



**Australian Government**

**Australian Fisheries Management Authority**

# **AFMA Strategic Research Plan 2023- 2028**



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Version	Updates	Approver
Final		AFMA Commission

# About this Plan

This plan specifies the research strategies and areas of focus that AFMA intend to pursue in Commonwealth fisheries.

This plan responds to the need for flexibility to accommodate the requirements of the different fisheries and to be responsive to the development and information needs of industry and other stakeholders. It is also designed to provide other research funding providers with insights into AFMA's priorities which may be useful when considering their future research plans and projects. It does not specify the priority research programs within the individual Commonwealth fisheries, which vary considerably with the circumstances and history of the individual fisheries.

This plan will be reviewed by the AFMA Research Committee (ARC) as needed, but at least every three years. Based on the strategic direction set out in this plan and input from Research Assessment Groups and Management Advisory Committees the ARC will develop a one year rolling annual research plan identifying priorities for potential AFMA and other funding sources such as the Fisheries Research Development Corporation (FRDC).

## AFMA

AFMA is the Australian Government agency responsible for the efficient management and sustainable use of Commonwealth fisheries resources on behalf of the Australian community. AFMA manages commercial fisheries generally from three nautical miles out to the extent of the Australian Fishing Zone (AFZ), on the high seas, and in some cases by agreement with the States, inshore to the low water mark.

**Figure 1: The Australian Fishing Zone**



## Current drivers of fisheries research

The relative priority placed on research varies across the Commonwealth fisheries, depending on the information requirements of the fishery and the particular issues that each fishery face. Significant environmental issues may in some fisheries weigh more heavily on the future than fine-scale tuning of stock assessments. Research is a high cost area and in an economic environment of competing pressures there is greater emphasis placed on AFMA's Committees/Groups for strategic planning to derive the highest long-term return on research investment.

In addition to AFMA's governing legislation, a number of associated plans and policies shape how AFMA will invest in research during the five years, 2023-2028. These are outlined in Appendix B to this document.

# How AFMA invests in fisheries research

One of AFMA's functions is to establish priorities for research relating to fisheries managed by the Authority, and to arrange for such research to be undertaken.

AFMA is responsible under the *Fisheries Administration Act 1991* (the FA Act) and the *Fisheries Management Act 1991* (the FM Act) for implementing management arrangements for Commonwealth fisheries. Under that legislation, AFMA is accountable to the fishing industry and the Australian community for the success of its management arrangements in pursuing the objectives set out in the legislation.

Under section 7 (e) of the FA Act, a function of AFMA is to:

“establish priorities in respect to research relating to fisheries managed by the Authority and arrange for the undertaking of such research”.

For this purpose, 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. AFMA has limited in-house research capacity and therefore contracts external bodies to carry out research.

AFMA considers research as a contestable service, and seeks to purchase research from a range of providers based on the capability of the provider and value for money of the programs offered. Where possible, AFMA will identify funding arrangements to derive better leverage of research investment and maximise return on investment.

## Principles for research investment in Commonwealth fisheries

Researchers should use the following principles as a guide for the development of their applications. Resource advisory groups/scientific panel and the ARC should consider these when developing their research plans and priorities, and in ranking and assessing research proposals.

To ensure that research proposals are of high quality and structured to deliver the best outcomes for Commonwealth fisheries, the following principles for research investment apply:

1. Research contributes to the knowledge that supports AFMA's delivery against its legislative objectives and improves the quality of the decisions made;
2. Research priorities are to be identified for all major Commonwealth fisheries, and research arranged and commissioned where appropriate;

3. The processes for identifying research priorities and commissioning research must be transparent and undertaken in line with approved procedures, priorities and budgets, including peer review of research;
4. Research projects are to be prioritised and funded in accordance with the need, risk, cost and expected benefits of the research to the fishery, ecosystem, industry and broader community;
5. Research projects must include appropriate plans (for example, adoption, communication and/or commercialisation plans) to ensure that the full potential of the research is realised through adoption of research outputs by end-users;
6. To maximise the benefits from research, an appropriate investment in both strategic and applied research areas should be made and, where applicable, the outputs from research should be applied across fisheries; and
7. Periodic assessment and review of the research program is to be undertaken to determine the effectiveness of the research investment.

These principles are intended to guide the operation of the AFMA research area and the operations of the key Committees and Groups participating in the process. They aim to ensure that the research application and prioritisation process is transparent, that the standard of proposals is maintained and that proposals address research priorities of the fisheries.

## **Role of this Plan and Annual Fishery Research Plans**

This Plan provides a framework for fishery resource assessment groups to review their previous research investment and to develop priorities to plan for their future information and research needs. Priorities and strategies vary between fisheries, depending on the information requirements of the fishery and the particular issues that face each fishery. The fishery MAC has responsibility for developing its fishery research plan to achieve the priority outcomes for that fishery. Fisheries research plans highlight research areas of importance and provide a structure for the deliberations of MACs in their prioritisation of research.

In developing five year strategic fishery research plans, MACs should address the strategic research programs outlined below. Each year, when identifying priorities and considering proposals, MACs should assess whether they address the fishery research plan; how the proposals address the information needs of the fishery; and whether the project conforms to this Plan's principles for research investment.

Where research projects from different fisheries compete for limited funds, such as AFMA's research funds, the ARC will review the competing projects against the principles for research investment in Commonwealth fisheries and will support the project that best delivers against these principles.

## AFMA's Key Strategic Research Priorities

### Program 1 – Fishery stocks, biology and the marine environment

#### Aim

Effective management of Commonwealth fishery stocks based on an understanding of the stock, its biology and supporting environment including climate change.

**Legislative source:** Section 6(b) *Fisheries Administration Act 1991* (FA Act)  
“ensuring that the exploitation of fisheries resources and the carrying on of any related activities are conducted in a manner consistent with the principles of ecologically sustainable development and the exercise of the precautionary principle, in particular the need to have regard to the impact of fishing activities of non-target species and the long term sustainability of the marine environment”.

#### Research strategy 1a – collect appropriate information to support stock assessments

Continue to collect appropriate information to support stock assessments and to acquire further knowledge on stock biology, bycatch, discarding and the marine environment.

Various characteristics of fish stocks and supporting environment are monitored and basic data is collected. This data is used to model the fish populations and to generate stock assessment reports to:

- Support the management of Commonwealth fisheries,
- Inform policy development, and
- Meet information commitments made in fishery management plans and international forums.

## **Deliverables**

Examples of activities under this strategy are monitoring programs and stock assessment work (such as ageing and length measurement), data compilation and analysis, and stock assessments. New and innovative approaches to cost effective fishery independent data collection and assessment options, use of electronic monitoring data and artificial intelligence in analysis.

## **Research strategy 1b – explore alternative species assessment methods and models**

Explore new approaches to species assessment methods such as close kin genetics. Develop methods to incorporate the new methods into existing stock assessment methods as well as develop climate ready stock assessment models. Develop ecological risk assessment (ERA) tools and support the move towards effective Ecological Risk Management (ERM).

## **Deliverables**

Activities under this strategy are discrete projects that produce new techniques and/or technologies to support the management of fish stocks, work that better connects the outputs of close kin or other novel estimates approaches to Commonwealth Harvest Strategy requirements and options to make stock assessment tools ready for climate change impacts.

## **Research strategy 1c - assess the impacts of fishing on non-target species and the marine environment**

Assess the cumulative impacts of fishing on the marine environment, particularly on protected species, habitats and communities. Understand and monitor climate change impacts on fisheries and develop / integrate processes such as stock assessments and harvest strategies to take that advice into account in management decisions. Better understanding of fishing impacts on non-target species and development of arrangement/techniques to minimise and avoid interactions.

## **Deliverables**

Activities under this strategy include projects that consider the implications of commercial fishing on the marine environment, for example development of cumulative impact analyses. Development of novel approaches and strategies to quantify impact on protected species. Approaches to distinguish climate impacts on previously depleted fish species.



## Research strategy 1d – assess the impact of climate change on Commonwealth fisheries assessment and management

Assess the impact of climate and environmental change on fisheries assessment. Formalising a process to consider climate change impacts on fisheries and taking that advice into account in management decisions. Informing the implementation of the Climate Change Handbook and environmental indices in species summaries.

### Deliverables

Activities under this strategy include projects that develop approaches to distinguish climate impacts on previously depleted fish species. Methods to include climate and environmental change in stock assessments. Extending ecological risk assessments to take into account climate and environmental change.

## Program 2 – Development

### Aim

Efficient and appropriate management arrangements that maximize net economic returns to the Australian community from the management of Australian fisheries.

**Legislative Source:** FA Act section 6(c): “Maximising net economic returns to the Australian community from the management of Australian fisheries”

FA Act section 6(1)(a): implementing efficient and cost-effective fisheries management on behalf of the Commonwealth

FA Act section 2(d)(e) “ensuring that the interests of commercial, recreational and Indigenous fishers are taken into account”;

## Research Strategy 2a – Bycatch Reduction and development of underutilised fisheries resources

This strategy seeks to explore further options to reduce discarding and explore options for underutilised and incidentally caught quota species.

## **Deliverables**

Activities under this strategy include projects that investigate the potential for a fishery to reduce discards, allowing for the retention of all catch and product development (such as potentially converting to fish meal or silage).

## **Research Strategy 2b – Take account of Indigenous, commercial, and recreational interests**

This strategy relates to the FMA requirements to ensure the interests of Indigenous, commercial and recreational fishers are taken into account in management decisions.

## **Deliverables**

Activities under this strategy include projects that develop the capacity of Indigenous and recreational fishers to engage with and participate in a range of fisheries management, policy and research and development processes; and provide fisheries managers and researchers with experience in understanding indigenous fishing and culture, review relevant fisheries harvest strategies to account for recreational and indigenous interests and provide education and information for Indigenous and recreational sectors and the public.

## **Research Strategy 2c – Develop coordinated approach on economic issues**

This strategy will ensure provision of expert advice on economic issues across fisheries as well as individual fisheries to support the AFMA Commission and Management, Management Advisory Committees (MACs), and Resource Assessment Groups (RAGs) to meet their objectives and other legislative requirements.

## **Deliverables**

Activities under this strategy include projects that consider developing fishery wide maximum economic yield (MEY) targets in multi-species fisheries, operationalising risk-catch-cost framework and developing approaches to better understand and measure net economic returns for fisheries with limited information. Projects that provide better understanding of fisher behaviour, collection of data to inform economic performance and understand fleet dynamics impact on fishery performance and approaches to better inform resource sharing (intersectoral and intra sectoral) decisions.

## Research Strategy 2d – Improve and enhance fishery Harvest Strategies and Management framework

This strategy seeks to develop and enhance harvest strategies to ensure compliance with Commonwealth Harvest Strategy Policy (including making recommended improvements to this strategy where relevant). It also seeks ideas and approaches to improve the science/ management relationship in a changing climate.

### Deliverables

Activities under this strategy include projects that consider developing more appropriate harvest strategies for low value/ data poor species/ fisheries, development of harvest strategies and management arrangement outputs that allow alignment with third party certification systems eg Marine Stewardship Council and development and incorporation of predictive forecasting (for climate, extreme events) tools into fishery planning.

## Research strategy 2e – management development

This strategy aims for more cost effective fisheries management arrangements to reduce complexity and support operational efficiency. It also aims to invest in business processes and technologies that match the core needs of AFMA and its stakeholders such as e-monitoring and e-logs.

### Deliverables

Examples of activities under this strategy include projects that develop management tools to provide digital business solutions to reduce costs and improve the quality of data from Commonwealth fisheries, projects that provide a fully integrated digital system for fishery information capture, processing, storage and use, projects that explore new ways to use data collected through electronic monitoring or other data sources to enhance management outcomes as well as reducing industry costs and projects that explore options and approaches to integrate new data sources such as electronic monitoring with existing data and processes.

## Research strategy 2e – compliance methodologies

This strategy aims to develop better methods to effectively deter illegal fishing in Commonwealth fisheries and the Australian Fishing Zone including investment in processes and technologies that result in more cost effective compliance arrangements.

## Deliverables

Examples of activities under this strategy include projects that better identify offenders including through advancements in monitoring, data collection and analysis techniques as well as exploring alternative deterrent approaches and improving the delivery and targeting of current education programs to address known domestic and international compliance risks.

# Program 3 – Evaluation

## Aim

Improved sustainability through review and development of management arrangements.

**Legislative source:** FA Act section 6(c): “implementing efficient and cost-effective fisheries management on behalf of the Commonwealth.”

## Research strategy 3a – management indicators

This strategy aims to monitor and evaluate the effectiveness of existing management arrangements.

Research is undertaken to monitor and evaluate the effectiveness of current management arrangements in Commonwealth fisheries and to feed into future management decision-making processes.

## Deliverables

Examples of activities under this strategy are development and monitoring of economic indicators and other indicators of fishery performance, and reviews of fishery management approaches and better connecting science and related projects with harvest strategy requirements.

# Key participants in AFMA's research activities

A single committee – the AFMA Research Committee – advises the AFMA Commission and the FRDC – on research requirements for Commonwealth fisheries.

The Committee's role is to:

- advise the AFMA Commission on the strategic directions, priorities and funding for monitoring and research relevant to meeting AFMA's information needs and objectives, and review finalized research projects in terms of delivery of outputs, and outcomes, adoption/impacts and required adjustment to AFMA processes; and
- advise the FRDC on priorities, applications received and funding relating to research and development opportunities for Commonwealth fisheries.

The committee comprises 5 members drawn from AFMA's Commission and executive management.

## AFMA Research Committee (ARC)

As part of its role described above, the ARC:

- reviews and advises on research, monitoring and assessment priorities for Commonwealth fisheries, developed by management in conjunction with the management advisory committees and resource assessment groups;
- develops, maintains and approves AFMA's Five Year Strategic Research Plan. This includes balancing tactical short term needs and strategic long term needs to identify research gaps and priorities;
- reviews individual five-year fishery research plans for Commonwealth fisheries managed by AFMA;
- advises the AFMA CEO on the allocation of AFMA research funds;
- provides advice to FRDC on priorities for ComRAC consideration for potential FRDC funding;
- assesses research and monitoring investments for Commonwealth fisheries to ensure they fit with management needs. This includes the assessment of final research project outcomes to ensure the research conducted achieved intended objectives and meaningful outcomes;
- works with AFMA management to identify research providers, collaborators and funding agencies in pursuit of AFMA's priority research, monitoring and assessment needs;
- provides advice to the AFMA Commission on fisheries research in a risk management context;

- monitors biological and economic indicators in AFMA-managed fisheries, with emphasis on sustainability indicators and economic efficiency; and
- liaises with research providers and funding agencies with the aim of establishing Memoranda of Understanding to ensure AFMA's research priorities are given appropriate weight in the wider allocation of research funds.

## Commonwealth Research Advisory Committee (ComRAC)

ComRAC was established to facilitate the delivery of more efficient and effective research and is the primary planning and entry point for identifying and developing research priorities for Commonwealth fisheries research funding from FRDC.

## Resource Assessment Groups

RAGs are actively involved in AFMA's research planning process across all AFMA fisheries. The main function of RAGs is to peer review scientific data and information and provide advice to AFMA on the status of fish stocks, sub-stocks, species (target and non-target species) and the impact of fishing on the marine environment. This advice assists AFMA in its role to regulate commercial fishing of Commonwealth fisheries.

Membership comprises a chair, an AFMA member, an industry member, an economic member and at least two scientific members, covering relevant scientific disciplines (including biological, ecological, and related sciences). Where relevant to the fishery, RAGs may also have a conservation member and a recreational/charter fishing member on the Committee.

Specifically, each RAG, in close liaison with the relevant MAC (see below), should take a leading role in the preparation of the following two plans that underpin AFMA's five year Strategic Research Plan (SRP):

- fishery-specific strategic research plans (5 year) developed and costed as part of the research process, that translate the broad requirements of the SRP into fishery-specific plans (fishery research plan)
- fishery-specific annual research statements, developed as part of the research process, which identify the fishery-specific research needs for potential funding the following financial year.

RAGs and MACs need to ensure that research plans include prioritised, cost-effective economic research and information required to support management towards maximum economic yield (MEY) targets under the *Commonwealth Fisheries Harvest Strategy Policy* (the Harvest Strategy Policy) and broader fisheries management.

RAGs are required to provide advice that is consistent with Australian Government fisheries policy, including the Harvest Strategy Policy (and associated guidelines) and the Commonwealth Policy on Fisheries Bycatch.

## Management Advisory Committees

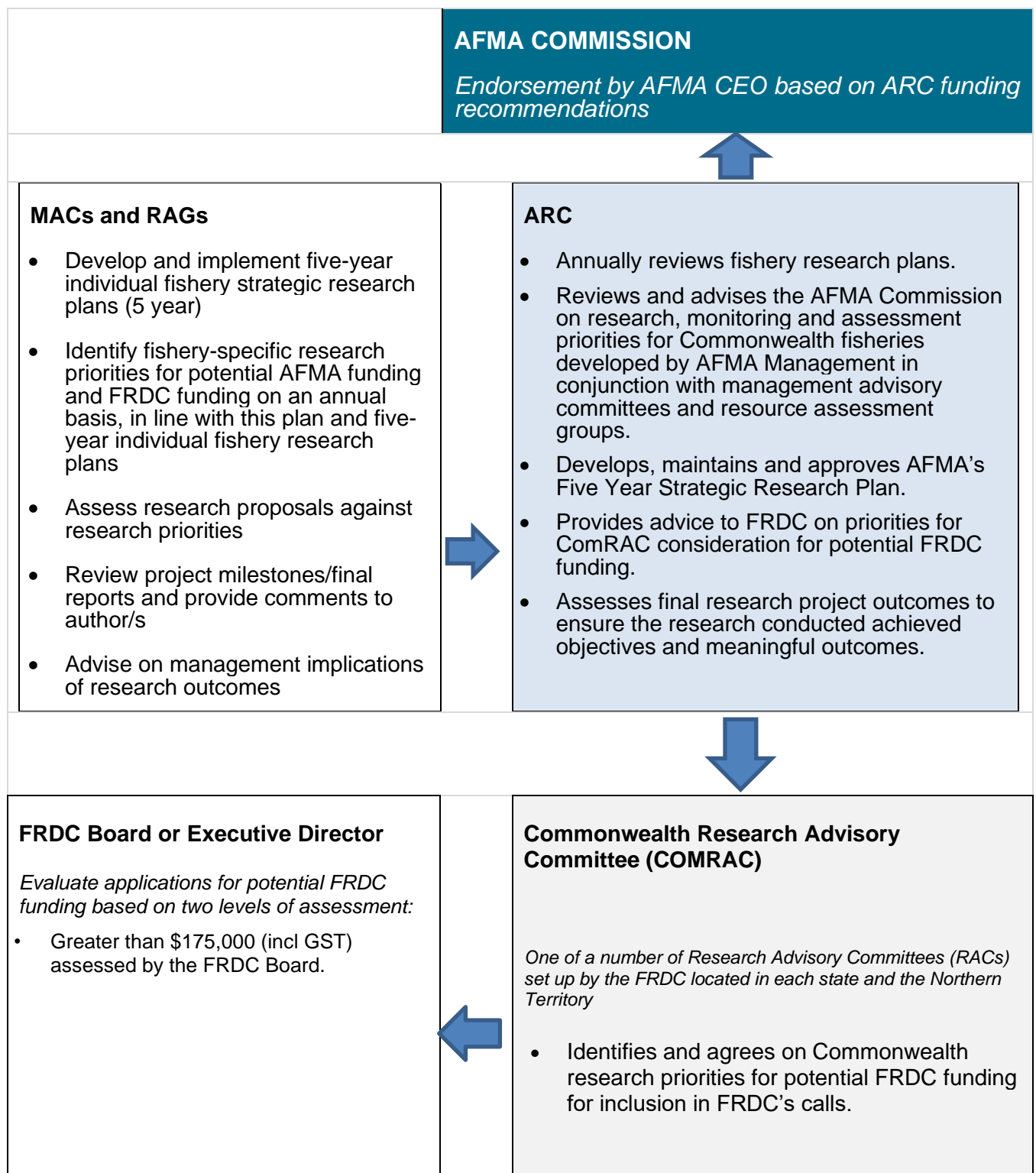
MACs play a vital role in helping AFMA to fulfill its legislative functions and effectively pursue its objectives by acting as the principal source of advice on fishery-specific management issues and the link between AFMA and those with an interest in the fishery. In this role, MACs have specific research-related functions that support the decision making process.

In addition, MACs may consider advice from RAGs, established by the AFMA Commission for each major fishery group or individual species concerning information required to improve confidence in fish stock assessments and ecological risk assessments.

MACs advise the ARC (and in turn COMRAC) on fishery objectives, strategies, reference points, risk profiles and management arrangements for achieving fishery-specific goals. MACs also provide technical expertise to determine the research and data requirements for effective management decision-making and endorse the fishery research plan (5 year). These committees also endorse annual fishery-specific research priorities identified by individual RAGs and assess the relative returns on investment in research and data collection.

The ARC makes recommendations to the AFMA Commission on funding decisions for research proposals after these have been assessed by the RAGs and MACs. The ARC also provides comments on priorities for COMRAC consideration. These relationships and the roles of key participants are outlined in Figure 2.

**Figure 2.** Roles and responsibilities of key participants in AFMA’s annual research cycle for Commonwealth fisheries





# AFMA's annual research cycle

Commonwealth fisheries research follows an annual cycle structured around a call for proposals, a review and prioritisation of proposals and the exchange of contracts. This cycle is shown in Figure 3. Further information on each of these steps is also provided below.

## 1. Call for proposals

In late August each year, researchers are publicly notified of the fishery research priorities as part of the ARC's annual call for research and are invited to submit full research proposals to address these priorities.

The relevant fishery RAG and MAC review research proposals. The RAG and MAC may request changes to proposals to better meet the needs of the fishery.

## 2. Prioritisation of research proposals

RAGs and MACs review proposals and make recommendations on projects to the ARC. The ARC review those recommendations against the fishery research plans and the AFMA Strategic Research Plan (the Plan), determine the appropriate funding source for the project, and recommend support for projects to the appropriate funding agency.

## 3. Research contracts

AFMA funded research projects are commissioned through the issue of research contracts, which specify the outputs of the project, milestone reports, communication and extension activities and final publication requirements. Payments for research projects are contingent on milestones being met in a timely manner.

### Figure 3. Commonwealth fisheries annual research cycle

July	ARC to meet with RAG Chairs to discuss strategic direction, priority needs and AFMA's Strategic Research Plan
Mid-August	RAGs and MACs to identify priorities – this includes the development of an annual research statement for each fishery and accompanying scopes for priority projects. These will need to be submitted, alongside the fishery's five year strategic research plan, to the ARC for their consideration
Late August	ARC meets to consider priorities/scopes submitted as well as strategic issues and agrees on priorities to include in AFMA call for proposals and any priorities to be referred to FRDC
Early September	The ARC's call for applications is distributed, with proposals due mid-October
Late October	Proposals submitted are provided to RAGs and MACs and AFMA Management for comment, with comments due by mid-December
Early February	ARC considers final proposals and recommends AFMA Annual research budget and projects to AFMA CEO

# Appendix A - Avenues of investment in Commonwealth fisheries

Research investment in Commonwealth fisheries is funded from two primary sources: AFMA and the FRDC. Targeted investment is also available from a number of other funding avenues including CSIRO and the National Environment Science Program (NESP).

## Research investment through AFMA's research funds

AFMA research funds are used to support research into Commonwealth fisheries at the discretion of the AFMA CEO, based on recommendations of the AFMA Research Committee. The ARC considers research proposals in the light of research plans and priorities for each of the Commonwealth fisheries.

## Research investment in Commonwealth fisheries by the FRDC

FRDC<sup>1</sup> is a statutory authority within the portfolio of the Federal Minister for Agriculture, Fisheries and Forestry, jointly funded by the Australian Government and the commercial fishing industry. It is responsible to its stakeholders to:

- plan, invest in and manage fisheries RD&E throughout Australia; and
- facilitate the dissemination, adoption, and commercialisation of RD&E results.

The FRDC is the sole Australian agency with this role.

Stakeholders in the FRDC include the fishing and aquaculture sectors; the Federal, State and Territory governments; the research community; and the people of Australia.

## FRDC's Research Development and Extension Plan 2020-25

Over the coming years, the FRDC's investment will be guided by the key outcomes of their latest [R&D Plan](#). There are five outcomes detailed in the new plan as follows:

- [1] [Growth for enduring prosperity](#).
- [2] [Best practices and production systems](#).
- [3] [A culture that is inclusive and forward thinking](#).

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<sup>1</sup> [www.frdc.com.au](http://www.frdc.com.au)

[4] [Fair and secure access to aquatic resources](#).

[5] [Community trust, respect and value](#)..

## Other investment opportunities

In addition to AFMA and the FRDC, many organisations invest in Commonwealth fisheries research, including Australian Government agencies such as:

- the Department of Agriculture and Fisheries and Forestry (DAFF),
- the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES),
- the Department of the Climate Change, Energy, the Environment and Water (DCCEE),

These entities are responsible for developing their own research plans and research priorities, the focus and priority of which will vary over time.

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) undertakes more strategic research and co-invests in such research initiatives identified such as operationalisation of EBFM and implementing Fisheries Management Standards.

# Appendix B – Current drivers of fisheries research

## AFMA's Corporate and Annual Operational Plans

The [Corporate Plan](#) provides details of AFMA's principal goals, broad strategies to be pursued, main factors affecting operations and indicators to measure performance. AFMA's *Annual Operational Plan* provides a more detailed look at the actions AFMA intends to take to give effect to, or further, the goals set out in the *Corporate Plan* and indicators to measure performance.

## Research drivers in individual fisheries

Within the over-arching framework established by this Plan, each Commonwealth fishery also has its own five-year fishery research plan in which priority areas for research in the fishery are outlined, based on the fishery's individual research priorities and information needs. Fishery research plans are used to prioritise the calls for projects by the fisheries.

Prospective research providers should obtain a copy of the appropriate fishery research plan and ensure that applications for research funding are relevant to the plan's priority areas. They should also ensure that they consult the relevant fisheries research advisory bodies when developing an application.

## Commonwealth Government Policy

The [Department of Agriculture Fisheries and Forestry](#) plays an important policy role in promoting the biological, economic and social sustainability of Australian fisheries, particularly those managed by the Australian Government.

The department develops policy and prepares advice on the environmental impact of fishing activities and access to Commonwealth fish stocks consistent with their optimal use as a public resource. Key Policy document of relevance to fishery research needs are the [Commonwealth Harvest Strategy Policy](#) and the [Commonwealth Bycatch policy](#), copies of which are available on the Department web site.

## AFMA's Science Quality Assurance Policy

The AFMA policy paper, [Fisheries Administration Paper 16 - Fisheries Research and Science Quality Assurance Policy \(FMP 16\)](#) provide guidance to support a consistent approach to AFMA's evidence-based decision making.

## Ecosystems-based fisheries management

The FM Act and the *Environment Protection and Biodiversity Conservation Act 1999* require AFMA to pursue Ecologically Sustainable Development and as one part of this, ensure the ecological sustainability of commercial and bycatch species populations and ecosystems with which its fisheries interact. AFMA pursues ecological sustainability through the implementation of:

- An ERM Framework which provides for the monitoring and management of risks to ecological sustainability;
- A scientific risk assessment process (within the ERM framework) referred to as the Ecological Risk Assessment for the Effects of Fishing to identify and quantify fishery risks to ecological sustainability. This includes stock assessments undertaken as part of fishery harvest strategies.

The ERM framework is the primary vehicle by which AFMA pursues an EBFM approach. Details of the framework are located [here](#).

## Monitoring and assessment

There will be a continued demand for monitoring and assessment work to support effective and transparent decision-making. AFMA supports RAGs groups to coordinate assessments and monitoring of the fisheries; fishery MACs and the AFMA Commission consider the groups' advice and implement appropriate management arrangements. Monitoring and assessment activities are costly, and opportunities to reduce these costs through new and improved techniques are constantly being investigated.

## Triple bottom line outcomes

Reporting of environmental, social and economic outcomes ("triple bottom line" reporting) is now well established as the required basis for performance reporting. Further research is required to develop appropriate social and economic indicators that can be used to monitor and report on the performance of Commonwealth fisheries.