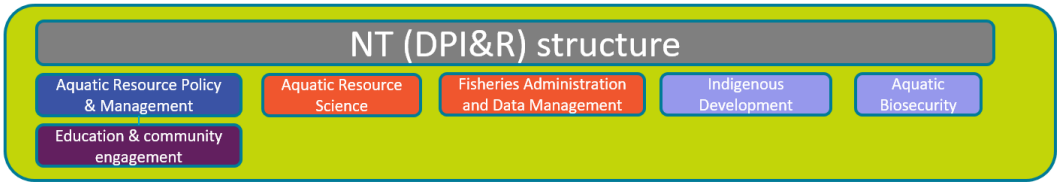

TAS (DPIPWE – Marine Resources)
Marine farming
• Finfish
• Shellfish
Wild fisheries
• Commercial
• Recreational
• Indigenous
Licencing
Compliance
Communications
Policy
Research

7.


NSW (Fisheries – under DPI) structure
Science & Research
• Assessment
• Monitoring
• Priority setting
Recreational & Indigenous fisheries
Licensing & Permits
Comm. Fisher. & aqua.
• Policy
• Legal
• Strategy
Habitat & Marine Parks
Compliance
Corporate (DPI)
• Comms
• Policy & Strat.
• Legal

8.


NT (DPI&R) structure
Aquatic Resource Policy & Management
Aquatic Resource Science
Fisheries Administration and Data Management
Indigenous Development
Aquatic Biosecurity
Education & community engagement

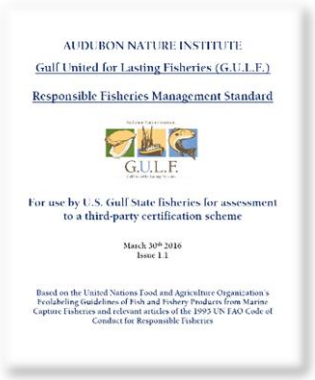
Appendix 2 – International document review

A summary of International Documents Reviewed and List of Documents considered. This is an accompaniment to an excel spreadsheet which provides specifics matching of the fishery functions listed in our project, to a range of international guidelines and standards. The nine documents selected to span the spectrum of such documents was:

1. Audubon Nature Institute – Responsible fisheries management standard
2. Marine Stewardship Council (2014). MSC Fisheries Standard and Guidance v2.0
3. FAO (1995). Code of Conduct for Responsible Fisheries
4. NOAA (2007). Magnuson-Stevens Fishery Conservation and Management Act.US National Standards
5. ISO 9004-2009 Managing for the sustained success of an organization
6. FAO Review of the state of world marine capture fisheries management: Pacific Ocean
7. OECD (2016) Ocean Economy in 2030
8. Fisheries Management in Japan
9. Monterey Bay Aquarium Standard

A brief summary of each document is provided below.

Audubon Nature Institute – Responsible fisheries management standard


AUDUBON NATURE INSTITUTE

Gulf United for Lasting Fisheries (G.U.L.F.)

Responsible Fisheries Management Standard

G.U.L.F.

For use by U.S. Gulf State fisheries for assessment to a third-party certification scheme

March 30th 2016
Issue 1.1

Based on the United Nations Food and Agriculture Organization's Ecolabeling Guidelines of Fish and Fishery Products from Marine Capture Fisheries and relevant articles of the 1995 UN FAO Code of Conduct for Responsible Fisheries

The G.U.L.F. Responsible Fisheries Management Certification Standard is a tool for use in the evaluation of fisheries in the Gulf of Mexico to a scheme developed and owned by Audubon. The Standard has principally been formulated from existing publicly available documents, developed by the United Nations Food and Agriculture Organization (FAO) and agreed upon by a Technical Advisory Committee of fishery experts and stakeholders in the U.S. Gulf of Mexico.

Marine Stewardship Council (2014). MSC Fisheries Standard and Guidance v2.0

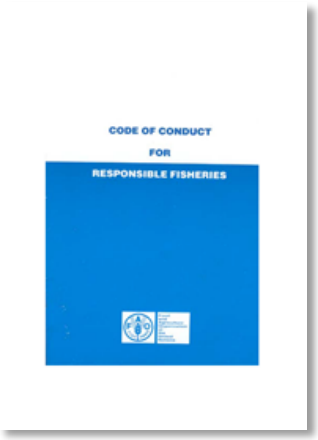

Marine Stewardship Council

MSC Fisheries Standard and Guidance v2.0
(Extracted from Annexes SA, SB, SC and SD of the Fisheries Certification Requirements v2.0)

Version 2.0, 1st October, 2014

MSC standards and requirements meet global best practice guidelines for certification and eco-labelling programmes. The MSC Fisheries Standard sets out requirements that a fishery must meet to enable it to claim that its fish come from a well-managed and sustainable source. There are 3 principles: that the fishery is managed so that is does lead to over-fishing or depletion and over-fished stocks are managed for recovery, that the ecosystem function and diversity is preserved and that local , national and international laws and standards are respected and requires that the resource be used sustainably and responsibly. Specifically Principle 3 is concerned with the fishery management system under assessment. This document sets out guidance for certification with scoring criteria at several levels, and is therefore particularly useful for our purposes.

FAO (1995). Code of Conduct for Responsible Fisheries



The FAO Code of Conduct for Responsible Fisheries is a voluntary code of conduct to ensure sustainable use and conservation of fisheries resources. Fisheries, including aquaculture, provide a vital source of food, employment, recreation, trade and economic well-being for people throughout the world, both for present and future generations and should therefore be conducted in a responsible manner. This Code sets out principles and international standards of behaviour for responsible practices with a view to ensuring the effective conservation, management and development of living aquatic resources, with due respect for the ecosystem and biodiversity. The Code recognizes the nutritional, economic, social, environmental and cultural importance of fisheries and the interests of all those concerned with the fishery sector.

NOAA (2007). Magnuson-Stevens Fishery Conservation and Management Act.US National Standards 1-10

The National Standards are statutory principles that must be followed by any fisheries management plan in the US. The guidelines summarise the Secretarial interpretations that been and will be applied under these principles and are intended as aids to decision-making. The standards cover optimum yield, scientific advice, management units, allocations, efficient utilisation of resources, variations and contingencies in fisheries, resources and catches, costs and benefits, community participation, bycatch minimisation and safety of human life at sea. They are derived from the fishery and conservation principles legislated in the Magnuson-Stevens Act (2007). Being legislated, the demands required to meet the standards can be onerous and are sometimes the standards are not met, however they provide some aspirational guidelines for some functions.

ISO 9004-2009 Managing for the sustained success of an organization

ISO 9004:2009 provides guidance to organizations to support the achievement of sustained success by a quality management approach. It is applicable to any organization, regardless of size, type and activity but is not intended as a certifiable standard. It was developed in response to the need for organisations to sustain their quality management systems, certified under the ISO 9001 (Quality Management Systems requirements) but can also be used as a standalone guide to help organizations achieve and maintain objectives in the long-term. This International Standard promotes self-assessment as an important tool for the review of the maturity level of the organization, covering its leadership, strategy, management system, resources and processes, to identify areas of strength and weakness and opportunities for either improvements, or innovations, or both.

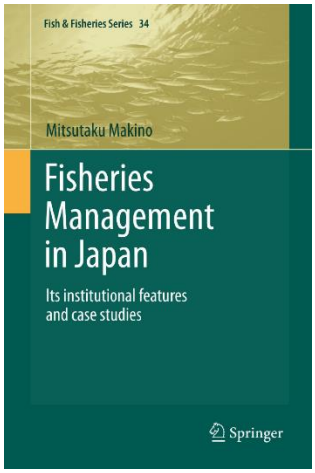
FAO Review of the state of world marine capture fisheries management: Pacific Ocean

During the first half of the 1990s, in response to the increasing concern about many of the world's fisheries and following the United Nations Conference on Environment and Development (UNCED), a number of international fisheries instruments provided an impetus for countries to strengthen their fisheries management. A key step in supporting such efforts is the development of more detailed, systematic and comparable information on fisheries environments and management trends. *The State of World Marine Capture Fisheries Management Questionnaire* was developed by FAO in 2004 to help meet this need. The results for the Pacific Ocean have been grouped by region and reported in this publication. Today, we are able to look back to see how countries responded, to examine whether more fisheries are managed, and to determine whether the management tools and strategies employed have improved the overall situation in marine capture fisheries. Trends in legal and administrative frameworks, management regimes and status of marine capture fisheries are analysed for twenty-nine countries in the Pacific Ocean and presented in this report and on the accompanying CD-ROM as an easy-to-read and informative reference for policy decision-makers, fishery managers and stakeholders.

OECD (2016) Ocean Economy in 2030

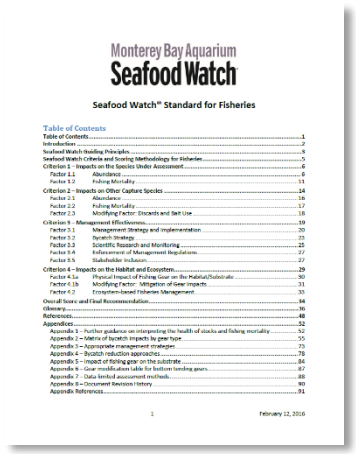
The "Future of the Ocean Economy" project aimed to explore the growth prospects for the ocean economy, and its capacity for employment creation and innovation. It was designed as a cross-sectoral, cross-disciplinary foresight exercise. Particular attention has been devoted to the emerging ocean-based industries in light of their particularly high potential in terms of growth, innovation and contribution to addressing global challenges such as energy security, environment, climate change and food security. Hence, the present report examines the risks and uncertainties surrounding the future development of ocean industries, the innovations required in science and technology to support their progress, the environmental impacts of the industries, their potential contribution to green growth as well as their negative externalities, and some of the implications for planning and regulation. Finally, and looking across the future ocean economy as a whole, it explores possible avenues for action that could boost its long-term development prospects while managing the use of the ocean itself in responsible, sustainable ways.

Fisheries Management in Japan



This documents the history of Japanese fishing and fisheries management, perhaps for a longer period than for any other country. The detail includes almost every aspect of human and environmental influences that could affect fishes and fishing. The authors provide detailed analyses of selected case studies, including the most current consideration of marine protected areas.

Monterey Bay Aquarium Standard



This document describes the Seafood Watch Standard for Fisheries as approved on September 30, 2015 by the Seafood Watch Multi-Stakeholder Group. The Standard allows assessment of the relative sustainability of wild-capture fisheries according to the conservation ethic of the Monterey Bay Aquarium. It includes background and rationale text explaining how the assumptions and Seafood Watch values are reflected within the calculations and scoring options. Sources from aquaculture operations are evaluated with a different standard. Both the Standard for Aquaculture and the Standard for Fisheries, in addition to our assessment process, assessments and recommendations, are available at www.seafoodwatch.org.

Bibliography of international documents

This list is the full set of documents that the project team considered in selecting the best international examples for detailed review. (**Version: April 28, 2016 – Cathy Bulman holds master file).** Note this list does include some peer-reviewed papers and documents produced by Australian authors that the project team considered internationally relevant.

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Appendix 3 – Domestic document review

The list of domestic documents reviewed by the project team, and the number of functions (n) that were identified in each of the documents. This review was not exhaustive, but sought to identify at least one example of each function from each jurisdiction, rather than noting all the documents that covered a function.

Jurisdiction	n
Commonwealth (NR)	
Fisheries Admin Act 1991 [Comm]	3
Fisheries Mgt Act 1991 [Comm]	3
Comm HS Policy and Guidelines 2007	5
ERA-ERM Guide v2 (draft)	5
Information Disclosure Policy	2
Quota Administration Policy	0
ERA strategy document?	0
AFMA's Cost Recovery Impact Statement	1
Commonwealth Policy on Fisheries Bycatch 2000	0
Public Governance, Performance and Accountability Act 2013	0
ABARES fisheries status report	0
Allocation of fishing concessions where management arrangements change (FMP 8)	0
Exploration of fish resources (FMP 5)	0
Procedure for handling unpaid and overdue levies (FMP 6)	1
Managing undercatch and overcatch of quota (FMP 10)	0
Scientific permits (FMP 11)	0
South Australia (BMS)	
Fisheries Management Act 2007	17
Cost-recovery Policy 2016	4
Resource Allocation Policy 2011	1
Co-management Policy 2013	1
Harvest Strategy Policy 2015	5
Harvest Strategy Guidelines 2015	2
Fisheries Management (Fees) Regulations 2007	1
Fisheries Management (General) Regulations 2007	1
Fisheries Management (Misc. Developmental Fisheries) Regulations 2013	1
Fisheries Management (Misc. Research Fisheries) Regulations 2013	1
Fisheries Management - subordinate Prescribed Fishery Regulations	3
Western Australia (CB)	
Aquatic Resources Management Act 2016	11
Fish Resources Management Act 1994	10
Integrated Fisheries Management Government Policy 2009	0
Fish Resources Management Regulations 1995	3
Fishing Industry Promotion Training and Management Levy Act 1994	0
Fisheries Adjustment Schemes Act 1987	0
Fishing and Related Industries Compensation (Marine Reserves) Act 1997	0
Pearling Act 1990	0

HARVEST STRATEGY POLICY AND OPERATIONAL GUIDELINES FOR THE AQUATIC RESOURCES OF WESTERN AUSTRALIA FISHERIES MANAGEMENT PAPER NO. 271	2
Status reports of the fisheries and aquatic resources of Western Australia	1
Northern Territory (RL)	
Fisheries Act 1988	4
Fisheries Regs 1993	3
Northern territory fishery resource framework	4
Northern territory fisheries harvest strategy policy	6
Guidelines for implementing the Northern Territory Fisheries Harvest Strategy Policy	5
Queensland (RL)	
Fisheries Act 1994	4
Fisheries Regulations 2008	4
Policy guidelines on the term of authorities	1
Limited Entry Policy	1
Fishing history policy	1
Policy For Investment and Increased Effort Warnings	0
Fishing Symbol Movement Policy	1
Over Quota Policy	0
Policy on the payment of Compensation under the Fisheries Act 1994	0
Standard Operating Procedure - Declaration of quotas under Section 44 of the Fisheries Act 1994	0
New South Wales (SS)	
Fisheries Management Act 1994	13
Fisheries Management Regulations 2010	3
Fishery Management System (one for each fishery)	1
Fisheries Resource Sharing in NSW Policy 2015	1
Government Information (Public Access) Policy	2
Developmental Fisheries Policy 2012	2
NSW Records Management Policy	1
NSW Fisheries non-statutory working groups: Establishment and governance	1
NSW Aboriginal Engagement and Cultural Use of Fisheries Resources in NSW Marine Parks	1
Fisheries NSW Strategic Research Plan 2014-2018	2
NSW Fisheries Compliance Enforcement Policy and Procedure	1
NSW Commercial Fisheries Administration Guide	3
Debt management: Commercial fisheries quota transfer restrictions Policy	1
Fisheries non-statutory working groups: Establishment and governance Policy 2013	1
Victoria (RL)	
Fisheries Act 1995 [VIC]	17
Fisheries Regs 2009 [VIC]	22
Fisheries (Fees, Royalties and Levies) 2008 [VIC]	1
Fisheries (Infringement Notices) Regulations 2011	3
Tasmania (CG)	
Living Marine Resource Management Act 1994	10
Fisheries (Penalty) Regulations 2011	1
Fishing Registration (Fees) Regulations 2002 (Licence Ownership and Interest)	2

Research Area Orders (various)	1
Fisheries Management Plans (in the form of rules and regulation - per fishery)	1
Various Ministerial Guidelines:	1
Scallop Ranching in Tasmanian Waters	2
Abalone Marine Farming and Processing Licences	1
Requirement to have a Marine Farming Licence when feeding fish held under the authority of a Fish Processing Licence	1
Removal of a Supervisor from a Licence	1
Fishing Licence (vessel) - Abalone Only	1
Fishing Vessel Distinguishing Marks	1
Renewal of Fishing Licences	1
Conditions Applying to Fishing Licences (Abalone Quota) Commonly Referred to as "Furneaux Licences"	1
Guidelines For Assessment of Applications For Fishing Licences For Mussel and Scallop Spat Collection	1
Licence Transfers	1
Licence Leasing and Transferability	1
Marine Farming - Abalone Ranching	1
Provision of Licensing Information Requests	2
Licence transfer procedures under S.90 licence suspension or cancellation provisions	1
Application to Transfer a Licence While Under Investigation	1
Endorsement of Fishing Licence (rock lobster) and Fishing Licence (giant crab) with a condition that authorises the unloading in Victoria of rock lobster and giant crab taken under the authority of these licences	1
Grant of a Fishing Licence (Abalone Dive)	1
Restriction on the Number of Marine Plant Licences	1

Appendix 4 – Fishery case studies

A total of ten case studies were completed, as described in previous sections. For each case study, there is a fishery summary and a table describing how the management functions were relevant to each fishery. Note that the order in which the functions are listed differs from the order in the main document, as the team revised the order following completion of the case studies.

Abalone - Tasmania

Fishery summary

The abalone fishery is one of the three large seafood industries in Tasmania along with the rock lobster fishery and salmon farming. It has a private market capitalisation of around $900 million. Despite the value of the fishery, it has only been a recent adopter of a harvest strategy, which is now used to guide catch settings for the various spatial zones in the fishery. Catch guidance from the harvest strategy is only indicative and there is much discussion around decisions within industry and government committees, before the final decisions are made by the minister. The assessment relies on traditional catch and effort data plus increasingly uses GIS and diver depth data. This is a single species and gear, with most catch exported live. Recreational catch is a minor fraction of the total catch and is monitored through regular surveys.

Table for the fishery

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence (if Y for relevant to fishery) 0 – none available 1 – some evidence; or in the process of creating 2- clear documentation
Cross-Cutting					
Risk management	Y	Y	Common issue, for example around disease / genetic risk created by aquaculture in terms of the wild catch. In some cases there are well established methods (e.g. disease risk is a common issue for the chief vet). Probability of meeting reference points involves risk management and is important for some fisheries although less developed in abalone. Testing of abalone harvest strategy provides guidance around risk of TAC setting choices	Plenty of high level statements around risk – such as commitment to ESD, precautionary principle, harvest strategies, etc. But examples of formal reporting / action more scarce. These include HABs testing protocols and harvest strategy testing.	1

			and whether the HS has low risk of stock depletion.		
Stakeholder engagement	Y	Y	This overlaps with communication and also legislation and policy development. It's a formal requirement for some regulatory changes.	Formal examples include calls for public comment on regulation changes. Or Fishery Advisory Committees.	2
Trade-offs in decision making	Y	Y	There's much discussion in this fishery around what fraction of rents from the fishery should go to quota owners versus the fishers (divers). Also some discussion politically whether there should also be some community share (royalty).	As per most Australian fisheries – much discussion of trade-off between fishers vs quota owners, some reports on this, but no actual management structures attempt to balance a trade-offs at an agreed point (e.g. there was a social trade-off in rock lobster – i.e. a vessel minimum limit, but quota rent ultimately given higher priority than labour). Lots of reports on diving profits and the market for dive labour but no explicit information or process on this or other trade-offs.	0
Development of performance indicators	Y	Y	Developing PIs is important function and only recently developed for this particular fishery, which is interesting given the abalone fishery is one of the largest fisheries. Cross cutting with other areas such as research and risk management.	Performance indicators clearly defined and reported in assessment reports in this and other fisheries in the jurisdictions.	2
Strategy and Policy Management					
Legislation and policy development	Y	Y	Reams of subordinate legislation is used for setting out policy. This is developed through lots of consultation such as with the advisory committee and public comment. Primarily around creating a framework with as low risk as possible for industry to nest their property in.	i) Advisory committees formally meet at regular intervals. ii) Sub-legislation (regs and rules) have time period limits of 10 years, which means they must be remade.	2

Resource sharing	Y	Y	Less formal in this fishery than others because recreational catch is comparatively small, plus there is little domestic market or opportunity for black market. Therefore not all processes are formally dealt with in this fishery (e.g. formal shares, method for allocation, adjustment).	Regular surveys of catch and reporting but not other aspects.	1
Research planning	Y	Y	Abalone Research Advisory Group at least one meeting p.a. Also needs documented through DPIPWE's advisory committees. The AbRAG is run by IMAS, not DPIPWE so this task is delegated to another agency.	AbRAG strategic plan and annual list of research priorities.	2
Cost-recovery	Y	N	Cost recovery differs from levying because it attempts to minimise public subsidy of fisheries. In Tasmania, is applied to smaller, newer fisheries but abalone are not managed in this way. Most fisheries are subsidised to some extent. There's some disconnect between broader policy of the State Government and actual fees charged. That is, costs for industry generally expected to be carried by industry although in practice there's a lot of subsidies.	No.	N/A
Operational management					
Compliance with regulations	Y	Y	Examples include forensic accounting of the quota monitoring system. Public communication programs around compliance with fish care program, which includes app, fish guidance. Significant 1:1 with commercial fishery including with "abalone operational document".	"Abalone Operational Document" is updated each year and brings together all regulations and requirements in a non-legal, easy to interpret document. This is intended to help compliance.	1 (abalone operational document is available but compliance documentation (e.g. police reports) not easily accessible).
Levying	Y	Y	Dealt with through the "Fisheries General and Fees Legislation". This is basically a schedule linking holdings of fishery units to fees that need to be paid. This is updated regularly. Abalone is somewhat removed from this	Treasury track with both forward estimates and actuals.	2

			because of the deed of agreement which lays out the payment. Staff are employed to chase, receive and disburse the money. There is also a special case in this fishery where the public gets a benefit from one small part of the fishery through leasing out units (Furneaux units; ~ $800K). All other levying is just (partial) cost recovery.		
Implementation					
Development of new fisheries	Y	N	Process for application for new fisheries exists with developmental fisheries framework and officer.	Regular updating to the minister because this is an election commitment.	2
Data management	Y	Y	Policy on personal information protection through a specific act and all data is managed in respect of that Act. Data quality isn't managed through a policy although is an implicit function of the data management team.	Data policy on sharing between Tas. Government and research users.	2
Licencing	Y	Y	Large section dedicated to managing transfers and tracking ownership. Aspects of review of compliance and revocation done through tracking demerit points. Can apply to court to have a licence cancelled although in practice normally transferred not cancelled.	Informal reporting to the FACs and a few other areas but nothing formal.	1
Research delivery	N	N	Outsourced to IMAS.	Operating plan developed and reported against each year. Budget, FTE etc. checked and allocated.	2
Management plans	Y	Y	Management plans are named in the Act so the ability to write legislation subordinate to the act can be affected by the management plan. In abalone this takes the form of the abalone fishery rules.	They are not mandatory so no formal process of checking that they're done but once in place they need to be renewed and responded to.	2
Workforce management	Y	Y	Recruitment and staff management occur in our agency but not really a function of fisheries management worth including in this	Various HR policies as per any public service workplace.	2

			list. It's just normal business that any office would be doing.		
Performance management					
Monitoring	Y	Y	In terms of the fishery, main streams of monitoring data are catch and effort, plus quota monitoring. Compliance against requirements is the first check (i.e. have they completed dockets as required). Management costs monitored in the sense that budget is provided and expenditure can't exceeded but no monitoring / tracking.	Management Key Activities exist and are reported to minister. Senate estimates committee reporting occurs across a range of aspects of management and financial performance.	2
Review and improvement processes	N	N	Assessments and research are reviewed on an agreed time period (4 y) but this is external to DPIPWE management because research occur at IMAS.	N/A	1 (2 for research but this is only one aspect of this topic)
Communication					
Reporting	Y	Y	Stock reporting not done by DPIPWE. EPBC reporting done annually but is the assessment report. Various irregular reporting such as HABs levels during periods of blooms.	No.	2
Communication	Y	Y	Media office and other supporting functions such as web coordination and events (e.g. Agfest). Special effort occurs around issues where public comment is sought.	Communications plan is run at a higher level for the Department. Communications policy for web reporting.	2

Lakes and Coorong Fishery -South Australia

Fishery summary

The South Australian Lakes and Coorong Fishery is a small (1,598t), multi-gear, multi-species fishery that operates in a highly modified environment, recognized internationally for its unique ecological character. The fishery developed in 1853 and now contributes significantly to the local social and economic community fabric ($7.8 million GVP in 2014/15), and has significant cultural, spiritual and livelihood significance for the Ngarrindjeri people. The fishery is characterized by two main sectors, the input controlled net-sector and the output controlled pipi sector which is monitored by the South Australian Shellfish Quality Assurance Program and sold for human consumption and bait. A range of comprehensive fishery dependent and fishery independent data is collected to provide on-going monitoring of performance. In 2008 the Pipi sector of the Lakes and Coorong Fishery received Marine Stewardship Council (MSC) accreditation. In more recent years, the net-sector has come under considerable pressure from an influx of Long-nosed fur seals into the Coorong and Lakes which has resulted in high levels of catch depredation during the winter months. Management of the fishery is supported by the Lakes and Coorong Fishery Management Advisory Committee which is made up of key stakeholder representatives.

Table for the fishery

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence 0- none available 1 – some evidence or in the process of creating 2 – clear documentation
Cross-Cutting					
Risk management	Y	Y	FMA 2007 objects include the precautionary principle, and requires the development of Management Plans to assess and address risks. PIRSA has developed and adopted a South Australian HS policy and guidelines that are consistent with the National harvest strategy and guidelines, and require a risk assessment of the fishery to be undertaken. An ESD was undertaken through the development of the harvest strategies for the pipi sector and the net sector. The Public Health risk is managed through on-going monitoring conducted by the South Australian Shellfish Quality Assurance Program (SASQAP). The LCF is contained within an environment internationally recognised for its ecological	ESD is included in the Management Plan (2016), Harvest Strategy and EPBC Act export approval documents. Risk management is also a component of the MSC accreditation. Public notices relating to managing spatial or temporal closures are provided as required.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence 0- none available 1 – some evidence or in the process of creating 2 – clear documentation
			significance, as well as the broader Murray-Darling Basin. As a result, the fishery is included in managing risk associated with the broader delivery and flow of water from and management of the River Murray. An example of this is the on-going dredging of the Murray mouth to keep it open to water movement, the potential release of Murray cod for re-stocking purposes, or management activities to eradicate pests or noxious species.		
Stakeholder engagement	Y	Y	A high level of stakeholder engagement is undertaken in the LCF. Key agency components include the annual cost recovery process undertaken between the Industry Association and PIRSA, the development of a review committee that included stakeholders to oversee the development of the Management Plan & Harvest Strategy which was completed in 2016. In an on-going capacity, the Lakes and Coorong Fishery Management Advisory Committee meets regularly to support the implementation of the Management Plan including the application of the fishery harvest strategy for both the net and pipi sector. Established in 2015, a cross-government working group which includes stakeholder membership was established to address the impacts of Long-nosed fur seals on the fishery.	The Management Plan (including the harvest strategies) was adopted in 2016. The Lakes and Coorong Fishery Management Advisory Committee (MAC) was established and meets regularly. Minutes are recorded and distributed to members (not public) following these meetings. PIRSA also sits on the industry-led lakes and Coorong Consultative Committee and participates in industry AGMs and other general meetings when invited.	2
Trade-offs in decision making	Y	Y	FMA 2007 objects require sustainability as primary object. This means that sustainability will be the primary focus of fisheries management. Trade-off between users for allocation of shares	The Management Plan details the harvest strategy, allocation between commercial, recreational and indigenous users groups. The Lakes and Coorong Fishery MAC makes	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence 0- none available 1 – some evidence or in the process of creating 2 – clear documentation
			in the fishery is developed and documented in the Management Plan. The Pipi economic model is applied secondary to the biological indicators, to increase economic output within the biologically sustainable limits Currently, the conservation of LNFS is taking precedence over fishing productivity.	recommendations to PIRSA on management decisions such as Total Allowable Catch for Pipi. Communiques from the LNFS working group are made publicly available.	
Development of performance indicators	Y	Y	Performance indicators are developed as goals, objectives and strategies in the Management Plan. Performance indicators and reference points are also an integral part of the Harvest Strategies.	Detailed in the Management Plan	2
Strategy and Policy Management					
Legislation and policy development	Y	y	Managed under the Fisheries Management Act 2007, (the objects of the Act being the key component), the Fisheries Management (Lakes and Coorong Fishery) Regulations 2017 and the Management Plan for the South Australian Commercial Lakes and Coorong Fishery (2016) which has a 10 year life-span (review after 5 yrs.). PIRSA has developed and adopted a number of state-wide policies to guide fisheries management. These include policies on allocation, cost recovery, release of aquatic organisms, harvest strategy policy and guidelines and co-management, which are all applicable to the LCF.	Yes, through the production of the Management Plan, Stock Assessment Reports, TEPS Reports, and Econsearch Reports – publicly available.	2
Resource sharing	Y	y	The PIRSA Allocation Policy guides the allocation of LCF resources between Recreational, Commercial and indigenous users. LCF allocation is detailed in the Management Plan as formal shares between the Commercial, Recreational	Management action occurs consistent with the share in allocation. Allocation is reported against in annual Stock Assessments – publicly available.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence 0- none available 1 – some evidence or in the process of creating 2 – clear documentation
			and Aboriginal Traditional sectors for all the primary species as a proportion of take. How allocation could change is also detailed in the Management Plan.	Review requirement is set out in the Management Plan – publicly available.	
Research planning	Y	y	Research planning is included in the Fisheries Management Plan pursuant to the FMA 2007.	Research planning reported in Stock Assessment Report and supported through the implementation of the Management Plan.	2
Cost-recovery	y	y	Policy, management, research, compliance, business administration, legal program and leasing and licencing is cost recovered from Industry (since 2017 this occurs on a biennial basis). Cost-recovery is determined consistent with PIRSA cost-recovery policy.	Cost recovery has been independently reviewed by Deloitte, and is discussed with Industry on an annual basis. SLAs are then established between PIRSA Fisheries and Aquaculture and PIRSA-SARDI. Reporting against management and compliance activities is provided, however, not against research activities.	
Operational management					
Compliance with regulations and licence conditions	Y	y	Role of regulation is held by SA Government, PIRSA - Fisheries and Aquaculture Division. Incorporates deterrence, monitoring, enforcement, quota management, and licencing administration.	Annual compliance risk assessments and quarterly reports are provided and discussed with industry. Summaries of the activities including IRR are incorporated into annual stock assessments. Public register details licence holders and licence conditions.	
Levying	N	N	NA	NA	
Implementation	Y	y	Fisheries specific components for the LCF include – Policy, management, legal, annual application of a harvest strategy for the two sectors including the pipi economic model, pipi TACC determination, TAE determination for nets, effort adjustments (if required), compliance, TEPS	The details of management implementation is documented in the Management Plan which is reviewed every 5 yrs.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence 0- none available 1 – some evidence or in the process of creating 2 – clear documentation
			reporting, consignment of pipi catch. Broader policy and governance arrangements – include, SAMDBNRM Plan, LLCRP, Living Murray – Lower Lakes and Murray Mouth Icon Site Plan, Coorong NP Management Plan, Ramsar plan, Ngarrindjeri Nation Sea Country plan, Native Fish Strategy, Basin Plan, Cross-government LNFS working group, Community Reference Group, and the LCF Management Advisory Group.		
Development of new fisheries	N/A	N/A	N/A	N/A	N/A
Data management	Y	Y	Catch Disposal Records and Periodic return information provided (pursuant to regulation or licence condition) and centrally stored, validated and maintained. Fisheries data is subject to s124 of the FMA (confidentiality requirements).	Data is managed by SARDI in a central database. Data users can apply for access to data.	2
Licencing	Y	Y	Administration of an authority to access the LCF or an exemption under the FMA are undertaken by SA Government – PIRSA. Licences are for the term of the Management Plan. The function includes Financial assessment, administration of ITQ for pipi, invoicing and wavers if appropriate. An electronic reporting and licencing system is currently being developed for implementation in the next 2 years.	Licence holder and licence conditions are contained in a public register.	2
Research delivery	Y	Y	SARDI is responsible (as the preferred research provider) to undertake research required under the SLA. This includes application of the harvest strategy and performance indicators, stock assessment, stock status, presentations and contribution to state and national reporting	The production of annual stock assessment, and stock status reports.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence 0- none available 1 – some evidence or in the process of creating 2 – clear documentation
			requirements. New research projects are developed in consultation with industry and F&A (e.g. FRDC project - alternative gear trials to address the impact of LNFS).		
Management plans	Y	Y	Provision for the development of Management Plans under the FMA 2007. The Management Plan has a 10 yr. life-span and must be reviewed after 5 years. The Minister is required to manage the fishery in accordance with the Management Plan. The Management Plan must - (a) identify the fishery to which the plan relates; and (b) describe the biological, economic and social characteristics of the fishery; and (c) identify the impacts or potential impacts of the fishery on its associated ecosystem or ecosystems, including impacts on non-target species of fish or other aquatic resources; and (d) identify any ecological factors that could have an impact on the performance of the fishery; and (e) assess the risks (if any) identified under paragraphs (c) and (d) to determine the most serious risks; and (f) set out strategies for addressing those risks; and (g) set out methods for monitoring the performance of the fishery and the effectiveness of the plan, including performance indicators, trigger points for review or action and progress reporting; and (h) specify the share of aquatic resources to be allocated to each fishing sector under the plan; and	The Minister must, within 12 sitting days after adopting a management plan, cause copies of the plan to be laid before both Houses of Parliament. The LCF Management Plan was adopted March 2016.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence 0- none available 1 – some evidence or in the process of creating 2 – clear documentation
			(i) prescribe a method, or establish an open and transparent process for determining the method, for adjusting allocations of aquatic resources between the different fishing sectors during the term of the plan; and (j) provide that compensation will be paid to persons whose licences or licence entitlements are compulsorily acquired in order to reduce the share of aquatic resources allocated to the commercial fishing sector and increase the share allocated to another sector.		
Workforce management	N	N			NA
Performance management					
Monitoring			Sustainability, Management Plan, Economic and Social monitoring occurs for the LCF.	Stock assessment reports (publicly available), Econsearch reports (publicly available), meetings of the LCF Management Advisory Committee to support and review information.	2
Review and improvement processes			Management Plans are required to be reviewed after their 5th anniversary. PIRSA policies are required to be reviewed regularly. In addition - A person aggrieved by a decision of the Minister— (a) to refuse an application for the issue or renewal of an authority; or (b) to refuse an application for consent to transfer an authority; or (c) to impose conditions on an authority or vary a condition of an authority,	Management Plan was reviewed and adopted in 2016.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence 0- none available 1 – some evidence or in the process of creating 2 – clear documentation
			may, within 1 month of the day on which the decision is made, apply to the Minister for a review of the decision. (1) An applicant for a review under Division 1 who is not satisfied with the decision of the Minister on the review may appeal to the Administrative and Disciplinary Division of the District Court against the decision. (2) An appeal must be instituted within 28 days from the time the appellant receives the written statement of the reasons for making the decision appealed against. (1) A person to whom a protection order or reparation order has been issued under Part 8 Division 2 may appeal to the ERD Court against the order or any variation of the order. (2) An appeal must be made in a manner and form determined by the Court, setting out the grounds of the appeal. (3) Subject to this section, an appeal must be made within 21 days after the order is issued or the variation is made.		
Communication					
Reporting			Annual management arrangements are provided to fishers in the form of a notice which is placed on the PIRSA website. Stock status is reported annually either in a publicly available stock assessment or status report. Stock status is reported in the National Stock Status Assessment	Formal reporting is provided and available to the public.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence 0- none available 1 – some evidence or in the process of creating 2 – clear documentation
			and as a part of export approval pursuant to EPBC Act. The Economic performance of the fishery is reported on annually through provision of an Econsearch report which is available publicly. MSC certification requires auditing against sustainability standards.		
Communication			Recreational pipi seasonal closures, and temporal closures due to health risk are communicated to the general public annually or as required.	Spatial and temporal closures and management arrangements that impact the public are regularly placed on the PIRSA website and fisheries applications, and provided to licence holders as a Notice to Fishers. Notice to Fishers, Econsearch reports, stock assessment reports are provided on the PIRSA website. Licence holders and licence conditions are provided on a Public Register.	2

Offshore Snapper Fishery - Northern Territory

Fishery summary

The NT Offshore Snapper Fishery (comprising the Demersal and Timor Reef Fisheries) is NT's most valuable commercial fishery of $24M. The Demersal Fishery has a management framework, with observer monitoring program, data collection to support assessment and an advisory group with a broad stakeholder representation. These are multi-species and multi-gear fisheries (each managed separately with regard to licences and Independent Transferrable Quotas) covering all NT and commonwealth waters (under the OCS NT Fishery Joint Authority arrangements). The majority of the catch is sold domestically in Australia in Sydney and Melbourne being the primary markets and a small percentage is exported to then European Union and the US. The recreational and Fishing Tour Operator catch is limited due to distance and there is little existing data for recreational activity and catch, with management via bag and possession limits. The indigenous take is also limited due to distance offshore.

Table for the fishery

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
Cross-Cutting					
Risk management	Y	Y	Ecological Risk Assessments (ERA) for the Offshore Snapper Fisheries (OSF) involving a Technical Expert Group (TEG) made up of national fishery experts and reference to stakeholders through workshops with questions/comments back to the TEG.	Yes, Ecological Risk Assessment (habitat and fish species) have been conducted and development of Social and Economic goals and objectives already undertaken will be part of the Management Plan Framework for these Fisheries. – Public draft document is expected to go out for comment in 2018 dependent on Ministerial approval.	2
Stakeholder engagement	Y	Y	An Advisory Committee – the NT Offshore Snapper Fisheries Advisory Committee (OSFAC) was established in 2014. The Committee's primary roles is to provide the Director of Fisheries with advice on effective contemporary, sustainable management arrangements of these important fisheries in accordance with the NT *Fisheries Act*.	Yes, OSFAC provides a report (Chairman's letter) to the Director after each meeting of the Committee. The Director responds to each letter providing comment on the advice received from the Committee.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
			Membership of OSFAC is from all key sector groups which have an interest in the development of Management Plans for the various fisheries: i.e. recreational and commercial fishing, guided fishing tour operators, environmental groups, Aboriginal organisations, and fisheries enforcement.		
Trade-offs in decision making	Y	Y	Ecological Risk Assessments undertaken as per the National ESD Reporting Framework for Fisheries (Fletcher et al 2002: www.fisheries-esd.com and AS/NZS ISO 31000:2009). TEPS and habitats are assessed in ERA process. A sustainability assessment for the effects of fishing (SAFE) tool will be used in order to assess impacts on the tertiary species (Zhou and Griffiths 2008)[1] . Social and economic objectives for the NT Offshore Snapper Fisheries: a workshop was held on 15 June 2017 as part of the Ecological Risk Assessment (ERA) process in developing a Harvest Strategy and Management Framework for the NT's Offshore Snapper Fisheries. The Workshop was attended by stakeholders from the environmental, commercial, recreational and guided fishing sectors as well as staff from NT Fisheries. The aim of the Workshop was to identify economic and social objectives for the	Yes, ERA documents including Socio-economic objectives derived from workshop will be part of Management Plan Framework for the NT's Offshore Snapper Fisheries and will be a public document when complete.	1

[1] Zhou S & Griffiths SP (2008). Sustainability Assessment for Fishing Effects (SAFE): A new quantitative ecological risk assessment method and its application to elasmobranch bycatch in an Australian trawl fishery, *Fisheries Research* 91(1): 56-68.

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
			operation of the NT Offshore Snapper Fisheries (commercial, recreational and Aboriginal): • that don't compromise ecological limits (Harvest Strategy); and • which recognise the interests of Aboriginal and regional communities. The Workshop participants discussed and listed the objectives from Tables 1-4(pp10-18) in *"Managing the social dimensions of fishing. Part 2: Implementing the social objectives and indicators in fisheries management"* (Triantafillos *et al.* 2014)[2] that were relevant to the NT Offshore Snapper Fisheries. Also covered off in Resource Allocation Policy.		
Development of performance indicators	Y	Y	As part of the Harvest Strategy, and the Social and Economic Goals and Objectives risk assessment for the NT Offshore Snapper Fisheries (described in response to 'Trade-offs in decision making' section). HS picks up biological component, the Socio-economic picks up on management e.g. sets out requirements for auditing and surveying stakeholders to assess performance of fisheries managers.	Yes, currently through OSFAC minutes and in future in Management Plan frameworks	1
Strategy and Policy Management					

[2] Triantafillos L, Brooks KJ, Schirmer J and Pascoe S (2014). Managing the social dimension of fishing: Part 2 Implementing social objectives and indicators in fisheries management. Primary Industries and Regions SA, Fisheries and Aquaculture, Adelaide. 227pp

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
Legislation and policy development	Y	Y	Northern Territory Government's *Fisheries Act* & *Fisheries Regulations* provide the statutory basis for management. Discussion papers, RIS/PRIS and consultation through OSFAC. Regulatory Impact Statement (RIS)/Preliminary RIS, consultation documents and "Statements of Decisions" (i.e. for Timor Reef Fishery Trawl Trial), minutes and Chairman's summaries from OSFAC meeting (Timor RF (10%) is part of the OSF along with the Demersal Fishery (90%)). Process: discussion document, development of MP and HS &ERA, then develop regulations, then to PRIS/RIS.	Yes. Legislative and policy framework in place to manage, regulate fishery. Policy development mechanisms also in place. Summary papers and reports on consultation. OSFAC minutes.	2
Resource sharing	Y	Y	The process for determining sector allocations in the NT's Offshore Snapper Fisheries is outlined in the '*Northern Territory Fisheries Allocation Policy*'. The policy states that: • Shares of an aquatic resource should be expressed as the proportional share of each fishing sector to the total use of the resource. • Where possible, shares should be further defined in terms of the Total Allowable Catch available for the species of interest. • The preferred unit of measurement to estimate catch shares of fish and aquatic resources will be catch by weight. An allocation of any given resource must take into account the existing level of proportional use by all sectors within a fishery and ensure that these levels are maintained during an	Yes. Following advice from the OSFAC, the review of sector allocations in the DF and fishery is to be undertaken every 4 years, or periodically in accordance with Government process and policy using an agreed market mechanism to undertake any reallocation under the following scenarios: • There is a review of the Management Plan, which will reassess the appropriateness of the shares that acknowledges longer term data sets. • There is a major change in the management of targeted demersal fish species that results in the shift of allocation to or from a sector.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
			allocation of shares. Calculation of shares will be based on the best available information on the current level of use by all fishing sectors, and the information is to be based on data that is: • Real, that is collected and published; • Recent, and where possible no more than five years old, and; • Reliable - data that is scientifically verifiable. Data to inform the resource use of commercial and fishing tourism sectors will be taken from compulsory catch and effort logbooks, while data to inform the resource use of recreational and Indigenous fishing sectors will be taken from scientific surveys. The information used to allocate shares in this management plan has considered information from the following sources: • *The National Recreational and Indigenous fishing survey* (Henry & Lyle, 2003); • *The National Recreational Fishing Survey: The Northern Territory* (Coleman, 2004); • *A survey of recreational fishing in the Northern Territory, 2009–10* (West *et al.* 2012); • *Status Reports for various OSF species 2015* (Grubert 2016)	Any review of sector allocations will follow the process outlined in the '*Northern Territory Fisheries Allocation Policy*'. In the event that an adjustment of shares is required the process will follow the the *Northern Territory Fisheries Resource Sharing Framework*, which can be located at https://dpif.nt.gov.au/strategies-and-projects/fisheries-resource-sharing-framework.	
Research planning	Y	Y	Research and monitoring planning is part of the current management framework via OSFAC and will be a key part of the new Harvest Strategy	Yes (currently through reporting to OSFAC, and to be incorporated in the Management Plan Framework which will be open to public comment before it is	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
			and Management Plan for the Offshore Snapper Fisheries.	finalised.) Currently must have support of industry because of cost i.e. to increase quota the industry must provide the support for stock assessments (both financial and resources).	
Cost-recovery	y	Y	No formal cost-recovery policy at an agency level but operates as an agreement between industry and fisheries management. Through ITQ levy, industry pay for administration/data entry for daily logbook.	No - Reports to OSFAC and to the Demersal Fishermen's Association on expenditure against levy.	2
Operational management					
Compliance with regulations	Y	Y	The responsibility for compliance and enforcement in the NT's Offshore Snapper Fisheries is vested with the Northern Territory Department of Police, Fire and Emergency Services and more specifically, the Water Police Section (WPS). The administration, operational and 'day-to-day' monitoring aspects of the VMS equipment are undertaken by Australian Fisheries Management Authority (AFMA). To ensure effective enforcement of quota, there is a requirement that all unloading of catch by operators be undertaken in Darwin. A licensee may apply seeking once-off approval to unload quota species in another port in special circumstances (e.g. cyclonic weather). Enforcement of the quota is assisted through the operator completing a Prior Landing Notice (given by phone 12-24 hrs before landing, nominating time and where in port), an Unloaded Fish Notice (given by phone within 1	Yes, Reports to OSFAC. Report/paragraph in NT Status of key NT Fish Stocks reports. Supporting documentation for WTO/EPBC Act.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
			hour after unload, detailing catch weights, transporters, processor), and a Catch Disposal Record (CDR) designed to verify recorded information about fish catches. The notices and CDR are not intended to replace daily catch and effort reporting through e-log or logbooks. A Pre-Departure Notice is required to be given before leaving the mooring (given by phone 1-12 hrs before undocking nominating time of departure, intended destination, type of gear to be used, confirmation of minimum holdings, etc.). Aquatic Resource Management has oversight of the fishery and monitor catches and communicates with licence holders/nominees and licence holder committees.		
Levying	Y	Y	There is an annual licence fee and administration fee levy based on ITQ fishery unit holdings for each species group, not just holding a licence.	Yes, Reports to OSFAC and to the Demersal and Timor Reef Fishermen's associations on expenditure against levy.	2
Implementation	Y	Y	Currently the Demersal Fishery has a Management Framework document. The TRF doesn't have one but has guidelines in the "NT TRF and DF guide to OSF licence-holders operating under a Quota Management System". Management plans are enabled through regulations.	Yes, These are public documents and also reported in Fishery Status reports including TEPs interactions. New Fishery Management Plan (FMP) under development and will cover reporting against performance indicators/targets for both ecological and socio-economic.	2
Development of new fisheries	Y	Y	Yes there is a policy for the appraisal and administration of NT Development Fishery applications	There is a public policy document "NT Fishery Report No. 60 Updated June 2005" and the new FMP will also reflect	1

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
				the development of new species/group within this fishery.	
Data management	Y	Y	The Licensing and Logbook Services sections of NT Fisheries administer a daily logbook program and collate catch and effort information for the NT's Offshore Snapper Fisheries. The data from the logbook and CDR's is entered onto and maintained on the FishDat program.	Yes, Fish Status Reports annually.	2
Licensing	Y	Y	Licensing is managed on the FishDat program. Licensing is covered in Regulations with conditions for becoming an approved operator for purposes of holding a fishing licence or being a nominee i.e. skipper.	Yes, limited entry licensing system in place. Reported in Annual Reports, OSFAC reports, Fish Status Reports and on the DPIR website.	2
Research delivery	Y	Y	On-going research and monitoring (including an observer program) as part of current ITQ Management Framework. Annual Stock Reduction Analysis and stock assessments for key species. A Research and Monitoring Plan to monitor the ongoing performance of the fisheries against the performance indicators will be part of the Harvest Strategy currently being developed. Note: new HS defines triggers based on harvest.	Yes (currently reported in Fish Status Reports and Departmental reports to OSFAC. In future, a Research and Monitoring Plan to monitor the ongoing performance of the fisheries against the performance indicators will be part of the Harvest Strategy currently being developed.) HS has been reviewed independently and MSE will be undertaken by independent scientist. Research and monitoring plan is being developed by an independent consultant in collaboration with Department and industry representatives. Currently must have support of industry because of cost i.e. to increase quota the industry must	1

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
				provide the support for stock assessments (both financial and resources).	
Management plans	Y	Y	Current: 2012 DF Management Arrangements and the "NT TRF and DF guide to OSF licence holders operating under a Quota management system". In 2014 NT Fisheries in conjunction with OSFAC and industry began developing a new Management Plan for the NT's Offshore Snapper Fisheries: completion due in July 2018.	Yes Reporting to OSFAC and Director of Fisheries.	2
Workforce management	Y	Y	Yes, NT Fisheries has a culture of encouraging and assisting development of staff and also an identified future leaders development and mentoring program. Also a program of indigenous interns and trainees.	Yes. A formalised Personal Development Plan for all staff which is reviewed and renewed annually. DPIR also has a People Plan which is available on the department's intranet	2
Performance management					
Monitoring	Y	Y	The Licensing and Logbook Services sections of NT Fisheries administer a daily logbook program and collate catch and effort information for the OSF. Licence holders complete a compulsory daily logbook that is submitted at the completion of each trip, and within seven days of unloading. NT Fisheries is currently implementing a computer-based log book system (E-Logs), whereby commercial fishers will input the data currently captured on paper-based Fishery logbooks directly into an electronic logbook. This logbook data is then sent to NT Fisheries when the vessel returns to	Yes. AFMA and NT Water Police reports to OSFAC, Observer Reports, Annual Reports, Status of NT Fish Stocks. Aquatic Resource Management oversight of fishery/ies.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
			port and is in internet coverage. The E-logs system is expected to be progressively rolled out to all commercial fisheries by the end of 2017. E-logs/logbooks currently record retained species by number (trap and dropline gear) and weight (trawl gear). By-catch species are recorded by weight. These logs also provide information on the spatial distribution of effort. Other details recorded in the daily logbook include: shot number, start fishing time, latitude/longitude, end fishing time, depth, landed weight of species and species discarded. Validation of catch and effort logbook data is achieved by comparing them with the Catch Disposal Records (CDRs) used in the quota management system, using processor records and / or observer data. All wildlife interactions (including TEPS) need to be recorded to fulfil the requirements under the *Environment Protection and Biodiversity Conservation Act 1999*, as well as addressing the recommendations made by the Australian Government's Department of the Environment and Energy (DotEE) for Northern Territory commercial fisheries export approval. NT Fisheries collects and archives the TEPS data from the logbooks and an annual report is provided to DotEE as part of the fishery export accreditation conditions. The catch and effort information is coupled with observer trips that document vessel and gear		

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
			information, location, depth, fishing practices, catch composition of target, group and by-catch species, and where possible, measure the length of most landed species.		
Review and improvement processes	Y	Y	There are review mechanisms in Management Plans, Harvest Strategies and policies and also review dates for workplace performance and personal development. Legislation has formal review periods set in Acts and Regulations (5yr) – comprehensive review recently completed. The Division is beginning to adopt After Action Review (reviews the process and outcomes not who did what) model to assist with continuous improvement.	Yes. FMP, HS public documents and also reviewed initially through OSFAC and then to public through RIS/PRIS or discussion document. Legislation and policies– Act and Regulations go out to public comment before finalising-(reviews every 5 years for Acts).	1
Communication					
Reporting	Y	Y	Not legislative requirement but Departmental reporting annually. Also required for WTO export approvals to account for performance of the fisheries in meeting the requirements of the EPBC Act.	Yes. Report to DotEE for WTO export approval. Also Fish Status Reports, OSFAC reports, Division reports and Departmental Annual Reports.	2
Communication	Y	Y	Not a legislative requirement but public communications identified as fundamental to stakeholder engagement and relationships.	Yes OSFAC reports, Division reports and Annual Reports. All publicly available documents on public website NTG portal, through NT Fisheries Fact Sheet series for each fishery, some Departmental reports and articles in industry newsletters. Social media –Facebook, Workbook (internal Facebook).	2

Mud Crab Fishery - Northern Territory

Fishery summary

The NT Mud Crab Fishery (MCF) Fishery is primarily based on the capture of the Giant Mud Crab (Scylla serrata), and to a far lesser extent (<1% of catch) the Orange Mud Crab (Scylla olivacea). The Giant Mud Crab is a highly prized and iconic species that forms the basis of one of the NT's key wild harvest fisheries, is a popular recreational target species, and is an important resource to Aboriginal Territorians for customary harvest and cultural practices. The fishery currently generates an average Gross Value of Production (GVP) in the order of $4-5 million per annum. Mud crab fishing activity is carried out in coastal waters and estuaries, and the requirement for boat ramps to access fishing areas has resulted in areas of operation overlapping between sectors, necessitating the need for joint management and agreement on management arrangements. Mud crab fishing can occur to the edge of the Australian Fishing Zone, however crabbers generally operate in coastal and estuarine areas, predominantly on mud flats or creeks and rivers. The 2008 High Court's Blue Mud Bay decision confirmed that tidal waters overlying aboriginal land are recognised under the Aboriginal Land Rights (Northern Territory) Act 1976. The High Court decision clarified that the water overlying Aboriginal land should not be treated differently from the land itself, meaning that permission from Traditional Owners was required for access. The decision also confirmed that the Fisheries Act applied in these waters, meaning it was important that Traditional Owners and Government worked together to manage fishing in affected waters. The NT Government has worked with Aboriginal Land Councils to negotiate agreements that allow permit free access and provide benefits back to Traditional Owners. There are currently seven agreements in place and the NT government is consulting with Land Councils to negotiated agreements for access to other areas utilised by other fishing stakeholders.

The most productive commercial fishing grounds are in the Gulf of Carpentaria (GoC) and the Darwin area, and the majority of recreational effort occurs around Darwin. Only limited commercial or recreational effort occurs off the Arnhem Land coast and far west coast due to access and logistic issues. Traditional harvest of mud crabs can occur in all waters, and the recreational take of mud crabs is allowed in all waters except areas of the Cobourg Marine Park and the rivers of Kakadu National Park. Additional restrictions apply to the commercial sector, with no commercial harvest allowed from Darwin Harbour, Leaders Creek, and most creeks leading into Shoal Bay.

The commercial fishery has accreditation to export product, with most product sold on the domestic market through the Sydney and Melbourne fish markets.

Table for the fishery

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
Cross-Cutting					
Risk management	Y	Y	In consultation with stakeholders an ESD risk assessment was conducted following the revised *National ESD Reporting Framework for Australian Fisheries* (Fletcher, 2015). All the ecological, economic and social factors that affect the management of the Mud Crab Fishery were identified and prioritised by stakeholders at workshops held on 15th August, and 2nd November 2016.	Yes, the results of the ESD risk assessment (ESD RA) are in the 2017 *"Management Framework for the Northern Territory Mud Crab Fishery"*	2
Stakeholder engagement	Y	Y	An Advisory Committee, the NT Mud Crab Fishery Advisory Committee (MCFAC) was established in the early 1990's. The Committee's primary role is to provide the Director of Fisheries with advice on effective contemporary, sustainable management arrangements of this important fishery in accordance with the NT *Fisheries Act*. Membership of MCFAC is drawn from all key sector groups which have an interest in the management and development of Management Plans for the MCF: i.e.	Yes, the MCFAC provides a report (Chairman's letter) to the Director after each meeting of the Committee. The Director responds to each letter providing comment on the advice received from the Committee.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
			recreational and commercial fishing, guided fishing tour operators, environmental groups, Aboriginal organisations, and fisheries enforcement.		
Trade-offs in decision making	Y	Y	Ecological Risk Assessments undertaken as per the National ESD Reporting Framework for Fisheries – Fletcher et al 2002: www.fisheries-esd.com and AS/NZS ISO 31000:2009.	Yes, ESD RA documents including socio-economic risks derived from workshops are part of Management Framework for the NT's MCF and are public documents available on request	2
Development of performance indicators	Y	Y	Performance indicators have been developed as part of the Harvest Strategy for the MCF.	Yes, currently through MCFAC minutes and in future in Management Framework.	2
Strategy and Policy Management					
Legislation and policy development	Y	Y	Northern Territory Government's *Fisheries Act* & *Fisheries Regulations* provide the statutory basis for management. Discussion papers, RIS/PRIS and consultation through MCFAC. Regulatory Impact Statement (RIS)/Preliminary RIS and consultation documents	Yes. Legislative and policy framework in place to manage, regulate fishery. Policy development mechanisms also in place. Summary papers and reports on consultation. MCFAC minutes.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
			Process: discussion document, EESD RA, HS then development of Management Framework, develop draft regulations, then to PRIS/RIS. The regs enable the Management Plan for the fishery.		
Resource sharing	Y	Y	The process for determining sector allocations in the NT's Mud Crab Fishery is outlined in the '*Northern Territory Fisheries Allocation Policy*'. The policy states that: • Shares of an aquatic resource should be expressed as the proportional share of each fishing sector to the total use of the resource. • Where possible, shares should be further defined in terms of the Total Allowable Catch available for the species of interest. • The preferred unit of measurement to estimate catch shares of fish and aquatic resources will be catch by weight. An allocation of any given resource must take into account the existing level of proportional use by all sectors within a fishery and ensure that these levels are maintained during an allocation of shares.	Yes. Following advice from the MCFAC, the review of sector allocations in the fishery is to be undertaken periodically in accordance with Government process and policy using an agreed market mechanism to undertake any reallocation under the following scenarios: • There is a review of the Management Plan, which will reassess the appropriateness of the shares that acknowledges longer term data sets. • There is a major change in the management of targeted demersal fish species that results in the shift of allocation to or from a sector. Any review of sector allocations will	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
			Calculation of shares will be based on the best available information on the current level of use by all fishing sectors, and the information is to be based on data that is: • Real, that is collected and published; • Recent, and where possible no more than five years old, and; • Reliable - data that is scientifically verifiable. Data to inform the resource use of commercial and fishing tourism sectors will be taken from compulsory catch and effort logbooks, while data to inform the resource use of recreational and Indigenous fishing sectors will be taken from scientific surveys. The information used to allocate shares in this management plan has considered information from the following sources: • *The National Recreational and Indigenous fishing survey* (Henry & Lyle, 2003); • *The National Recreational Fishing Survey: The Northern Territory* (Coleman, 2004); • *A survey of recreational fishing in the Northern Territory, 2009–10* (West *et al.*	follow the process outlined in the '*Northern Territory Fisheries Allocation Policy*'. In the event that an adjustment of shares is required the process will follow the the *Northern Territory Fisheries Resource Sharing Framework*, which can be located at https://dpif.nt.gov.au/strategies-and-projects/fisheries-resource-sharing-framework.	

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
			2012); • *Status Reports for NT Mud Crabs 2015* (Grubert 2016)		
Research planning	Y	Y	Research and monitoring planning is part of the MCF Management Framework. The Management Framework has identified that "*further work with traditional owners is required to identify methods to capture the customary harvest of mud crabs".*	Yes, currently through reporting to MCFAC.	1
Cost-recovery	N	N	No formal cost-recovery policy at an agency level.	NA	
Operational management					
Compliance with regulations	Y	Y	The responsibility for compliance and enforcement in the NT's Mud Crab Fishery is vested with the Northern Territory Department of Police, Fire and Emergency Services and more specifically, the Water Police Section (WPS) and the NT's Aboriginal Community Marine Rangers. The Aquatic Resource Management Unit in NT Fisheries has oversight of the fishery and monitor catches and communicates with licence holders/nominees and licence holder committees.	Yes, Reports to MCFAC. Report/paragraph in NT Status of key NT Fish Stocks reports. Supporting documentation for WTO/EPBC Act.	2
Levying	N	N	NA	NA	

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
Implementation	Y	Y	The Mud Crab Fishery has a Management Framework that has been approved from the Minister and regulations to enable the Management Plan are now being drafted. In the interim industry/commercial mud crab operators have agreed to work to the Harvest Strategy rules in the Framework. Management Plans for fisheries in the NT are enabled through regulations.	Yes, These are public documents and also reported in Fishery Status reports including TEPs interactions. The new Fishery Management Plan (FMP) enabled by regulation will cover reporting against ecological performance indicators/targets.	2
Development of new fisheries	Y	Y	Yes there is a policy for the appraisal and administration of NT Development Fishery applications.	There is a public policy document "NT Fishery Report No. 60 Updated June 2005".	2
Data management	Y	Y	The Licensing and Logbook Services sections of NT Fisheries administer a daily logbook program and collate catch and effort information for the NT's Mud Crab Fishery. The data from the logbook is entered onto and maintained on the FishDat program. Recreational harvest of mud Crab is captured in (RecFish) surveys of recreational fishers and analysed by NT Fisheries Research scientists.	Yes, Fish Status Reports annually. RecFish survey reports	2
Licensing	Y	Y	Licensing is managed on the FishDat program. Licensing is covered in Regulations with conditions for becoming an approved operator for purposes of	Yes, limited entry licensing system in place. Reported in Annual Reports, MCFAC reports, Fish Status Reports and on the DPIR website.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
			holding a fishing licence or being a nominee i.e. skipper.		
Research delivery	Y	Y	On-going research and monitoring (including an observer program) as part of the Mud Crab Fishery Management Framework. Annual stock assessments undertaken by NT Fisheries Scientists. A Research and Monitoring Plan and Harvest Strategy to monitor the ongoing performance of the fisheries against the performance indicators is part of the Harvest Strategy and Management Framework for the fishery. Note: new HS defines triggers based on CPUE.	Yes (currently reported in Fish Status Reports and Departmental reports to MCFAC. Management Plan has a Research and Monitoring Plan to monitor the ongoing performance of the fishery against the performance indicators area part of the Harvest Strategy.	2
Management plans	Y	Y	Current: 2017 Mud Crab Fishery Management Framework arrangements – yet to be enabled by regulation as a Management Plan, are being implemented by industry while the regulations are drafted and made.	Yes Reporting to MCFAC and Director of Fisheries.	1
Workforce management	Y	Y	Yes, NT Fisheries has a culture of encouraging and assisting development of staff and also an identified future leaders	Yes. A formalised Personal Development Plan for all staff which is reviewed and renewed annually.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
			development and mentoring program. Also a program of indigenous interns and trainees.	DPIR also has a People Plan which is available on the department's intranet	
Performance management					
Monitoring	Y	Y	The Licensing and Logbook Services sections of NT Fisheries administer a monthly logbook program and collate catch and effort information for the MCF. Licence holders complete a compulsory logbook that is submitted within 28 days of the end of each month. NT Fisheries is currently implementing a computer-based log book system (E-Logs), whereby commercial fishers will input the data currently captured on paper-based Fishery logbooks directly into an electronic logbook. All wildlife interactions (including TEPS) need to be recorded to fulfil the requirements under the *Environment Protection and Biodiversity Conservation Act 1999*, as well as addressing the recommendations made by the Australian Government's Department of the Environment and Energy (DotEE) for Northern Territory commercial fisheries	Yes. NT Water Police and Aboriginal Community Marine Rangers reports to MCFAC, Annual Reports, Status of NT Fish Stocks. Aquatic Resource Management oversight of fishery.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
			export approval. NT Fisheries collects and archives the TEPS data from the logbooks and an annual report is provided to DotEE as part of the fishery export accreditation conditions.		
Review and improvement processes	Y	Y	There are review mechanisms in Management Plans, Harvest Strategies and policies and also review dates for workplace performance and personal development. Legislation has formal review periods set in Acts and Regulations (5yr) – comprehensive review recently completed. The Division is beginning to adopt After Action Review (reviews the process and outcomes not who did what) model to assist with continuous improvement.	Yes. MCF Management Framework and Harvest Strategy are public documents and also reviewed initially through MCFAC which then go to public through RIS/PRIS or discussion document. Legislation and policies– Act and Regulations go out to public comment before finalising-(reviews every 5 years for Acts).	1
Communication					
Reporting	Y	Y	Not legislative requirement but Departmental reporting annually. Also required for WTO export approvals to account for performance of the fisheries in meeting the requirements of the EPBC Act.	Yes. Report to DotEE for WTO export approval. Also Fish Status Reports, MCFAC reports, Division reports and Departmental Annual Reports.	2
Communication	Y	Y	Not a legislative requirement but public communications identified as fundamental	Yes MCFAC reports, Division reports and Annual Reports. All publicly	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
			to stakeholder engagement and relationships.	available documents upon request, or through NT Fisheries Fact Sheet series for each fishery, some Departmental reports and articles in industry newsletters. Social media –Facebook.	

Rock lobster fishery – Victoria

Fishery summary

The Rock lobster fishery is Victoria's most valuable, with a commercial value of $25M. There is a mature management framework, with a management plan, Harvest Strategy, data collection program to support assessment, including an observer program, and a resource assessment group with stakeholder representation. This is a single species and gear fishery, with two zones (each managed separately with regard to licences and quota) covering all Victorian and Commonwealth waters (OCS). The majority of the catch is exported live to China. RL is considered as a single stock in south-east Australia. Recreational catch is included in assessment as a fraction of the commercial quota, but little existing data for recreational activity and catch, with management via bag limits and a closed season. The new tagging program seeks to quantify recreational catch by requiring all recreational fishers to tag (individually numbered tags allocated to individuals) retained lobsters until consumption. The tagging program is managed online, via individual recreational fisher registrations, and fishers are required to report tag use (with a possession limit) to continue to receive more tags.

Table for the fishery:

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence (if Y for relevant to fishery) 0 – none available 1 – some evidence; or in the process of creating 2- clear documentation
Cross-Cutting					
Risk management	Y	Y	**RL**: stock assessment process leads to a management action – precautionary principle in decision rules (PRI, catch rates, egg production available biomass). No process/rationale for setting the TAC if no stock assessment). No response is planned for extreme environmental events (e.g. disease, marine heatwaves, invasive species), but there are post-event responses. Ecological risk assessments are undertaken as part of the management plan review process	ERA results are in the management plan. Harvest strategy developed using conservative exploitation rates and reference points. Management Plan developed with objectives, strategies and actions	1
Stakeholder engagement	Y	Y	**VFA** –Legislative consultation principles are described in the Act. The Act specifies level of consultation required and which sectors need to be considered. Formal engagement via letters and associated documentation is required.	Documents Website information for comments Formal consultation processes	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence (if Y for relevant to fishery) 0 – none available 1 – some evidence; or in the process of creating 2- clear documentation
			RL – variety of 'levels' of stakeholder engagement undertaken depending on the issue. Groups include: Resource assessment group Peak bodies and industry associations Fishers – port visits and forums Public - media Formal consultation and port visits are specified in cost-recovery schedule (a portion of the costs are therefore incurred by industry).		
Trade-offs in decision making	Y	Y	**VFA** & **RL**: Formal consultation does lead to comments; and then can be included in decision making. RL: e.g. Industry input into the development of the new harvest strategy, particularly the rationale for choosing an accepted exploitation rate for each zone in the fishery	Website does report on submissions – this would allow analysis of the trade-offs (can track the history of a proposal – comment – result & rationale). In other cases (ad hoc), no formal documentation	1
Development of performance indicators	Y	Y	**VFA**: budget reports, annual reporting, **RL**: Specification of indicators such as monitoring levels, port visits, observer coverage levels (via cost recovery schedules). Fishery has formal performance indicators as part of harvest strategy. No bycatch targets, TEP interactions reported but no goals.	Report on these in annual reports	1
Strategy and Policy Management					
Legislation and policy development	Y	Y	**VFA**: There are a range of levels, bigger fisheries have a management plan, while other fisheries just go with regulation. Management strategies are being developed as guidance for these	**RL:** Legislative - Further quota order – annual process - these documents are on file in Vic	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence (if Y for relevant to fishery) 0 – none available 1 – some evidence; or in the process of creating 2- clear documentation
			smaller fisheries. As became VFA (authority) some policy function was retained with DEDJTR. **RL**: Legislation – managers create advice which becomes legislation (e.g. further quota order). Policy. Top down process from Fisheries Act with regulations for each fishery (gear, season, licences). Bottom up "policy" (management arrangements, e.g. harvest strategy) is developed thru the management plan process at a fishery level. A fishery officer can only use the "legislative" instruments in compliance not the "policy" documents (e.g. management plan).	government gazette, e.g. http://www.gazette.vic.gov.au/gazette/Gazettes2016/GG2016G025.pdf#page=39 Policy – published management plan or management strategy – available at VFA https://vfa.vic.gov.au/operational-policy/fisheries-management-plans/victorian-rock-lobster-management-plan	
Resource sharing	Y (but)	Y	**Vic level** – there is no resource allocation policy. Could be an issue for the future. **RL –** The stock assessment process allows some notional recreational allocation (10% in east; 5% in west zone). So this is informal, rather than directly managing the recreational take.	**RL** – There is a document showing the allocation to the recreational sector in the management plan.	1
Research planning	Y	N	**VFA** –Vic participates in FRDC SRL RD&E (which allocates assessment needs and hence research needs, and these are in the FRDC annual call. Fisheries other than RL are considered through the VicFRAB process. **RL** – There is no annual call for research from RL in Victoria due to the participation in the SRL RD&E. In the recreational space, there is a Vic Rec Fishing Trust call (which could cover RL, e.g.	**RL** - new management plan may contain additional information – due for release in 2018	N/A

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence (if Y for relevant to fishery) 0 – none available 1 – some evidence; or in the process of creating 2- clear documentation
			habitat restoration), but fishery manager is not part of the process. Cost recovery is currently designed to collect money for data collection, rather than research. One scientist is in charge of the monitoring, as a contribution to "Data Management" function. Under new management plan, there will be an annual research program with cost-recovered funds from commercial sector (work plan done via stakeholder representative group).		
Cost-recovery (from RL perspective, this can be merged with levying, licence fees). Alternative word, of which cost recovery is an example of "**Revenue**" – royalties, cost recovery, centrally funded, bequests, levies, licence fees.	Y	Y	**VFA:** The main revenue source for commercial fisheries is via cost recovery schedules, split to management, compliance and research (data collection). With KPI's, costed based on outputs. Individual fishery differences do exist (e.g. RL vs Abalone). This is the policy and legislation and annual setting of levies. For recreational fisheries, VFA uses licences fees (price setting) and is approved by the VFA CEO, which go to Rec Fishing Trust. There is an element of centrally-funded work (money from Treasury). **RL**: operational revenue - costs are split across the commercial licence, and each quota unit, and for an annual fee with licence renewals. Manager must verify that money spent as planned, else a reduction the next year (no carry-over). License levies are added to legislation each year. The commercial component is 90% (eastern zone) and 95% (western zone) cost recovered. Recreational part of manager function is not	**VFA**: A cost recovery steering committee, with independent chair, ensures the "budget" is audited, approved and checked by this committee. The RL information contributes to this summary. This document is available to RL industry members via their representative on the Cost Recovery Standing Committee.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence (if Y for relevant to fishery) 0 – none available 1 – some evidence; or in the process of creating 2- clear documentation
			cost-recovered in the manner levies are paid in the commercial sector.		
Operational management					
Compliance with regulations	Y	Y	**VFA**: has standards, outsourced to compliance branch, have clear processes, strategies and policies for checking. Both commercial and recreational are covered. **RL**: The fishery has to cost-recover for the some fraction of compliance activity relative to the commercial part of the fishery. Fishery informs compliance branch on quota and change in management arrangements (e.g. rec tagging rules). There is some communication back to the manager on compliance and activities. Most of the dot-points in the function description are done by the compliance branch, not the fishery. Compliance (IUU) information likely to be provided to stock assessment process. Observers deployed by the fishery, not involved in compliance activities.	**VFA**: Annual strategic plans based on risk. Schedule inspections for fishery, but do not report this ahead of time to the fishery. They report annually for each fishery – report to stakeholders (number of inspections for the fishery, and results for rec and commercial). Clear audit trail – for the compliance branch. **RL**: internal briefing papers provided to compliance branch. Ongoing communication via phone and email, meetings.	2
Levying	Y	Y	**RL**: Costs can vary. Collected on the basis of cost-recovery, level of data collection and other management activities. Fees can vary based on activity of the licence, due to things like number of quota units attached to licence. Non-active licences will have less cost than active.	Receipt and renewal of licence information.	2
Implementation of management actions	?	Y	**VFA**: some checking via performance management review of manager against performance plan, cost recovery schedule, management plan.	Legal: TAC advice: Website, Government gazette Other: summary table in the management plan, and the RL	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence (if Y for relevant to fishery) 0 – none available 1 – some evidence; or in the process of creating 2- clear documentation
			RL: Legal obligations - main focus is the new quota (TAC), and other approaches such as stakeholder engagement. The other obligations are set out in the management plan (e.g. annual assessment forums with stakeholders). Some formal (e.g. EPBC Act) reporting required.	fishery reviews the list to make an annual workplan – not formal reporting arrangements for most – but EPBC Act requires an annual stock status report to be published on the Commonwealth website: http://www.environment.gov.au/marine/fisheries/vic/rock-lobster. Port visits are an informal mechanism of reporting to industry.	
Development of new fisheries	Y	N	**VFA:** Existing fishery species rights are "protected", new species-fisheries could be developed. **RL**: Not really relevant, but occasionally rock lobster licence holders will apply for a permit to trial new gear, fishing methods, or different species, such as octopus	**RL:** Formal process to apply for a permit, but results are not public. Ad hoc process. Internal documents would be available if legally needed.	N/A
Data management	Y	Y	**VFA**: The VFA has a Catch and Effort Unit responsible for data management of catch and effort logbooks (catch and effort for a range of fisheries and quality assurance processes). **RL**: No stand-alone data policy, confidentially rule for data (e.g. < 5 boat rule), maintain own databases, hits most of the dotpoints in Guidance document. One staff member in RL team looks after data from monitoring program. IMAS holds	**VFA**: assume there is some document describing this **RL**: Data management is specified in contract with stock assessment provider. Meeting papers for data confidentially agreements with stakeholders. Privacy laws. Rec fishing data	1

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence (if Y for relevant to fishery) 0 – none available 1 – some evidence; or in the process of creating 2- clear documentation
			a version of the database to assessments (under contract) with exchange of corrections in data back and forwards. Stakeholder group also has rules regarding data confidentially arrangements. Data requests are provided in format that meets confidentiality agreements. There is no VMS for the fleet so no managing these data. Rec fishers submit data electronically (personal and catch) which are governed by privacy laws, and data are managed within fishery.	management manuals under development.	
Licencing	Y	Y	**RL**: Per zone, multiple licences per person are permitted, can have multiple per boat, allow the right to take fish. There may be a fee independent of the levy. Annual renewal for the entitlement. Quota units are the long term property right, and must have a licence to hold quota (min 10 units). But can have a licence without quota. Quota can be leased or owned/sold. All in regulation.	RL: details in the Management Plan, and in regulations	2
Research delivery	Y	N	RL – not managed at a fishery level (see earlier comments on research planning). Ad hoc arrangements for research projects occur rarely, and unlikely to continue given cost-recovery arrangements (e.g. trial of deck loggers and on-pot loggers).	**RL**: when conducted, there are project contracts and milestones and evidence of delivery.	N/A
Management plans	Y	Y	**RL**: One exists for the fishery, updated occasionally, and covers most things in the word document (except research processes and needs – see above and resources shares). There is not yet consideration of economic and social	**RL**: 2009 Management Plan (2nd), 2017 is soon to be published (3rd).	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence (if Y for relevant to fishery) 0 – none available 1 – some evidence; or in the process of creating 2- clear documentation
			objectives. There are words about MEY in new management plan. Quota managed since 2001 (1st management plan), with continual improvement.		
Workforce management	Y	N	**VFA**: There is a graduate program, career development at VFA level. Separate training budgets from cost-recovery budgets.	Not relevant to fishery	N/A
Performance management					
Monitoring	Y	Y	**RL**: As an export fishery there is EPBC act reporting, cost recovery reporting, ad hoc review of past assessment numbers. SAFS reporting. Fishery-independent monitoring (observers on vessels), fixed site survey (for lobster density) to assess changes over time to provide a pre-recruit survey index (contracted out). Used to contribute to stock assessment, also included in harvest strategy as a decision rule (e.g. above some PRI threshold). Monitoring review completed in 2016/17 by RL resource assessment group. This led to change in the monitoring program (evidence of feedback). Recreational programs – data collection and reporting by the fishers is legislated (e.g. date, area, size; see earlier), but analysis of that data by the fishery is not legislated. Voluntary – any rec fishers could add more detail to recreational reports.	Various documents available. No formal single guidelines. SAFS (stock) reports. Committee meeting documentation (public www) of monitoring report recommendations that were implemented. Rec reporting is new – but plans are to provide quarterly reports on tag use (by zone; temporal activity) and also on social data (demographic), lots of options in future. Participation rates in fishery can be viewed etc.	2
Review and improvement processes	Y	Y	**VFA**: regulations are time bound, so then have to be reviewed. **RL**: Management plans are reviewed, "e.g. life of at least five years". Monitoring review completed	**VFA**: Public comment consultation website page. Submissions and results	1

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence (if Y for relevant to fishery) 0 – none available 1 – some evidence; or in the process of creating 2- clear documentation
			in 2016/17 by RL resource assessment group. Cost-recovery audits. Stock assessment also includes check against performance indicators. Formal consultation on decisions (TACs). No formal avenues to protest a decision, but direct correspondence to fishery (or higher) can be received – escalated where necessary. Legal challenges to decisions can be brought through court processes.	displayed, and decision rationale on website. FOI can be exercised – coordinated at department level (DEDJTR). **RL**: Monitoring review report, Cost-recovery audits.	
Communication					
Reporting	Y	Y	**VFA**: Facebook page, formal reporting for government (Treasury and Finance) **RL**: Port meetings, assessment/TAC forums, annual reports,.	**VFA**: webpages, annual reports **RL**: Lots of evidence: SAFS, rock lobster tagging reports	2
Communication	Y	Y	**VFA:** fortnightly newsletter, facebook**.** **RL**: Lots of communication around tagging for recs (VFA - facebook; twitter; website), directed to database for licence holders (rec and commercial), contributions to newsletter (fishery advises communications officer)	**VFA**: Social altmetrics, Media releases, Webpages. In future, this information is likely to go in VFA annual report.	2

Spanner Crab - New South Wales

Fishery summary

The commercial harvest of spanner crabs is a component of the NSW Ocean Trap and Line share management fishery. The fishery operates under a Fishery Management Strategy, which includes a description of the fishery and its management arrangements. The Strategy was developed as a consequence of a comprehensive environmental impact assessment process. The spanner crab fishery is a relatively small scale (< $1m), data limited, single method, single species fishery that is divided spatially into northern and southern zones. There are 29 fishing businesses that hold shares in the fishery. The GVP of the fishery is less than $1m which is less than 1% of the total GVP of NSW's commercial fisheries. Historically, the majority (> 90%) of the average annual catch of less than 200 tonnes is taken in the northern zone. The fishery is centrally managed by Fisheries NSW with spanner crab stocks shared with a small recreational fishery and Queensland. The northern zone of the fishery was managed under a catch quota regime until 2018 - now there is fishery-wide ITQ. Although the harvest operations of the NSW Ocean Trap and Line Fishery are approved as a wildlife trade operation, the majority of the catch is marketed domestically. The fishery does not have any third party accreditation. This table illustrates the functions for this fishery prior to the implementation of the fishery-wide ITQ system in 2018.

Table for the fishery

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence 0=none available 1= some evidence or in the process of creating 2- clear documentation
Cross-Cutting					
Risk management	Y	Y	A consequence of the Environmental Impact Assessment of the Ocean Trap and Line Fishery was the development of the Ocean Trap and Line Fishery Management Strategy (OTL FMS) in 2006. The OTL FMS contains numerous management responses to mitigate	OTL Fishery Environmental Impact Assessment OTL Fishery Management Strategy Biennial performance management report on OTL FMS.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence 0=none available 1= some evidence or in the process of creating 2- clear documentation
			against environmental, economic and social risks posed by the OTL fishery. Performance Indicators are used to monitor the performance of the FMS in addressing risks. Adhere to the principles of Ecological Sustainable Development. Any identified risks are dealt with on an as needs basis.		
Stakeholder engagement	Y	Y	Ministerial Fisheries Advisory Council (MFAC) • Provides the Minister for Primary Industries with high-level strategic policy advice on issues relating to the management of fisheries resources in NSW. • Membership is comprised of independent Chair, persons with expertise in /a representative of	Relevant documents published on NSW DPI website: • MFAC - Chairs Summary • CommFish - Chairs Summary and Minutes • RecFish - Meeting Outcomes • AFAC - Meeting Outcomes • Working Groups - Meeting Outcomes	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence 0=none available 1= some evidence or in the process of creating 2- clear documentation
			commercial fishing, recreational fishing, aquaculture, Aboriginal cultural fishing and, conservation of aquatic resources. Commercial Fishing NSW Advisory Council (CommFish NSW) • Provides advice to the Minister for Primary Industries on strategic and policy issues relating to the commercial fishing industry in NSW. • Membership is comprised of an independent Chair, representatives from each fishery, a senior officer of NSW DPI and Aboriginal commercial fishing. Working Groups • Issues based working groups of stakeholders are formed to advise on specific issues as and when needed.		

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence 0=none available 1= some evidence or in the process of creating 2- clear documentation
			• Once the task assigned to the working group is complete the working group is disbanded. • Membership is at the discretion of the Deputy Director General, DPI Fisheries based on skill and expertise relevant to the specific tasks assigned to the working group. Stakeholders • Discussions with shareholders and other stakeholders on a range of fishery-related issues on a day-to-day basis. Industry Association • Provide information to industry association on issues as required for incorporation into their newsletter. • Discuss and clarify issues with association so they can		

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence 0=none available 1= some evidence or in the process of creating 2- clear documentation
			discuss issues with their members. Minister's Office and Members of Parliament • Briefing Parliamentarians on significant issues (e.g. implementation of catch quota)		
Trade-offs in decision making	Y	Y	The primary trade-off was a TAC set at historically high catch level in order to transition the fishery to catch quota management. Rather than have an independently set TAC during the transition period, the Secretary made a Transitional Fishing Determination with one objective of transitioning the fishery from an input to an output controlled fishery. This determination had regard to historical catch and effort and did not have regard to a scientific assessment. The limit on the maximum number of spanner crab nets authorised for	Independent review, extensive public consultation, parliamentary inquiry and public report. Relevant legislation (Act commencement proclamation, regulations and supporting instruments) published in NSW Government Gazette. Key stakeholder consultation. The following process was used to progress an industry proposal to increase the maximum number of spanner crab nets that may be used by operators in the fishery: 1. Fisher proposal 2. Consultation document – published 3. Summary of submissions – published 4. DPI position – published 5. Advisory Council recommendation – published	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence 0=none available 1= some evidence or in the process of creating 2- clear documentation
			use was increased from 30 to 40 in the northern zone. Process of decision making 1. Proposal initiated by shareholders or representative (e.g. Advisory Council or Industry Association) or issue raised by other stakeholders. 2. Consultation (Advisory Council, Working Group, Departmental experts, shareholders and/or other key stakeholders) 3. Proposal amended (if needed) as consequence of consultation and progressed to Minister (or delegate) for approval. 4. Communication of decision and implementation process to relevant stakeholders.	6. Ministerial decision - published	

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence 0=none available 1= some evidence or in the process of creating 2- clear documentation
Development of performance indicators	Y	Y	A consequence of the Environmental Impact Assessment of the Ocean Trap and Line Fishery was the development of the Ocean Trap and Line Fishery Management Strategy (OTL FMS) in 2006. Performance Indicators are included in the OTL FMS and were developed following extensive consultation with community, industry and government agencies. Given the implementation of catch quota management in the spanner crab component of the OTL fishery the existing FMS requires amendment. This may include the incorporation of a spanner crab specific harvest strategy.	Not specific to the spanner crab component of the OTL fishery. Available at a fishery level www.dpi.nsw.gov.au/__data/assets/pdf_file/0003/599421/Fisheries-statistics-report-2014-15.pdf Given the change in management regime the FMS will need to be changed to incorporate a harvest strategy/s for OTL fishery species.	1
Strategy and Policy Management					
Legislation and policy development	Y	Y	Government set the policy direction of the spanner crab fishery moving to catch quota management. This followed an independent review, extensive consultation and advice	*Fisheries Management (Ocean Trap and Line Share Management Plan) Regulation 2006* *Fisheries Management Act 1994 No 38* *Fisheries Management (Supporting Plan) Regulation 2006* *Fisheries Management (General) Regulation 2010*	*2*

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence 0=none available 1= some evidence or in the process of creating 2- clear documentation
			from an independent committee. The Department is in the process of implementing the Government's policy by drafting the necessary legislation to commence a quota managed fishery by July 2018.		
Resource sharing	Y	Y	• Spanner crab stocks are shared with Queensland. • A relatively small recreational spanner crab fishery exists in northern NSW. • No resource sharing policy exists that recognises or sets a proportion of an allowable catch to the different fishing sectors.	The policy Fisheries Resource Sharing in NSW 2015 is published on the NSW DPI website. This sets out principles and processes for any proposed reallocation and has not been tested.	0
Research planning	Y	Y	NSW DPI supports the national Status of Australian Fish Stocks reporting framework. This framework requires the biennial reporting of the status of species specific stocks defined in relation to changing patterns in biomass and fishing mortality.	Fisheries Research Strategic Plan 2015-2018	1

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence 0=none available 1= some evidence or in the process of creating 2- clear documentation
			Multi-criteria decision analysis has been used recently to prioritise species and species groups to inform the allocation of research resources. Key attributes used in the analysis relate to the most immediate management needs and include the importance of species to sectors of the community benefiting from the resource i.e. seafood consumers and commercial and recreational fishers. NSW participates in a fishery independent survey done by Qld. Data is incorporated into the Qld stock status report which may be used by NSW to set a TAC.		
Cost-recovery	Y	Y	The NSW Government has committed to the implementation of cost recovery. A cost recovery policy has yet to be implemented.		0
Operational management					
Compliance with regulations	Y	Y	Compliance program is led by the NSW DPI Fisheries Compliance Unit (FCU), which is focused on optimising compliance with the	Fisheries Compliance Enforcement Policy and Procedure 2011.	1

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence 0=none available 1= some evidence or in the process of creating 2- clear documentation
			Fisheries Management Act, the Marine Estate Management Act 2014 and their associated regulations. A specific PI in the OTLF FMS has a trigger point of exceeding 10% for major and 20% for minor (of all inspections) offences on a fishery level. This PI is assessed at least biennially and compliance statistics are reported annually on the DPI website.	Significant prosecutions and rates of compliance are publicly reported on the NSW DPI website and social media.	
Levying	Y	Y	The Fisheries Management Act (section 76) enables the Minister to determine the management charge payable by holders of shares in a share management fishery (Spanner crab is a share management fishery). The management charge is to be such amount as the Minister considers necessary to meet the costs of management that are attributed to industry by the management plan for the fishery. Specific charges are in regulation and are adjusted in accordance with the Consumer Price Index annually.	*Fisheries Management Act 1994* *Fisheries Management (General) Regulation 2010*	*2*

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence 0=none available 1= some evidence or in the process of creating 2- clear documentation
Implementation	Y	Y	The majority of fishery management arrangements are in regulation. Others are implemented by way of endorsement conditions and notified to fishers in writing. New quota shares were issued in preparation for a fishery-wide catch quota regime in 2018. New quota shares were issued in accordance with allocation criteria in a Notice published in the NSW Government Gazette.	*Fisheries Management (Ocean Trap and Line Share Management Plan) Regulation 2006*	*2*
Development of new fisheries	Y	N	Any decision to authorise the exploitation of under-utilised fisheries resources or the use of new methods requires an assessment of the likely environmental, social and economic impacts. An application has to be made and fee paid. In some instances the department may determine that a particular developmental fishery is likely to bring considerable benefit to the State and therefore warrants the investment of departmental (or other) public resources. In these	*Fisheries Management Act 1994 (Div 3) Exploratory, developmental and other restricted fisheries* Application form: Developmental commercial fishing permit Commercial fishing activity development plan Guidelines for Environmental Assessment of Fishing Related Activities Review of Environmental Factors Pro-forma for Fishing Related Activities	*2*

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence 0=none available 1= some evidence or in the process of creating 2- clear documentation
			instances the department has the option of carrying out the environmental assessment and taking the project through to the approval stage and then offering entitlements to participate in the fishery by public tender.		
Data management	Y	Y	*FisherMobile* is a secure mobile App used by fishers to report quota usage. Information is stored in Specific fishery catch and effort information is collected and entered in to the Department's computer system *FishOnline*. Information may only be released publicly in a way that adheres to relevant privacy provisions. The Share Register consists of the names of entitlement holders (shareholders) and the number of shares they own.	NSW Government Open Data Policy Share Register is available on the NSW DPI website and is updated periodically.	??

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence 0=none available 1= some evidence or in the process of creating 2- clear documentation
Licencing	Y	Y	Licencing information is kept in the Department's computer system *FishOnline*. *FisherDirect* is a secure online system available for use by NSW commercial fishing industry participants and their appointed agents. *FisherDirect* offers a wide range of online services tailored to individual requirements. Currently *FisherDirect* offers the following key features: • lodge catch and effort reports for non-quota based fishing activities • see recorded catches and view quota balance(s) • view quota transactions and authorised fisher history • view the endorsement history of the businesses • view commercial fishing licence details • pay fishing business charges and fees	NSW Commercial Fisheries Administration Guide NSW Commercial Fishing Industry 2018	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence 0=none available 1= some evidence or in the process of creating 2- clear documentation
			OfficerMobile is a secure online system used by fisheries compliance to check fisher licencing details (e.g. digital authorities) in the field.		
Research delivery	Y	Y	Multi-criteria decision analysis has been used recently to prioritise species and species groups to inform the allocation of research resources. Key attributes used in the analysis relate to the most immediate management needs and include the importance of species to sectors of the community benefiting from the resource i.e. seafood consumers and commercial and recreational fishers.	Fisheries Research Strategic Plan 2015-2018 Status of Australian Fish Stocks	1
Management plans	Y	Y	Ocean Trap and Line Management Plan is regulated and includes: • objectives, performance indicators and triggers for review • classes of shares and types of endorsements • primary and key secondary species • minimum and maximum shareholdings	*Fisheries Management (Ocean Trap and Line Share Management Plan) Regulation 2006*	*2*

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence 0=none available 1= some evidence or in the process of creating 2- clear documentation
			• gear and the conditions on the use of gear • boat capacity restrictions • bag limits • restrictions on areas of operation The plan does not include procedures, processes, decision making criteria, working group structure or harvest strategies.		
Workforce management	Y	Y	• Training courses available for staff. • Opportunities made available to participate in cross-jurisdictional issues. • Performance Development Plans in place for all staff.	Annual Performance Development Plan reviews	1
Performance management					
Monitoring	Y	Y	Species monitored using the Department's Resource Assessment Framework. Annual workshops held with fisheries managers and scientists to assess and review trends in fishery catch and effort and	OTL Fishery Environmental Impact Assessment OTL Fishery Management Strategy Biennial performance management report on OTL FMS.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence 0=none available 1= some evidence or in the process of creating 2- clear documentation
			review exploitation status if required.		
Review and improvement processes	Y	Y	• Some administrative decisions reviewed internally. • Fishers may take an administrative decision to the NSW Civil and Administrative Decisions Tribunal for review. • Broader reviews of fisheries management, policy and administration initiated by Government.	Independent Review of NSW Commercial Fisheries Policy, Administration and Management. Final Share Linkage Recommendations – NSW Commercial Fisheries Reform	1
Communication					
Reporting	Y	Y	• Departmental Reports but not fisheries-specific. • Review of the Status of Fisheries Resources in NSW. Last published full report 2013/14. Last summary report 2014/15.	• NSW Department of Industry Annual Report 2015-16 • Status of Australian Fish Stocks • Review of the status of fisheries resources in NSW 2014/15 (summary only). • Biennial performance management report on OTL FMS. • Declaration of an Approved Wildlife Trade Operation – NSW OTL Fishery 2018	2
Communication	Y	Y	A range of communications materials are used including: • Media releases		2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Availability of evidence 0=none available 1= some evidence or in the process of creating 2- clear documentation
			• Website updates • Instructional videos (DPI website and youtube) • Social media (Facebook) • Fishery fact sheets to update changes in management arrangements • Email and SMS notifications • Industry Association newsletter updates • Advisory body meeting outcomes & proposals		

Coral Reef Fin Fish Fishery - Queensland

Fishery summary

The Coral Reef Fin Fish Fishery (CRFFF) is a predominantly line-only fishery that targets a range of bottom-dwelling reef fish. It consists of a commercial sector, focusing primarily on live coral trout, and recreational and charter sectors. Coral trout refers to a group of seven species, including five Plectropomus and two Variola species. The common coral trout (*P. leopardus*) makes up the majority of landings. The fishery operates predominantly in the Great Barrier Reef Marine Park (GBRMP) and has an annual value of $30 million. Commercial fishing operations generally consist of a number of smaller tender boats (dories) and a larger primary fishing vessel used to hold fish. A comprehensive suite of management arrangements, including an Individual Transferable Quota (ITQ) system, is in place for the commercial fishery to ensure its sustainability into the future. Commercial and recreational fishers (including recreational fishers on licensed charter vessels) are permitted to use up to three lines, with no more than six hooks total), using either a rod and reel or a handline. Recreational fishers may spear coral reef fin fish without the use of underwater breathing apparatus. A comprehensive set of input and output controls are in place under the Fisheries Regulation 2008 and the Fisheries (Coral Reef Fin Fish) Management Plan 2003 to manage the harvest of coral reef fin fish. The fishery is also subject to restrictions on areas in which it can operate through zoning declared under GBRMP and Queensland Marine Parks Zoning Plan

Table for the fishery

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
Cross-Cutting					
Risk management	Y	Y	Potential management response for extreme events in CRFFF. In terms of biosecurity – ciguatera is still risk	SFS section 4 specifies: environmental risk assessment is used to measure the effects of fishing activities on non-target species and broader marine ecosystem And requires the development of Guidelines and principles to be written on risk prioritisation, and linked to national standards. Formal approaches identifying and prioritising management actions to address ERA outcomes.	1
Stakeholder engagement	Y	Y	Coral Reef finfish WG established in 2016.	SFS section 3 requires improved s/h engagement.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
			Composed of: Comm fisheries Rec fishers Exporter Wholesaler WWF GBRMPA FQ Science Newsletters or communiques are sent out on behalf of this group to s/h including individual fishers and representative bodies.	Formation of fisheries expert panel to provide independent advice to minister and FQ on best practice fisheries management. Establishment of fisheries working groups to develop HSs and encourage greater s/h/ role in providing advice on management options.	
Trade-offs in decision making	Y	Y	Coral bleaching on GBR – pressure from GBRMPA to reduce fishing pressure - trade-off is a conflict between jurisdictions.	SFS section 2 recognises trade-off between economic and MSY with aim of moving to MEY objective. Frontier / stretch is in resource allocation / sharing.	2 (?)
Development of performance indicators	N	N	No explicit development of performance indicators.		N/A
Strategy and Policy Management					
Legislation and policy development	Y	Y	Moving to encompassing and complete Harvest strategy – across sectors +	Broad policy Recent 2017-2027 QLD Sustainable Fishery Strategy (SFS): sets	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
			spp. (Currently only for Comm.)	timeline for Harvest Strat. + improved monitoring SFS section 2 outlines fisheries management objectives, targets, and high level strategies to achieve them.	
Resource sharing	Y	Y	Acknowledged in the legislation – managed completely differently (as most jurisdiction) There is a difference between "sharing" and "allocation". e.g. default sharing if they are in the same place, but an allocation is a explicit recognition that each sector is entitled a share of the resource The CRFFF has the former but is moving to the latter. Management would like to move to a resource allocation.	SFS states (Section 5) "implement HS for all QLD fisheries, targets … moving to a transparent process for resource allocation"	1
Research planning	Y	Y	Science is a different branch to mgt. This gives the science a degree of independence, but communication is an issue	SFS (section 1) state to move to a robust regular, and confidence in management.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
			that need continual attention. Internal appro budget is for operational management, and strategic science is through the FRDC (QRAC) process. (?)	Also Monitoring and Research Plan (part of SFS) document outlines requirements for research planning.	
Cost-recovery	Y*	Y*	In the CRFFF There is a level public investment that is not cost recovered. License fee + pay quota levy each year. But not full cost recovery.	No specific reporting against levy is reported. But SFS states that by 2020 a resourcing strategy will be developed so that beneficiary pays system (benefits are proportional to investment)	2
Operational management					
Compliance with regulations	Y	Y	Compliance is with QLD boating and fishing patrol. There is a quota monitoring unit to maintain integrity of quota system. QLD moving to VMS by 2018 on all vessels (mother and dory).	SFS requires VMS by 2018 (section 1. Improved Monitoring and Research)	2
Levying	Y	Y	License fee + pay quota levy each year.	Not sure. Maybe put into general revenue? Specified by QLD Fisheries Reg. 2008 but not formal reporting of Maybe at high level but not explicitly public.	2 There is clear evidence that FQ addresses Levying in the Reg (?)

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
				Comes back weakly to Minister (who stated 5M is captured from rec + comm each year)	
Implementation	Y	Y	SFS has an implementation requirement for the strategy. Given 20M to kickstart implementation. Commonwealth gov has given QLD CRFFF 2M to implement VMS in QLD fisheries (including CRFFF). CRFF this included on all tenders + primaries. There is currently no economic data or monitoring of the quota trading system in terms of lease price, purchase price of beach price. Starting to impress upon industry to capture this economic data. Gap also exists for social data. Monitoring: capturing age-length data (rec) from boat ramps for key spp. In commercial sector, long-term monitoring has declined, but data capture is targeting wholesalers for commercial fleet – good OS	CRFFF spends extra on key species through Monitoring Strategy Also Monitoring and Research Plan (part of SFS) document outlines requirements for fisheries monitoring. Outlines species specific monitoring programs, for use in stock assessments, and SAFS.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
			+ RTE coverage, but potentially bias CT sample due to size preference. Dataset value are being examined for future data needs and requirements. No operational elements of resource sharing or allocation in fishery. Refer to SFS section 5.		
Development of new fisheries	Y	N	Development policy exists. Not for this fishery.	None.	N/A
Data management	Y	Y	Logbook section and quota and VMS are under FQ responsibility. Long-term monitoring staff are too (Cairns). Operationally this data is passed to Science branch for assessment purposes + used for SAFS. QA / QC? Move to VMS will validate effort data. Quota monitoring data are used to validate logbook catch. CDR validate quota reports and monitoring data.	SFS section 1 on monitoring - recognises lack of rec and economic and social data. SFS section 1 specifies data will be shared and made public to ensure transparency, and encourage integration with other monitoring programs. With the objective to Ensure: accurate, reliable and timely collections. Collected efficiently taking advantage of new technologies.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
Licencing	Y	Y	Register of authority used to manage licensing. Multiple endorsement and permits are captured in this too. This is a public register to allow search who holds license and how much quota. (no personal information)	FishNet Public is an online tool to query the register the reporting symbols, quota and authorities (license and permits). FishNet Secure currently registered quota holders can view catch and effort logbook history, details of temporary transfers and quota balances, and other license details not publicly available. Also perform temp quota transfers (leases).	2
Research delivery	Y	Y	Has a science branch, independent of management. Ongoing concern and effort to streamline and specify user/management needs to the scientists, and for the science delivery to meet the management requirements.	Pro forma for stock assessment advice and reporting is being considered.	1
Management plans	N	N	Moving away from management plans (N/A). Use regulation. Everything is moved into regulations. Looking at ways to streamline management options to be more responsive in terms of harvest strategies.	N/A	N/A

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
			At the moment triggers are in the regulation which require a lot of time and effort to change – move to be able to change the controls in a timely manner. Director currently has delegation to set quotas, but not the bag limits. Under a HS this can be inefficient.		
Workforce management	Y	Y	Transparency with industry requires time to build trust, and continuity and consistency. Staff also hold corporate memory. (definition and importance of this is recognised) Succession planning could be improved. Recognised as extremely important especially to clients / industry.	Performance and development agreements (PDAs) reports against every 6 months. Process provide a structured formal plan to monitor review and continuously improve performance whilst also enhancing the professional development of staff.	2
Performance management					
Monitoring	Y	Y	Goals and objectives are set in PDAs and reviewed every 6 months by individual and manager. These aggregate up the line to Executive Director.	Performance and development agreements (PDAs) reports against every 6 months. Process provide a structured formal plan to monitor review and continuously improve performance whilst also enhancing the professional development of staff.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of evidence: 0-none 1-some evidence or in process 2-clear documentation
			Objectives, role description and key areas of achievement set by FQ.	Three step process, plan, mid-cycle check, final review. Also EPBC Act assessment for fishery every 3 years or so.	
Review and improvement processes	Y	Y	All fisheries across QLD as a result of the fisheries Strategies : Sustainable fisheries management is a strategic goal for the QLD gov – according to SFS (Sustainable fisheries strategy – high level document)	Document: Fisheries Measurement Plan: Target of 100% HS across all fisheries by 2020 CRFFF is developing a HS right (2019)	2
Communication					
Reporting	Y	Y	Performance measurement systems are gone – now rely on SAFS. Publish fisheries statistics SAFS assessments results feed into the management process for subsequent years e.g. pearl perch = transitional depleting means reviewed in subsequent year.	No annual Report. A lot of effort is spent reporting to SAFS.	2
Communication	Y	Y		WG communiques. Facebook / social media. Website.	2

Northern Prawn Fishery - Commonwealth

Fishery summary

The NPF extends from Cape York in Queensland to Cape Londonderry in Western Australia and is the Commonwealth's most valuable fishery, with a commercial value of $100m annually. The fishery has a mature management framework and is Marine Stewardship Council certified and EPBC Act accredited based on the Guidelines for the Ecologically Sustainable Management of Fisheries (2nd Edition). There is a management plan and fully transferable statutory fishing rights based on boat access and the allowable net size (TAE management). A harvest strategy, observer program, independent monitoring program and data collection program supports stock assessment. There are closed seasons and permanent closures to protect juveniles and recruitment. A Management Advisory Committee and Resource Assessment Group with stakeholder expertise provides policy and scientific advice to the AFMA Commission. This is a single sector fishery, single gear type trawl fishery and multi-species fishery, with sub-fisheries targeting white banana, tiger, endeavour and red-legged banana prawns. Catch is exported and sold on the domestic market. The NPF stock assessment is a bio-economic model based on tiger and endeavour prawns to pursue maximum economic yield and a trigger limit to manage optimum season length. The peak industry body participates in functions and management activities through a co-management arrangement.

Table for the fishery

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Quality of the evidence 0 – none available 1 – some evidence; or in the process of creating 2 – clear documentation
Cross-Cutting					
Risk management	Y	Y	An ecological risk management framework (ERA/M) driven by precautionary principle in legislation and export approvals under the EPBC Act, is in place for all AFMA fisheries and involves all key stakeholders. The most recent Northern Prawn Fishery (NPF) ERA was completed in 2012 (SAFE). Another NPF ERA is scheduled for 2017-18. A bi annual compliance risk assessment, developed in consultation with all key stakeholders, is undertaken to provide agency	Yes - ERA/M response is a formal part of the fishery management framework for the fishery and leads to decisions by the AFMA Commission. Quarterly reports are also to the Commission and ERA/M outcomes are reported in the AFMA Annual Report. ERA document Range of management response documents e.g. bycatch strategy Compliance risk assessment Yes – through the Commission	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Quality of the evidence 0 – none available 1 – some evidence; or in the process of creating 2 – clear documentation
			focus for ensuring high levels of compliance in Commonwealth fisheries, including the NPF. Corporate risk management, includes risk register, business case and project planning requirements. Harvest strategy approach takes uncertainty into account. The NPF has a sophisticated model for setting effort levels but other AFMA fisheries have varying degrees of assessment sophistication and information (and thus certainty).	Risk-catch cost approach	
Stakeholder engagement	Y	Y	AFMA's legislation provides for Management Advisory Committees (MACs) and these exist for most Commonwealth fisheries, including the NPF. MACs have an independent Chair and a range of relevant stakeholders (fishery-specific) to provide advice on all key management decisions. Resource Assessment Groups (RAGs) are also in place for most fisheries, including NPF, to provide advice on harvest strategies, TAC/TAE setting, research priorities and plans and other aspects of the fishery management, such as bycatch strategies and economic performance. The AFMA Commission has an annual general meeting open to the public. AFMA Corporate operates a facebook page to engage the public.	Yes - All MAC and RAG minutes go to the AFMA Commission and finalised meeting papers and minutes are published on the AFMA web-site. Engagement activities are reported in the AFMA Annual Report. The Commission requires MACs and RAGs to undertake an annual performance assessment Operational booklet (preseason)	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Quality of the evidence 0 – none available 1 – some evidence; or in the process of creating 2 – clear documentation
			AFMA encourages co-management arrangements with fisheries and there is a comprehensive arrangement with the Northern Prawn Fishery Industry Pty Ltd. These arrangements engage industry directly in fisheries management activities (and some AFMA functions). AFMA fishery managers and other staff often undertake port visits to engage directly on specific issues as well as generally 'keeping in touch'. Specialised committees have also been established to engage particular stakeholder groups on difficult to manage problems, for example the marine mammal working group. Preseason briefing in three key ports – lead by NPF Industry (peak body) (Banana in Feb and Tiger in July) Direct engagement with peak industry bodies (NPFI and CFA)		
Process of and trade-offs in decision making	Y	Y	AFMA adopts a risk-catch-cost approach to fisheries harvesting decisions. This means that the fishing industry can choose to balance catch levels with investment in information – within the constraint of limit reference points. The NPF has chosen a low-risk strategy through investment in assessments with high levels of certainty, e.g., bio-economic model,	Yes – through TAE setting and other fishery-specific strategies that are approved by the Commission – e.g. NPF harvest strategy and bycatch strategy	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Quality of the evidence 0 – none available 1 – some evidence; or in the process of creating 2 – clear documentation
			sensitivity testing and management strategy evaluation. The fishery has invested in and achieved Marine Stewardship Certification and this has led to pursuit of high levels of certainty across a range of sustainability fronts with a commitment to continual improvement – so there is little trade-off in decision-making in relation the NPF. The AFMA Commission is the decision-maker on key management, such as total allowable catch or effort, fishery closures and other limits and fishery-specific harvest and ERM strategies. MACs provide policy and operational management advice and recommendations to the Commission. RAGs provide scientific and economic advice to MACs and the Commission. Delegations allow AFMA staff to make certain decisions, most of which (e.g., licence conditions) are made by the CEO or Executive Manager Fisheries.	Yes – through the Commission which approves the following documents: Harvest strategy documented. ERA documented By-catch strategy documented. Legislative instruments (closures, gear)	
Development of performance indicators	Y	Y	Performance indicators are used in the management of Commonwealth fisheries including the NPF. Primarily these relate to sustainability objectives, for example the number of stocks in the fishery with a harvest strategy based on maximum economic yield (3 in the NPF). Other indicators include the number of stocks that are overfished or	Yes – through the Commission Annual report Harvest strategy has indicators MAC and RAG minutes (publicly available)	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Quality of the evidence 0 – none available 1 – some evidence; or in the process of creating 2 – clear documentation
			subject to overfishing (zero in the NPF). Management for one stock (*Fenneropenaeus indicus)* was assessed in 2016-17 as requiring improvement in terms of performance against the MEY indicator. Performance indicators are more broadly used in the NPF throughout the harvest strategy process, e.g. the KPI that stocks remain above the LRP 90% of the time (applicable only to target stocks at this point).		
Strategy and Policy Management					
Legislation and policy development	Y	Y	Fisheries Management Act 1991(FMA);Fisheries Administration Act 1991; Fisheries Management Regulations 1992; NPF Management Plan 1995; Directions and Determinations made under the NPF Management Plan (legislative instruments) Commonwealth Harvest Strategy Policy and Commonwealth Bycatch Policy; Fisheries Management Papers and Fisheries Administration Papers (policies). Fisheries management is also subject to a range of other legislation such as the EPBC Act 1999 and AFMA is also subject to various legislation, e.g. Public Governance, Performance and Accountability Act 2013.	Yes – Annual reporting by AFMA Commission, compliance reporting (PGPA). Legislations Policies Management advisory committee – policy advice role	2
Resource sharing	Y	N	Provided for in harvest strategies – limited application in NPF	Yes – through the Commission	NA

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Quality of the evidence 0 – none available 1 – some evidence; or in the process of creating 2 – clear documentation
Research planning	Y	Y	Five year strategic research plan and annual research statement. AFMA also has a five year strategic research plan and annual priorities Done through the Resource Assessment Group	Yes – through the Commission (via the AFMA Research Committee) Resource plans and resource priority plan Annual statement	2
Revenue getting Management costs	Y	Y	Cost recovery basis: All AFMA fisheries are subject to cost recovery from the fishing industry in accordance with a 'cost recovery implementation statement' reviewed by Department of Finance, agreed by the Minister for Agriculture and Water Resources and annually updated. NPF:	Yes – annual update agreed by Minister for Agriculture and Water Resources. AFMA Annual Report – financial statements Cost recovery implementation statement Annual Fisheries Management budget Fisheries Levy Act Fisheries Levy Regulations	2
Operational management					
Compliance with regulations	Y	Y	Compliance risk management framework – risk assessment updated annually. See also 'Implementation' below. Compliance actions is achieved through the FMA; FM Regulations; Conditions on SFRs (given effect under the NPF Management Plan	Yes - AFMA Annual Report Annual Risk Assessment Rules and Regulations Operational booklet (fishers) Spatial – shapefiles, maps for plotters	2
Levying	Y	Y	AFMA recovers costs of (attributable management services) from the fishing industry as per Cost recovery section and levy is governed through the Commonwealth Fisheries Levy Act. Failure to pay levy can	Yes - AFMA Annual Report – financial statements	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Quality of the evidence 0 – none available 1 – some evidence; or in the process of creating 2 – clear documentation
			result in the suspension or cancellation of fishing concessions.		
Implementation	Y	Y	Primary operational implementation occurs through the NPF Management 1995 and Determinations and Directions implemented under the Plan. An annual operational/closures booklet is provided to all operators. There is pre-season in-port briefing of trawl skippers and crews undertaken by the NPF Industry P/L (NPFI) and AFMA (management and compliance) to ensure all fishers are aware of fishery rules. The Total Allowable Efforts (gear units) is implement by way of Determination.	Yes – through the Commission and published documents e.g. NPF Plan, Directions, Determinations, Regulations, Harvest Strategy, Bycatch Strategy No vessels specific regulations in the fishery No active code of practice due to MSC certification	2
Development of new fisheries	Y	N	Fisheries Management Paper No.5 – Exploration of Fisheries Resources. This is an exploratory fishing policy – currently under review.	Yes – through the Commission and any exploratory permits reported in AFMA Annual Report	1 (policy in review >10 years)
Data management	Y	Y	Daily fishing log books and e-logs are entered/up-loaded onto the Pisces data base. Pisces is linked to a range of data manipulation tools for data analysis/reporting and mapping. Vessel monitoring data is also captured and stored for analysis and reporting. Specific research provers gain access to data under contracts or other arrangements. Data is subject to confidentiality agreements. Fisheries data summaries are published annually for the NPF	NPFI Data management plan – fishery specific	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Quality of the evidence 0 – none available 1 – some evidence; or in the process of creating 2 – clear documentation
			for fishery and public use. NPFI undertakes some data management activities under co-management which is subject to a data management plan.		
Licencing	Y	Y	Statutory fishing rights (SFRc) are primary concession for fishing and these are granted once only under the management plan and are fully transferable. There are two types of SFR – boat SFR (for limited entry management) and gear SFRs for managing the TAE. The value of the gear SFR is dependent on annual setting of the TAE.	Licencing database (GoFISH) Management plan Legislation provides for noncompliance	2
Research delivery	y	y	AFMA has a function under the *Fisheries Administration Act 1991* to 'establish priorities in respect to research and the Authority arranges for the undertaking of such research' AFMA defines fisheries research as an investigation to establish facts or principles relating to fisheries. This includes work to monitor and assess fish stocks, broader ecosystems impacts of fishing, and the economic performance of fisheries. The research process involves an annual call for research based on priorities identified through AFMA's RAGs and MACS for potential AFMA and external funding, including FRDC, and assessment/endorsement of proposals by the	5 year strategic plan annual statement Research projects Contracts (milestones) Research reports	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Quality of the evidence 0 – none available 1 – some evidence; or in the process of creating 2 – clear documentation
			AFMA Research Committee (a sub-Committee of the AFMA Commission).		
Management plans	Y	Y	Legislated NPF Management Plan 1995 – reviewed every 5-years – grants SFRs, sets objectives and measures to achieve objectives, limits entry and sets allowable effort, provides for closures and other limits in the fishery.	Documented public	2
Workforce management	Y	Y	AFMA invests in people development and a performance management program (under review) and supports staff training through capability development plans. There is a recruitment policy (under review). Section plans updated annually – skills and resources needed for coming cycle. Psychological training for observers and compliance officers. Sea-safety training	Policies and plans documented – recruitment policy (public).	2
Performance management					
Monitoring	Y	Y	NPF operates under e-log (daily fishing logsheets). These upload to AFMA's data-base. NPFI quality check the log-returns through an audit of annual landing returns from all operators to confirm target species reporting. AFMA conducts 180 days observing annually in the NPF and NPFI also operate a crew-member observer program (around 20 of the fleet all year round) with a focus on TEP monitoring. This data goes directly to	AFMA catch database Annual summary Scientific monitoring report (Scientific programs) Bycatch characterisation project report.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery - qualitative	Formal reporting for this function?	Quality of the evidence 0 – none available 1 – some evidence; or in the process of creating 2 – clear documentation
			CSIRO who check the data with other sources. There is also an annual scientific monitoring program (independent surveys of spawning stock and recruitment). All vessels must operate with VMS. NPFI produce and publish an annual data summary.		
Review and improvement processes	Y	Y	All AFMA fisheries are independently reviewed by the Australian Bureau of Agricultural and Resource Economics and Sciences and a status report is published annually.	ABARES status report NPF management plan Developing Indicators for autonomous adjustment (economic performance) Every two years ABARES economic performance review Quarterly reviews against annual operating plan (corporate document) reported to the Commission	2
Communication					
Reporting	Y	N	AFMA web-site, ABARES annual fishery status report	Corporate reports – Legislated, publicly available Financial reporting – Legislated, publicly available	NA
Communication	Y	Y	Web-site, facebook posts, MACs and RAGs, AFMA News, Pre-season briefing in ports, VMS emails, NPFI.	MAC minutes RAG minutes	2

Turbo Fishery - South Australia

Fishery summary

The South Australian Turbo fishery is a small emerging fishery that harvests the Turbo shell (sea snail) from rocky reefs by hand while diving. A small number of fishers had been given exemptions to harvest Turbo shells since 2000 which supply a year-round small niche market with approximately eight tonne per year. Management of Turbo harvest has recently been reviewed to allow Exploratory Fishery and Developmental Fishery permits to be granted. Following an Ecologically Sustainable Development (ESD) risk assessment of the activity, permit conditions for the harvesting of turbo limit the risk of overfishing and localised depletion while providing support for the development of the fishery and its' market. A total of two Developmental Fishery permits and one Exploratory permit have recently been offered to applicants and due to the cultural importance and development potential of the species, a further Developmental Fishing permit has also been offered to the Narungga people. Fishers must provide monthly reporting on their harvesting activities to allow for a comprehensive review.

Table for the fishery

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence 0- none available 1 – some evidence or in the process of creating 2 – clear documentation
Cross-Cutting					
Risk management	Y	y	FMA 2007 objects include the precautionary principle, and requires the development of Management Plans to assess and address risks. PIRSA has developed and adopted a South Australian HS policy and guidelines that are consistent with the National harvest strategy and guidelines, and require a risk assessment of the fishery to be undertaken. An ESD was undertaken through the development of the harvest strategies for the pipi sector and the net sector. The Public Health risk is managed through on-going monitoring conducted by the South	An ESD risk assessment was undertaken in during the assessment of the Exploratory and Developmental Fishing Permits and during assessment for export approval under the EPBC Act 1999.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence 0- none available 1 – some evidence or in the process of creating 2 – clear documentation
			Australian Shellfish Quality Assurance Program (SASQAP). The LCF is contained within an environment internationally recognised for its ecological significance, as well as the broader Murray-Darling Basin. As a result, the fishery is included in managing risk associated with the broader delivery and flow of water from and management of the River Murray. An example of this is the on-going dredging of the Murray mouth to keep it open to water movement, the potential release of Murray cod for re-stocking purposes, or management activities to eradicate pests or noxious species.		
Stakeholder engagement	y	y	Stakeholder engagement is undertaken during the assessment of the Exploratory or Developmental Fishing Permits. Further stakeholder engagement may be required when permits are reviewed after 12 months. There is no ongoing stakeholder engagement in relation to the Turbo fishery.	Engagement with the conservation sector, tertiary institutions, traditional owners, and other government departments recorded in minutes.	2
Trade-offs in decision making	y	y	FMA 2007 objects require sustainability as primary object. This means that sustainability will be the primary focus of fisheries management. As this fishery is in the exploratory and developmental phase, the largest trade off	No formal reporting on trade-offs.	0

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence 0- none available 1 – some evidence or in the process of creating 2 – clear documentation
			relates to the trade-off between sustainability and short term economic outcome. As markets initially develop and grow there may be pressure to increase harvest which will need to be balanced against the quality of information available. Trade-offs in decision making for the Turbo fishery has been primarily focused between varying specific user groups and the type of authority they can take turbo under (e.g. transferable permit v. non-transferable etc.). The turbo fishery is not allocated formally between sectors due to its exploratory and developmental nature.		
Development of performance indicators	y	y	Performance indicators for the Turbo fishery have been incorporated into the harvest strategy of Administrative Guidelines for Dive Fisheries (of which Turbo is one). This document is provided for EPBC Act export approval.	The Administrative Guidelines for Dive Fisheries is a documented set of functions that guide the management of fisheries where species are taken by diving.	2
Strategy and Policy Management					
Legislation and policy development	y	y	Managed under the Fisheries Management Act 2007, (the objects of the Act being the key component). The fishery is assessed and managed consistent with the following state-wide policies; Exploratory and Development fisheries policy, the Harvest Strategy Policy and Guidelines, Co-management policy and the Administrative Guidelines for Dive Fisheries.	Yes, to an extent. This occurs through the assessment and management arrangements provided in the permit conditions.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence 0- none available 1 – some evidence or in the process of creating 2 – clear documentation
Resource sharing	y	n	For the Turbo fishery, resources are principally shared between specific user groups, and the type of authority they can take turbo under (e.g. transferable permit v. non-transferable etc.). The turbo fishery is not allocated formally between sectors due to its exploratory and developmental nature.	Through the granting of permits	1
Research planning	y	n	NA	NA	NA
Cost-recovery	y	y	Policy, management, compliance, business administration, legal program and leasing and licencing for the Turbo Fishery is partially cost recovered from Industry through application and annual permit fees. This is in recognition that the fishery is in an exploratory or developmental stage rather than established.	Through an application and annual permit fee.	1
Operational management					
Compliance with regulations	y	y	Role of regulation is held by SA Government, PIRSA - Fisheries and Aquaculture Division. Incorporates deterrence, monitoring, enforcement, quota management, and licencing administration.	Compliance work with permit holders and undertake activities on an as-needs-basis. The public register holds details of permits and permit conditions. No other fishing activity may be undertaken while engaged in harvesting Turbo.	1
Levying	n	n	NA	NA	
Implementation	y	y	Management arrangements are implemented through permit conditions. Permits are limited to a maximum period of 3 years, however, they may be re-granted.	Permit granting and permit conditions control the number of operators able to take Turbo, spatial TACC management, limiting harvest to	1

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence 0- none available 1 – some evidence or in the process of creating 2 – clear documentation
				diving only. Permits require monthly returns of fishing information to inform stock performance.	
Development of new fisheries	y	y	The Fisheries Management (Miscellaneous Developmental Fisheries) Regulations 2013 provide for the establishment of new fisheries within a sustainable framework. The regulations guide the movement from exploratory to developmental to the establishment of an allocated commercial fishery where appropriate. These regulations are supported by the Exploratory and Developmental Fisheries Policy which guides the assessment of applications to undertake exploratory or developmental activities. Other state-wide policies guide the movement to an established fishery and include allocation, co-management, cost recovery and if required a management plan.	The Turbo fishery has both exploratory and developmental permits granted in recognition of previous fishing activity that has occurred under Ministerial Exemptions. Developmental permits are able to be held by a company and are transferable to encourage the development of Turbo within the permit conditions. Exploratory permits must be held by an individual and are non-transferable to encourage the owner to explore the resource and commit the appropriate capital investment. Permits have a maximum period of 1 year. After this time the activity of the permit holder and any fishery information is reviewed to determine if management arrangements should be amended or permits re-granted. If a permit holder is not active in the fishery, then they may not have their permit re-granted.	2
Data management	y	y	Catch Disposal Records and Period Return information provided (pursuant to regulation or permit condition) and centrally stored, validated and maintained. Fisheries data is subject to s124 of the FMA (confidentiality requirements).	Turbo fishery data is managed by SARDI in a central database. Data users can apply for access to data.	2
Licencing	y	y	Administration of an authority to access the Turbo fishery under the FMA are undertaken by	Permit holders and conditions are contained in the fisheries public register.	2

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence 0- none available 1 – some evidence or in the process of creating 2 – clear documentation
			SA Government – PIRSA. Permits are for a specific period of time. Administration of registered masters, agents or transferability and payment of fees occurs centrally.		
Research delivery	y	y	SARDI is responsible (as the preferred research provider) to undertake research.	The Turbo fishery is in an exploratory and developmental phase and therefore there is limited fishery information. SARDI provides advice notes to inform management as required and draws on what data is available as well as relevant literature.	1
Management plans	y	n	NA	NA	
Workforce management	y	n	NA	NA	
Performance management					
Monitoring	y	n			
Review and improvement processes	y	y	Permits to fish Turbo are currently reviewed after 12 months. In addition - A person aggrieved by a decision of the Minister— (a) to refuse an application for the issue or renewal of an authority; or (b) to refuse an application for consent to transfer an authority; or (c) to impose conditions on an authority or vary a condition of an authority,	Depending on the outcomes of the review, permits may be re-issued or their conditions altered.	1

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence 0- none available 1 – some evidence or in the process of creating 2 – clear documentation
			may, within 1 month of the day on which the decision is made, apply to the Minister for a review of the decision. (1) An applicant for a review under Division 1 who is not satisfied with the decision of the Minister on the review may appeal to the Administrative and Disciplinary Division of the District Court against the decision. (2) An appeal must be instituted within 28 days from the time the appellant receives the written statement of the reasons for making the decision appealed against. (1) A person to whom a protection order or reparation order has been issued under Part 8 Division 2 may appeal to the ERD Court against the order or any variation of the order. (2) An appeal must be made in a manner and form determined by the Court, setting out the grounds of the appeal. (3) Subject to this section, an appeal must be made within 21 days after the order is issued or the variation is made.		
Communication					
Reporting	y	n		Not yet	0

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how applied for a fishery – qualitative, and what is not there yet, "caveats" etc.	Formal reporting for this function?	Availability of the evidence 0- none available 1 – some evidence or in the process of creating 2 – clear documentation
Communication	y	y	Communication for the Turbo fishery is on an as-needs-basis, and has been in relation to assessing the applications.	Limited communication has occurred with the general public.	1

Abalone - Western Australia

Fishery summary

The fishery comprises three species of abalone. Roe's abalone is the primary catch and occurs mainly on the west coast. The green and brown abalone fisheries occur primarily on the south west and south coast. Most of the fishing occurs in the Metropolitan Perth area. The commercial sector takes approximately 50 t (65-70% of the total Roe's catch). The commercial harvest for greenlip and brown abalone catch is around 150 t (approximately 95% of total catch). The indigenous catch is unknown. The major markets are in Asia but domestic consumption is increasing. The fishery is valued at around $8 million (landed price). The commercial fishery achieved Marine Stewardship Council (MSC) sustainability certification in 2017.
The recreational fishery is managed by closed areas, seasons, gear, bag and size limits. The commercial fishery is managed primarily by total allowable commercial catch limits allocated to fishing areas as Individual Transferable Quota.

Table for the fishery

Function	Relevant to agency (Y/N)	Relevant to fishery (Y/N)	Example of how the management function applies to the fishery – qualitative, and what is not there yet, "caveats" etc. (Whether or how you are directed to address this function. e.g. legislation)	Formal reporting for this function? (How do you formally show you have achieved this function?)	Availability of the evidence (if Y for relevant to fishery) 0 – none available 1 – some evidence; or in

					the process of creating 2- clear documentation
Cross-Cutting					
Risk management	Y	Y	The Department of Primary Industries and Regional Development (DPIRD) manages WA fisheries using a fully integrated Ecosystem Based Fisheries Management (EBFM) approach, which ensures that fishing impacts on the overall ecosystems are appropriately assessed and managed. The EBFM approach also recognises that the economic and social benefits of fishing to all users must be considered. Implementation of EBFM involves a risk-based approach to monitoring and assessing the cumulative impacts on WA's aquatic resources from all fishing activities (commercial, recreational, customary), operating at a bioregional or ecosystem level. The level of risk to each resource is used as a key input to the DPIRD Risk Register for fisheries and aquatic resources, which is an integral component of the annual planning cycle for assigning activity priorities (research, management, compliance, education etc.) across each bioregion. To ensure that management is effective in achieving the relevant ecological, economic	DPIRD Risk Register Abalone Harvest Strategy Ecological Risk Assessment of the Western Australian Abalone Managed Fishery Marine Stewardship assessment reports	2

			and social objectives, formal harvest strategies are being developed for each resource. These harvest strategies outline the performance indicators used to measure how well objectives are being met, and set out control rules that specify the management actions to be taken in situations when objectives are not being met. The WA harvest strategy policy (Department of Fisheries 2015) has been designed to ensure that the harvest strategies cover the broader scope of EBFM and thus consider not only fishing impacts of target species, but also other retained species, bycatch, endangered, threatened and protected (ETP) species, habitats and other ecological components (Fletcher et al. 2016). The WA Abalone Resource Harvest Strategy 2016-2021 was finalised in February 2017. As part of the Marine Stewardship Council (MSC) assessment, risk assessments (RBF) can be used if there is insufficient data available on a fishery performance indicator. No RBFs were required in the abalone assessment. Risk to the resource from fishing is however assessed as part of the assessment. No conditions were raised in relation to the level of risk to the environment caused by fishing.		
Stakeholder engagement	Y	Y	The commercial sector's Western Australian Fishing Industry Council (WAFIC) and the		2

			recreational sector's Recfishwest (RFW) are the main sources of sector advice. Highly flexible, expertise-based and tasked working groups are used to provide specific advice, as required, on the management of fish and aquatic resources, public policy and fisheries management issues. DPIRD undertakes consultation directly with the Abalone Industry Association of Western Australia (AIAWA), the West Coast Abalone Divers Association and licensees on operational issues. Industry Annual Management Meetings are convened by the WAFIC, who are also responsible for statutory management plan consultation under a Service Level Agreement (SLA) with DPIRD. Recreational consultation processes are facilitated by RFW, although DPIRD undertakes direct consultation with the community on specific issues. The roles of WAFIC and RFW in providing consultation services, as requested, to both the Minister and DPIRD were formalised through a SLA with each peak body. High level strategic advice to the Minister and/or DPIRD is provided, as needed, by an independent committee, i.e. the Aquatic Advisory Committee (AAC). Where input is provided, feedback on how this information was used or not used is	Minutes of meetings (such as the abalone AMM) Submissions to public consultation (for example draft abalone harvest strategy) MSC performance indicator score	

			typically provided in the form of publications such as Fisheries Management Papers (accessible to the public on DPIRD's website). As part of the development process for the future management of the metropolitan Roe's abalone (*Haliotis roei*) recreational fishery, for example, DPIRD published a Report of the Metropolitan Roe's Abalone Recreational Fishery Working Group (Fisheries Management Paper No. 243 [FMP243]) on its website. FMP 243 sought input from all interested parties and provided a feedback form in relation to a number of options for future management. The options in FMP 243 were based on the suggestions provided by licenced recreational abalone fishers, all of whom had been sent a research questionnaire beforehand. The survey results were presented in the FMP, ensuring a fair and transparent process. The MSC Assessment scored the stakeholder consultation process for abalone as highly effective (100/100)		
Trade-offs in decision making	Y	Y	The EBFM approach ensures that fishing impacts on the overall ecosystems are appropriately assessed and managed but also recognises that the economic and social benefits of fishing to all users must be considered, resulting in trade-offs in	ERA workshop minutes and reports	2

			decision-making. For example the environmental risk assessment workshop for abalone in 2015 comprised fisheries managers, research staff and stakeholders scoring the level of risk of the WA fisheries assets. Through this process trade-offs were made to achieve consensus on the level of risk to the assets. Once the risk levels were determined the results were then used as an input into decision making about fisheries priorities and programs		
Development of performance indicators	Y	Y	Harvest strategies make explicit the objectives, performance indicators, reference levels, and harvest control rules for each defined ecological asset taken into consideration by DPIRD when preparing advice for the Minister for Fisheries. They also indicate the scope of management actions required in relation to the status of each resource in order to meet the specific long- and short-term management objectives for the resource and the broader goals of the ESD strategy. For example, the abalone harvest strategy (DoF 2017) uses standardised catch per unit effort (SCPUE) as a proxy for biomass as the key performance indicator, which are assessed against specified biological reference levels for each management area. In addition to SCPUE, the Perth metropolitan abalone fishery (Area 7 / Zone 1) is managed using a stock prediction model along with a temperature factor (DoF 2017). The predicted recruitment is used to	Abalone Harvest strategy (2016-2021) Industry AMM minutes Twenty-eight MSC performance indicator scores	2

			set the total allowable catch (TAC), with the habitat biomass and sectorial patterns of usage separating the TAC into TACC and total allowable recreational catch (TARC). The commercial abalone fishery has been managed under performance indicators and control rules since 2005 (Hart et al. 2009). Suitable indicators (e.g. species- and area-specific standardised catch rates) have been selected to describe performance of the abalone fishery in relation to each management objective, with a set of reference levels established to separate acceptable from unacceptable performance. Where relevant, these levels include: • A target level (the optimum value which must be above the biological threshold level, range or direction for an indicator(s) to deliver economic and/or social objectives - i.e. where you want the indicator to be); • A threshold level (an upper or lower boundary of an indicator, outside of which additional management actions may be required to avoid breaching the limit level - i.e. where you review your position); and • A limit level (an upper or lower boundary of a biological, economic or social indicator. If the indicator value falls outside of the limit it triggers immediate significant management action - i.e.		

			where you do not want the indicator to be). The associated control rules define what management actions should occur in relation to the value of each indicator approaching or crossing the limit, threshold or target levels. As abalone is MSC certified, the fishery has been assessed against the 28 MSC performance indicators covering the health of the fishery, the fishing impact on the ecosystem, and the governance/specific fisheries management control.		
Strategy and Policy Management					
Legislation and policy development	Y	Y	To enable the improved governance that will more effectively deal with emerging issues and more efficiently implement the integrated resource management principles of EBFM, the current fisheries legislation (*Fish Resources Management Act 1994* (FRMA)) has undergone a major review. The outcome of this review has resulted in the *Aquatic Resources Management Act*(ARMA) 2016 to replace the FRMA and *Pearling Act 1990*. The ARMA will require development of resource-level Aquatic Resource Management Strategies (ARMS) that define, at a regional level, the overall objectives for the coordinated management of each of the State's major aquatic resources. These ARMS will also incorporate any decisions related to the allocation of access to different sectors plus any associated sectoral harvest use and	State Law Publisher/Statutes Fish Resources Management Act 1994 (FRMA). http://www.austlii.edu.au/au/legis/wa/consol_act/frma1994256/ Fish Resources Management Regulations 1995 (FRMR);. http://www.austlii.edu.au/au/legis/wa/consol_reg/frmr1995365/ DoF (2014). Department of Fisheries Annual Report to Parliament 2013/14. Retrieved from http://www.fish.wa.gov.au/About-	2

			resource protection plans. Ancillary legislation includes: FRMA Part 6 — Abalone Fishery Management Plan 1992 (the Management Plan); FRMA Section 7 Exemptions; FRMA Section 43 Orders. Fish Resources Management Regulations 1995 (FRMR) Fishers must also comply with the requirements of the Commonwealth *Environmental Protection And Biodiversity Conservation Act 1999* (EPBC Act) *WA Marine Act 1982*; *WA Wildlife Conservation Act 1950*; and *Conservation and Land Management Act* (1984) (CALM Act) The MSC assessment scored the legislative regime as highly effective (100/100).	Us/Publications/Pages/Annual-Report.aspx. Abalone Management Plan MSC Performance Indicator Score	
Resource sharing	Y	Y	Resource sharing is implemented using the Integrated Fisheries Management (IFM) process as a basis for sharing the available catch between the fishing sectors. This policy seeks to set a percentage (or quantum) of the sustainable catch as a ceiling for each sector. When there is good data available on the catches by each sector there has generally been acceptance that this is a fair way of providing for both commercial and recreational benefits, the perception that the	IFM reports IFACC reports	1

			other sector is taking all the fish is significantly reduced, and the level of controversy drops away. Where this data is not available, or before the allocations have been decided, the competition between sectors for the lion's share of the fish resource remains and the level of dispute drives an argument in favour of a greater allocation for one sector or another. To provide independent advice on resource sharing the Minister established an Integrated Fisheries Advisory Allocation Committee (IFACC). The abalone resource was considered by IFAAC over a lengthy process from 2005 – 2009. The IFAAC recommended that sectoral allocations for the abalone resource should consider only Roe's abalone in the Perth metropolitan area due to its high relative importance within the overall recreational abalone fishery and the availability of recreational catch information from this area (IFACC 2009). Currently, approximately 65-70% of the Roe's abalone catch comes from the commercial fishery, and most of commercial and recreational catch is taken from one management area. For the greenlip (*Haliotis laevigata*) and brown abalone (*Haliotis conicopora*), recreational catch is estimated at five percent or less.		

Research planning	Y	Y	The Research planning process is built on a formal risk assessment and risk management technique for each of the ecological, social and economic assets within each of the four WA bioregions. The primary research planning project output is the research, Monitoring, Assessment and Development Plan (RMAD). The development of the plan involves consultation and input from the Abalone Divers association/WAFIC, RFW and other stakeholders. The latest plan (for 2015 – 2020) assesses the fishery risk is with the exception of the Fishery West Coast Nearshore (rated moderate risk) all other abalone areas were rated negligible risk. The priorities for research and the specific programmes are outlined in the Research Monitoring, Assessment and Development Plan 2015-2020 (2015). The MSC assessment scored the research planning regime as highly effective (100/100).	RMAD report AMM minutes MSC Performance Indicator score	2
Cost-recovery	Y	Y	For commercial fisheries, there has been a shift in licence revenues being obtained from a restrictive cost-recovery approach to the adoption of a more comprehensive and flexible access-fee arrangement, based on a percentage (5.75%) of Gross Value of Production (GVP) across all commercial fisheries.	Report to Parliament	2

			For the recreational sector, there has been a simplification and broadening of the scope of activities that require a licence (one of which is abalone) including the introduction of a boat based licence for the recreational sector.		
Operational management					
Compliance with regulations	Y	Y	DPIRD conducts regular inspections of commercial catch at both the point of landing and processing facilities to ensure the commercial industry is adhering to governing legislation. The recreational fishery, particularly the Perth metropolitan fishery, has a high level of enforcement given its high participation rate combined with restrictive season length and bag limit. The abalone fishery has been intensively targeted by illegal fishers at certain periods in its history. The quantity taken depends on the species. Overall, intelligence operations have revealed that greenlip abalone is the most desirable black market abalone and is easily sold and on sold; Roe's is of limited desirability, with some local black market trade in the Perth metropolitan area, and brownlip abalone is not highly sought and has a very limited black market. It is estimated that at least 3 tonnes of greenlip abalone per year is taken for the black market on the south coast of WA. On	Compliance Operational Plans MSC performance indicator score	2

			the west coast, small quantities of excess possession limit Roe's abalone are taken overseas as hand luggage or baggage to Hong Kong, and Singapore (Hart et al. 2013a). The MSC assessment scored the legislative regime as highly effective (95/100).		
Levying	N/A	N/A	N/A		N/A
Implementation	Y	Y	Management of the commercial fishery is primarily through the Management Plan process. For recreational fisheries management implementation is by regulations of which season, minimum size and bag limits are the primary controls. The MSC assessment conditions can be used as an indicator of the effectiveness on management implementation, currently there are three MSC conditions in place on the fishery.	Abalone Fishery Management Plan AMM minutes Regulation amendments MSC conditions	2
Development of new fisheries	NA	NA	The abalone resource is fully allocated. If new methods of fishing evolve these could be trialled using the exemption provisions of the Act.	NA	N/A
Data management	Y	Y	The Surveys, Assessments and Data Analyses Branch (SADA) is responsible for statistical design and analysis, resource risk assessment, data management, monitoring of fishery catch and effort, recreational fishing and community surveys. SADA collects and maintains commercial fisheries catch and effort data. The branch develops	Annual Status Reports of Fisheries and Aquatic resources	2

			and implements databases to improve the capture and maintenance of the DPIRD's extensive data from long-term commercial fisheries, recreational and charter boat sectors. Combining fishery data with biological data, the branch undertakes statistical analysis and risk assessment of fisheries and their associated resources. This branch also organises and conducts all major recreational fishing catch and community and stakeholder attitude surveys, the results of which are used as key performance indicators.		
Licencing	Y	Y	The AMF is limited entry with fishers required to hold an Abalone Managed Fishery licence, a commercial fishing boat licence and a commercial fishing licence. The number of commercial abalone licences is limited by the requirement that each boat hold a minimum quantity of quota. Only two people can operate on each licence. The licencing period for the fishery runs from 1 April to 31 March of the following year. There are currently 52 managed fishery licences in the AMF, with 29 licences endorsed to take Roe's abalone and 23 endorsed to take Greenlip and Brownlip abalone. Recreational fishers are required to hold a licence. In 2016, 17,082 recreational abalone licences were issued.	Report to Parliament	2

Research delivery	Y	Y	The program of research activities covering the AMF are set out as part of the West Coast – Roe's abalone fishery and South Coast – Greenlip and Brownlip abalone fisheries under the DPIRD's Research, Monitoring, Assessment and Development Plan, 2011-2012 (RMAD). Priorities under RMAD are driven by the DPIRD's risk assessment process and the activities outlined in Fish Plan. Ongoing research schedules as part of RMAD includes stock assessment and commercial/ recreational catch monitoring. The fishery has been assessed as low risk for retained, bycatch, ETP, habitat and ecosystem impacts, so no further research is planned other than on monitoring abalone health. The DPIRD's process to ensure both the RMAD and research results from individual projects are made available to stakeholders through the DPIRD's website as Fisheries Management Papers, Fisheries Research Reports and Fisheries Occasional Publications, Annual Management Meetings as well as sectoral briefings where necessary on specific project outcomes. The MSC assessment scored the Research plan as highly effective (100/100).	RMAD Annual Status Reports of Fisheries and Aquatic resources MSC performance indicators	2
Management plans	Y	Y	The *Abalone Managed Fishery Management Plan 1992* (the Plan) is the primary statutory	Abalone Fishery Management Plan	2

			management instrument for the commercial AMF. The Plan implements the following set of statutory measures to meet the fishery-specific management objectives for the AMF: ▪Species restriction: Limited to the harvest of Roe's, greenlip and brownlip abalone. ▪Limited entry: Limited entry with fishers required to hold an Abalone Managed Fishery licence (limited by the requirement that each boat hold a minimum quota (800 Roe's units or 450 greenlip/brownlip units)), a commercial fishing boat licence and a commercial fishing licence. Only two people can operate on each licence. ▪Management areas: The AMF covers all WA coastal waters and is divided into eight management areas. ▪Minimum size limits: The minimum size limit for Roe's abalone is 60 mm, with the exception of Areas 1 and 7 where the minimum size for commercial catches is 75 mm and 70 mm, respectively. The minimum size limit for greenlip and brownlip abalone is 140 mm for both recreational and commercial fisheries, with the exception of Area 2 where the minimum size for commercial catch is 145 mm. In certain areas where there are 'stunted stocks' greenlip	AMM minutes Regulation amendments MSC assessment	

			can be commercially fished from 120 mm under special exemptions. ▪Spatial and Temporal restrictions: Commercial fishing for Roe's abalone is not permitted in Area 7 on any Saturday, Sunday or public holiday. Within the main recreational fishing area commercial fishers are prohibited from reef tops – the ear recreational fishers fish. Additionally, there are a number of closed areas in the fishery where abalone fishing is prohibited at all times. ▪Catch allocations: The AMF is managed primarily through output controls in the form of annually set species and area TACCs. These are issued as Individual Transferable Quotas (ITQs). Each AMF licence has attached to it transferable units of entitlement. Each unit is given a value by dividing the TACC for a given area and species by the total number of units allowed for that area and species. The MSC assessment of the management system scored the regime 99.4/100 averaged over seven governance/specific management performance indicators.		
Workforce management	Y	Y	DPIRD has values and behaviour charter, there is an Individual Performance Assessment and Development program but no comprehensive or structured succession planning or fisheries training program. Some	There is a formalised Individual Personal Development Plan for all staff which is reviewed and renewed annually.	1

			staff have been sponsored on fisheries management and business management programmes but this is ad hoc.		
Performance management					
+Monitoring	Y	Y	DPIRD has a number of processes in place for monitoring and evaluating the performance of the AMF management system against its objectives. An annual review of the fishery's performance is undertaken by Departmental research, management and compliance staff, with outcomes used to assess the extent to which the fishery's management system has met both the long- and short-term objectives. Performance against the short-term (annual) objectives is measured using the performance indicators, reference levels and management control rules that are explicitly identified in the Abalone Harvest Strategy. The effectiveness of the compliance regime is evaluated through periodic risk assessments, revision of Operational Compliance Plans and monitoring and analysis of compliance statistics and trends. There are mechanisms in place for monitoring and evaluating the performance of all parts of the management system for the AMF Fishery including: ▪Strategic Planning and Risk Assessments; ▪Fish Plan;	Annual Report to Parliament Harvest strategy monitoring of Harvest control application and effectiveness Operational Compliance Plan review FMAD review External audit review Office of the Auditor General reviews MSC assessment	2

			▪Annual internal DoF strategic management and research planning meetings held annually; ▪ Annual EBFM risk assessments; ▪ Annual Internal Department compliance risk assessment meetings; There are a number of internal Department committees that convert Department and stakeholder (WAFIC and RFW) priorities into operational deliverables set within the budget context. These committees include; ▪ Review Workshops; ▪ AMMs; ▪ research workshops; ▪ Annual evaluation of the performance of fisheries; ▪ Annual review and evaluation of the DoF's performance against its key performance indicators of the overarching long-term objectives, results published in the DPIRD's Annual Report to Parliament; ▪ Annual performance review against fishery-specific short-term (operational) objectives; ▪ Harvest Strategy for AMF (due for review in 2021); ▪ Ecological risk assessments (ERAs); ▪ Resource sharing arrangements review under IFAAC; ▪ Quarterly Scientific Advisory Group meetings		

			There have been a number of reviews of the legislative framework (Act and regulations) under which the AMF operate, and on the effectiveness of compliance/enforcement. The research and management of the AMF has also been externally reviewed. Stakeholder and community satisfaction with the DPIRD's fisheries management processes is reviewed annually and outcomes published in the Annual Report. There are external auditing processes in place from the Office of the Auditor General and external business auditor assessing elements of the management regime and DPIRD performance. The MSC assessment provide a transparent science based five year review against internationally recognised performance standards		
Review and improvement processes	Y	Y	Stock evaluation assessment is subject to annual internal review through the process of status reporting for the jurisdiction. Independent external review occurs through a process of periodic reviews commissioned by the DPIRD along with external government audits and peer reviews of research, assessment and management systems of the AMF. Example of peer review of the abalone fishery assessment occurred	Annual review of stock assessments External reviews/audits Marine Stewardship assessments	2

			in 2010 by Professor Neil Loneragan (Murdoch University) and Dr Steve Mayfield (SARDI). This external review looked at the stock assessment methodology, harvest strategy framework, research programs and the standard operating procedures for data collection and analyses. Following this review, DPIRD published a comprehensive review of the management system for the abalone fisheries in Western Australia in Research Report No. 241: Biology, History and Assessment of Western Australian Abalone Fisheries (Hart et al. 2013a). Fisheries with a significant export of product are assessed at 5-10 year intervals for export approval by the Commonwealth Government (Department of the Environment and Energy). The AMF fishery-specific management system is also subject to regular internal and external review relative to the intensity of the fishery. Abalone has been assessed under the MSC standard and is now certified. As part of that process several conditions were raised to improve the management of the fishery.		
Communication					
Reporting	Y	Y	The primary fisheries management reporting documents are the Annual report to Parliament, and Status Reports of Fisheries	Annual report to Parliament, Status Reports of Fisheries and Aquatic Resources.	2

			and Aquatic Resources. The Report to Parliament includes information on the stock assessment outcomes for all target species. The fishery performance outcomes for target and retained non-target species, bycatch, ETP species, habitats and ecosystems is evaluated annually and made publicly available through the Status Report of the Fisheries and Aquatic Resources of Western Australia: the state of the fisheries. WA fisheries with significant export markets report on their fisheries performance to the Commonwealth Department of the Environment and Energy as a condition of the 5-10-year licensing regime. The annual fishery performance outcomes are provided to licence holders at the Annual Management Meeting (AMM) for commercial fishers, and other meetings for recreational fishers. DPIRD ensures both the RMAD and research results from individual projects are made available to stakeholders through the DPIRD's website as Fisheries Management Papers, Fisheries Research Reports and Fisheries Occasional Publications, Annual Management Meetings as well as sectoral briefings where necessary on specific project outcomes.	Export approval review by the Department for the Environment and Energy MSC assessment	

			The MSC process provides a very public reporting process with five year zero based independent assessments and annual audits with reports available on the MSC website.		
Communication	Y	Y	There are a range of consultation processes (both formal and informal) encourages and facilitates stakeholder engagement, through Fisheries Officers on the ground, research efforts, RFW, WAFIC, ERA's, and public notices through newspapers, posters or DPIRD website. Detailed formal consultation mechanisms have been established for the commercial and recreational sectors through the peak bodies of WAFIC and RFW. To ensure communication with a wide range of stakeholders DPIRD has developed and implemented formal guidelines "Stakeholder Engagement Guideline" (SEG). This document was finalised in July 2016 (DoF 2016a). The SEG ensures all stakeholders (including non-fisher stakeholders and interested parties) are provided with opportunities to be involved, engaged and consulted. The SEG identifies and defines all stakeholders and provides clear guidance to DoF fishery managers regarding stakeholder participation in consultation processes. The SEG allows flexibility for managers and	SLA agreements with WAFIC and RFW Media releases on season openings, fish regulation changes, enforcement successes. Website and publications on fishing limits, research and management outputs. Field staff interaction with stakeholders AMMs and public stakeholder interactions/meetings MSC reports and website	2

			stakeholders to participate in consultation processes. All stakeholders are provided the opportunity to comment on, and/or be involved in consultation processes involving various materials published on the DPIRD website including management plans, status reports, annual reports, harvest strategies, and other papers. Recreational abalone fishers are also advised of safety conditions leading up to fishery openings in the Perth Metropolitan Abalone Fishery through a range of media (media events, print advertisements, message boards, etc.) and directly with recreational abalone licence holders (i.e. email and SMS text messages). The MSC assessment/audit reports are documented on their public website.		

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