FRDC
FISHERIES RESEARCH & DEVELOPMENT CORPORATION

Recfishing Research 2.0: a revitalized approach to addressing national RD&E priorities and increasing investment and co-investment in RD&E relevant to the recreational sector

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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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Executive Summary

Background

Recfishing Research is a Subprogram of the Fisheries Research and Development Corporation, established in 2005 to help increase return on investment delivered from Research, Development & Extension (RD&E) activities that benefit the recreational fishing community at a national or multi-jurisdictional scale. The Subprogram does this by facilitating the planning, management and extension of RD&E initiatives at a national and multi-jurisdictional scale. Recfishing Research is funded through discrete project contracts awarded by the Fisheries Research and Development Corporation, and this report summarises progress achieved through delivery of project (2013/401).

Aims/Objectives

The objectives of this project were to:

1. increase investment in RD&E activities which address national priorities identified by the recreational fishing sector, through recognition of a sectorally supported GVP equivalent for the recreational sector;
2. promote increased funding to FRDC on behalf of the recreational sector;
3. increase industry co-investment and collaboration in recreational RD&E at a national level;
4. pro-actively work with industry and researchers in the identification of national RD&E priorities, and the development of projects that address these priorities;
5. be a driver for the extension of research and development results to facilitate adoption;
6. assist the FRDC with management of their portfolio of projects which provide significant flow of benefit to the recreational fishing sector; and,
7. undertake a consultative review of Recfishing Research's objectives, processes, functions, outputs and composition to facilitate continual improvement in performance of the role of this body.

Results/Key findings

Investment

During 2013/14 Recfishing Research worked with various funding bodies to seek additional co-investment addressing national priorities. Successful examples include leveraging $365,000 provided by the FRDC to project 2013/022 "*Integrating fisher- derived and fishery- independent survey data to better understand and manage the Murray Cod fishery in the Murray- Darling Basin*" into a $914,900 project with co-investment from the NSW Recreational Fishing Trust, the Victorian Recreational Fishing Grants Program, Fisheries Victoria, Primary Industry and Regions South Australia (PIRSA), and Carlton United Breweries (CUB). Recfishing Research also helped broker co-investment between the FRDC and the Western Australian Recreational Fishing Initiatives Fund to further explore the health and wellbeing benefits of recreational fishing. Additionally, whilst funding has not yet been confirmed, Recfishing Research has facilitated establishment of a Memorandum of Understanding between VRFish and Victoria's North Central CMA to partner in the delivery of one of the largest and more innovative fish habitat rehabilitation projects, which is seeking to establish a trophy Murray cod fishery in the Gunbower and lower Loddon river systems.

A business case was also developed for the Australian Recreational Fishing Foundation (ARFF) for the development of a national funding model for the recreational fishing sector, to deliver a sustainable long-term revenue-base for investment in four key areas: education on recreational fishing, enhancement of recreational fisheries through habitat improvement, R&D which benefits Australia's recreational fishing community, and resourcing peak bodies. The business case has been well received and supported by all stakeholders. Further development of this concept will continue post project completion, and if successful, this is a significant advancement in the self determination of Australia's recreational fishing sector.

Relationships continue to be strengthened between those responsible for the administration of the recreational fishing license expenditure committees in Victoria, New South Wales and Western Australia. Whilst not in place at the time of publication, co-investment arrangements are currently being explored with relevant organisations. Establishment of Recfishing Research as a Subprogram on 16 February 2014 has played an important role in further increasing the level of investment in RD&E activities benefiting the recreational sector, and facilitating discussions regarding collaborative investment partnerships. Facilitating discussions relating to an agreed valuation method for the sector, developed through project 2012/214 "Measuring the Economic Value of Recreational Fishing at a National Level" will further assist in resource allocation, including allocation of investment in research, development and extension activities at a national level.

Priorities

A national workshop was held in March 2013 and 2014 to facilitate the identification of national/multi-jurisdictional RD&E priorities for the recreational fishing sector. The focus of these workshops was to:

- review how Australia's national Research, Development and Extension (RD&E) program can best support strategic needs of the recreational fishing sector;
- review the process for developing national RDE priorities for recreational fishing in

Australia;

- review the process used to ensure high Return on Investment in relation to agreed RD&E priorities and programs; and,
- revise national RD&E priorities for the recreational fishing sector in 2013/14.

A number of priorities were identified for 2013, summarised below:

1. Develop agreed strategy for securing a sustainable long-term funding model for recreational fishing in Australia.
2. Estimate the economic value of recreational fishing in Australia, and its contribution to employment and through volunteering.
3. Quantify social (health/wellbeing) benefits of recreational fishing, and communicate findings to end-users; and,
4. Deliver initiatives to build capacity within the recreational fishing community to plan and deliver initiatives to improve fish habitat, and undertake research to define relationships between habitat enhancement and improvement of fishing outcomes.
5. Continue to deliver leadership/mentoring development initiatives that support the needs of the recreational fishing community.
6. Continue to deliver a bi-ennial national recreational fishing conference to facilitate shared learning and network development.
7. Undertake a risk assessment to amenity and access for the recreational fishing sector, and scope management options.
8. Develop a consistent national approach for dealing with animal ethics.
9. Understand non-fisher's perceptions of recreational fishing and the recreational fishing community
10. Understand impacts of recreational fishing practices on fisheries and the aquatic environment, including highly protected areas.
11. Understand the contribution that recreational fishing makes to tourism in Australia.
12. Understand the status of recreationally important species that have been identified as vulnerable or under threat.
13. Understand why people stop fishing or are constrained from taking up fishing.
14. Explore more efficient collection/analysis methods for catch/effort data collected at a state/territory level, and incorporate angler immigration/emigration into survey methods.
15. Undertake R&D to develop new innovations in safety apparel.

Two key priorities were identified for 2014:

1. The need to quantify social (health/wellbeing) benefits of recreational fishing, and communicate findings to end-users; and,

2. The need to estimate the economic value of recreational fishing in Australia, and its contribution to employment and through volunteering.

Extension

Significant progress was made with respect to research extension. Over twenty-three articles were published in the recreational fishing media on research relevant to recreational fishing. An ongoing weekly segment on 2SM's Hi Tide Fishing Show was also established, and to date twenty-two segments have gone to air.

Both print and audio content has also been pushed out through Recfishing Research's newly redeveloped website and social media profile, further enhancing engagement with Australia's recreational fishers.

Project management

Recfishing Research continues to assist the FRDC in the management of relevant projects, including the review of milestone reports, draft final and final reports.

Review

The national workshop held in 2013, and review meeting in 2014 were instrumental in setting the direction for national investment in RD&E benefiting Australian recreational fishers, and also delivered guidance to inform the review of Recfishing Research's structure and functions. This has helped to ensure that Recfishing Research continues to deliver on the needs of the recreational fishing community.

Participants in the 2013 workshop and 2014 review meeting discussed functions that Recfishing Research currently delivers to ensure their continued relevance; as well as processes to deliver those functions efficiently. It was acknowledged that some of the functions provided by Recfishing Research are also undertaken by the FRABs at a state level, however the efficiency of these processes was considered to vary across FRABs. The persisting need for a group like Recfishing Research to exist in order to ensure that RD&E needs of the recreational fishing sector are addressed was generally accepted by participants. There was general recognition that functions currently delivered by Recfishing Research are appropriate.

Recfishing Research's steering committee was rationalised from fourteen members to nine, with expertise in different aspects of recreational fishing, the tackle industry, fisheries management and policy setting, and social science. Where possible efforts were made to retain linkages with the fishing license expenditure committees to enhance opportunities for co-investment to occur.

Implications for relevant stakeholders

This project has facilitated the prioritisation of research needs for the recreational fishing sector nationally, and the funding, management and extension of projects addressing these priorities. Recreational fishers have benefited through the delivery of R&D that address their needs, and improved access to information on relevant topics. Fisheries managers have benefited from provision of information to assist them in meeting management objectives, and building the

knowledge-base of the fishing community on issues including best fishing practices, and the research community have benefited through the communication of targeted priorities to assist in the formulation of proposals, and provision of advice to help maximise the likelihood of success in gaining investment through the FRDC's annual open round and Tactical Research Fund.

Keywords

Recreational fishing, angling, research, sub program, extension, workshop, Recfishing Research

Introduction

Australia's recreational fishing sector is large, encompassing a demographically and psychographically diverse and disparate community. Recreational fishing in Australia is challenged by a variety of contemporary issues, including changing fisheries management, marine planning, resource and capacity deficiencies, changing community sentiment relating to fishing and ensuring fair access to Australia's fish resources. The recreational sector will continue to require a variety of skills, tools, strategies and information to respond effectively to these and other emerging issues, though their need will vary spatially, through time, and by user group.

Understanding the RD&E needs of such a diverse stakeholder group can be challenging, as can communicating key messages to them effectively. And so in 2005 Recfishing Research was established to assist with this on a multi-jurisdictional/national scale. It does so by facilitating discussions to enable RD&E priorities for the sector to be identified, working with researchers and funding organisations to ensure that targeted and cost-effective projects are developed to address those priorities, and extending research findings to end-users - particularly the recreational fishing community.

Since then Recfishing Research has provided leadership in identifying and dealing with relevant national RD&E priorities, and communicating results to end-users. Achievements to date include:

- maintaining and communicating an annual list of national/multi-jurisdictional RD&E priorities for the recreational sector;
- delivering workshops and conferences to develop consensus on priorities for specific issues;
- guiding development and delivery of projects responding to national priorities (e.g. improvement of fisheries statistics, understanding sector value, projects under the Recreational Fishing Industry Development Strategy);
- development and distribution of extension products (articles, websites, podcasts, brochures etc) to increase awareness of R&D findings.

Though there are many challenges facing recreational fishing in Australia, there are also a number of projects already underway to address some of them. These include 2012/214 "*Measuring the economic value of recreational fishing at a national level*", 2011/403 "*Future Leaders in Recreational Fishing*", 2013/408, 2013/025 "*Assessing post-release survival of Southern Bluefin Tuna from recreational fishing*", 2013/508 "*Practical extension, implementation and evaluation of the aquatic animal working group fish welfare overarching principles within the recreational fishing sector*". Even so, there will be a need to develop a suite of new projects to build on these and other relevant initiatives. The effective coordination of contemporary and future national and multi-jurisdictional RD&E initiatives will be important in order to ensure that outputs are delivered in a timely manner, and delivered to those who need them. Because of this, the FRDC recognised the opportunity to supply the necessary coordination through a coordinating program for the recreational sector, and then in February 2014 the status of this group was changed to a 'Subprogram'. This entity was also established to enable the exchange of ideas, and enhance synergy with other funding sources (e.g. government agencies, recreational fishing license expenditure committees, FRABs and other subprograms and coordinating programs).

This project was established to continue benefits delivered through project 2007/227 "*National Strategy for Recreational Fisheries Research, Development and Extension*" and subsequent project

2010/211. The need was also identified to facilitate continual improvement in the delivery of functions for the recreational sector, and to hold a facilitated workshop with participation from peak bodies from each jurisdiction to facilitate this outcome.

Objectives

The objectives of this project were to:

1. Increase investment in RD&E activities that address national priorities identified by the recreational fishing sector, through recognition of a sectorally supported GVP equivalent for the recreational sector.
2. Promote increased funding to FRDC on behalf of the recreational sector.
3. Increase industry co-investment and collaboration in recreational RD&E at a national level.
4. Pro-actively work with industry and researchers in the identification of national RD&E priorities, and the development of projects that address these priorities.
5. Be a driver for the extension of research and development results to facilitate adoption.
6. Assist the FRDC with management of their portfolio of projects which provide significant flow of benefit to the recreational fishing sector.
7. Undertake a consultative review of Recfishing Research's objectives, processes, functions, outputs and composition to facilitate continual improvement in performance of the role of this body.

Method

Project Management

A steering committee was established on Recfishing Research's commencement in 2005. The composition of this group was a combination of expertise and representative-based, with fourteen individuals from fishing peak bodies, the tackle industry, guiding and charter industry, fisheries managers, social scientists and economists. The group met two/three times each year to review priorities, provide advice on applications at various stages of development, and ensure that there was adequate input to the various projects being managed by the group. The number of members within the steering committee was later reduced in order to minimise administrative costs, however where possible the above-described areas of expertise were retained, as were linkages to other funding bodies, including recreational fishing license programs. The terms of reference for the committee are provided at Appendix 1.

Extension

Noting the limited nature of resources (both in terms of funds and time) for communication, it is sensible to determine the most appropriate strategies to maximise the cost effectiveness of activities. Recfishing Research's objectives for extension in 2013/2014 were as follows:

1. To reach our target audiences and communicate key messages;
2. To create opportunities to develop extension activities to better meet the needs of our target demographic;
3. To grow the available resource base for use in extending R&D;
4. To measure the effectiveness of extension activities; and,
5. To engage funding organisations and decision makers to seek partnership opportunities to address national/regional priorities.

The work program to pursue the above described objectives were as follows:

Objective 1: reach our target demographic and communicate R&D findings

Key Messages:

- To be determined by specific projects, aligning with strategic objectives for the sector as per Recfishing Research RD&E Plan.

Communication/Extension Methods:

Explore opportunities to communicate R&D outputs to maximise the economic, social and environmental outcomes for the recreational sector.

Method:	Expansion & utilisation of existing on-ground network
Responsibility :	Recfishing Research Program Coordinator
Frequency:	Ongoing

Method:	*Contribution to the development and holding of a national recreational fishing conference in early 2015 to communicate the benefits of recreational fishing*
Responsibility:	*National Conference Steering Committee*
Frequency :	*Next event planned in early 2015*

Method:	*Submission of articles/segments for publication across all media.*
Responsibility:	*Recfishing Research Program Coordinator*
Frequency :	*Ongoing with a Minimum Target of 1 per Month*

Method:	*Attendance at conferences, workshops and other forums*
Responsibility:	*Recfishing Research Program Coordinator*
Frequency :	*Opportunistic*

Method:	*Extension of relevant R&D through online fishing forums*

Responsibility: *Recfishing Research Program Coordinator*

Frequency: *Ongoing as noteworthy milestones are completed*

Desired Outcomes:

- Target audiences are well informed regarding relevant R&D and progress/findings

Objective 2: create opportunities to develop extension activities to better meet the needs of our target demographic

Actions:

- Seek input from target audience groups regarding optimal techniques, tools and approaches for extending relevant R&D.
- Utilise opportunities to better understand current and developing R&D through engagement with research providers to maximise value added from extension initiatives.
- Further develop relationships with existing information dissemination networks to maximise efficient delivery of information to end users.

Communication/Extension Methods:

Recfishing Research will run online surveys periodically in addition to engaging with research providers and information disseminators to maximise our capacity to deliver key messages to our target demographic.

Method: *Undertake online surveys to continually improve effective communication*

Responsibility : *Recfishing Research Program Coordinator*

Frequency: *Ongoing*

Method: *Engage with the individuals/agencies throughout the research supply chain to identify current and developing R&D, and offer extension services*

Responsibility: *Recfishing Research Program Coordinator*

Frequency: *Ongoing*

Desired Outcomes:

- More efficient and effective delivery of extension

Objective 3: Grow resource base for use in extending R&D to end-users

Actions:

- offer services to research providers

Communication/Extension Methods:

Recfishing Research will continue to explore new and non-traditional funding opportunities that can be used to help communicate the progress and outputs of R&D. With additional funding we increase our ability to reach a broader audience more efficiently.

Method:	*Maintain a watching brief over funding opportunities appropriate for extension initiatives, and develop proposals where applicable.*
Responsibility:	*Recfishing Research Program Coordinator*
Frequency:	*Ongoing*

Method:	*Engaging with investigators who are developing proposals to provide input into extension components of proposals to ensure resourcing requests are realistic*
Responsibility:	*Recfishing Research Program Coordinator*
Frequency:	*As opportunities are identified*

Desired Outcomes:

- More effective and comprehensive delivery of extension

Objective 4: Measure the effectiveness of extension activities.

Communication/Extension Methods:

Wherever possible, Recfishing Research will endeavour to measure the effectiveness of R&D extension. Post analysis of communications will vary depending on the medium used. For example for online communications Google Analytics (website hits, bounce rate, acquisition etc.), Facebook Insights (likes, engagement etc.), Twitter followers and Youtube analytics (video views and subscribers) will be measured. Circulation numbers can be used for magazines and target audience ratings points (T.A.R.P's) can be used for television numbers. Numbers of subscribers to our database will also be monitored. Cost effectiveness (cost:reach ratio) of each activity will be analysed to inform future actions through an adaptive management process.

Wherever possible, evaluation of R&D extension will be consistent with the principles underpinning the MERI Framework (MERI stands for Monitoring, evaluation, reporting and improvement) which will be adapted to suit our specific requirements

Action Plan:

Method:	*Track the circulation and readership of publications that publish R&D*

Responsibility: *Recfishing Research Manager*

Frequency: *As research is published*

Method: *Track the reach of online extension activities as well as community engagement through Google Analytics, Facebook Insights and Youtube, Instagram and Twitter back-end analytics.*

Responsibility: *Recfishing Research Manager*

Frequency: *Monthly*

Method: *Seek opportunities to leverage benefit from other parallel initiatives (such as the periodic omnibus surveys undertaken by FRDC) to enable impacts to be determined efficiently.*

Responsibility: *Recfishing Research Program Coordinator*

Frequency: *Recfishing Research will retain an ongoing watching brief on relevant initiatives underway to create opportunities to enable multiple outcomes to be achieved in the validation of the effectiveness of extension initiatives*

Desired Outcomes

- Improved ability to demonstrate the impact and value of extension activities.
- An improved understanding of the most cost efficient and effective mediums for extension.

Objective 5: Engage funding bodies and decision-makers and explore opportunities to address national/regional strategies

Actions:

- Further develop relationships with decision makers and RD&E funding organisations.
- Seek partnership in addressing national/regional priorities.

Method: *Face-to-face meetings, email and telephone*

Responsibility: *Program Coordinator & steering committee members*

Frequency: *Opportunistically*

Review

To pursue continual improvement in delivery of services, Recfishing Research hosted a national workshop held in 2013 and 2014, and used these fora to both identify priorities for the coming year, and also seek input into Recfishing Research's structure and functions. Input was sought through a facilitated open forum format.

Funding/co-investment

Recfishing Research sought opportunities to meet with and present to relevant funding organisations to seek co-investment opportunities addressing national and multi-jurisdictional priorities. Proposals were also developed seeking investment in relevant initiatives from government agencies, private organisations, CMAs and others.

Results and Discussion

Agreed roles and objectives of the Coordinating Program/ Subprogram

During the national workshop in March 2013 feedback was provided by participants on useful functions to be delivered by Recfishing Research's Steering Committee. These were then integrated into Terms of Reference for this group (see Appendix 1).

To summarise, Recfishing Research addresses the needs of its clients (primarily the FRDC and Australia's recreational fishing community), by delivering the following functions:

- Facilitating the identification of national/regional RD&E priorities for the sector. RD&E priorities identified and progressed by this body can be national or regional in spatial scale, may relate to specific themes or stocks, can involve either basic or applied science and may be either tactical or long term in nature.
- Promoting the development of proposals which address identified priorities, including exploring co-investment opportunities with prospective partners;
- Providing advice to the FRDC, and working with applicants, to ensure that proposals submitted are targeted, cost-effective, and have a high likelihood of success.
- Active management of FRDC-funded projects with significant flow of benefit to the recreational fishing sector.
- Facilitating communication and consultation between researchers, managers, fishers and funding bodies.
- Ensuring project outputs are timely and fit for purpose.
- Communicating R&D findings to end users to ensure adoption of outputs, and achievement of desired outcomes.
- Evaluation of performance of RD&E initiatives.

Meetings

A number of steering committee meetings were held each year over the duration of the project. The dates for the meetings and summary of relevant outcomes are provided below:

March 2013 Recfishing Research meeting – summary of outcomes

- Strategic objectives for the recreational sector were refined and prioritised from existing national strategic documents (the Keep Australia Fishing Report, National Recreational Fishing Industry Development Strategy, National Recreational Fishing Conference, and Recfishing Research's Business Plan for 2012/13).

- Strategic objectives were then utilised as a starting point for guiding identification of priority RD&E needs for the recreational fishing sector.

- Progress against strategic objectives was reviewed, and persisting knowledge gaps were discussed by the group.
- A facilitated discussion was used to identify additional RD&E needs not yet identified, particularly those which addressed priority strategic objectives summarized above.
- A draft list of RD&E needs was then developed and refined through discussion, and then ranked in order of priority through a democratic process.

July 2013 Recfishing Research meeting – summary of outcomes

- Finalisation of Terms of Reference for Recfishing Research's Steering Committee.
- Finalisation of Recfishing Research's draft RD&E Plan for 2014.
- Finalisation of Recfishing Research's Extension Plan for 2014.
- Expressions of Interest reviewed for the current round.

September 2013 Recfishing Research meeting – summary of outcomes

- Review of revised Expressions of Interest

March 2014 Recfishing Research meeting – summary of outcomes

- Discussion of current projects
- Establishment of priorities for 2014
- Review of Recfishing Research's processes to facilitate continual improvement

July 2014 Recfishing Research meeting – summary of outcomes

- Review of strategic priorities
- Refinement of Recfishing Research's roles and governance as a Subprogram
- Review of Expressions of Interest against strategic needs.
- Review of current projects.

In general it was noted that face-to-face meetings of the steering committee resulted in higher quality, more robust discussion of agenda items. Whilst it is recognised that teleconference meetings are at times required to minimise cost, there is a need to weigh up outcomes delivered against costs to ensure the right methods are used to deliver against requirements.

Project Management

Recfishing Research's Steering Committee reviewed proposals submitted in various forms through the FRDC process for the 2013/14 round, and provided advice to applicants and the FRDC on their relative merit, and areas for improvement. Twenty-two Expressions of Interest and three Tactical Research Fund proposals were considered by Recfishing Research at its July meeting. Twenty-four revised EOIs were reviewed at the September 2014 meeting, One full proposal and two TRF proposals were considered in the March 2014 meeting. Thirty-eight EOIs were reviewed during the July 2014 meeting, including eight national proposals.

Under the current contract Recfishing Research provided assistance to the FRDC in the management of existing projects with more than 20% flow of benefit to the recreational sector. During the current contract Recfishing Research reviewed nine milestone progress reports and four draft final reports. Recfishing Research representatives also attended twenty-five meetings and seven workshops. Recfishing Research also delivered twenty-three articles on relevant research in the fishing media, and delivered twenty-two radio interviews on relevant projects and issues (see table below).

Activity Type	Number
Investment Meetings	7
Teleconferences	1
Draft Final Reports	4
Milestone Reports	5
Articles	23
Workshops	7
Radio Segments	22
Meetings	25

Other projects monitored/managed by Recfishing Research

There were a number of other projects monitored/managed by Recfishing Research during the current project. These include:

2011/527 "RFIDS: Recreational fishing in Australia - 2011 and beyond: a national industry development strategy. National recreational fishing education program. "Establish activities and tools to promote recreational fishing on a national level."
2012/214 "Measuring the economic value of recreational fishing at a national level".
2012/508 "Australian Animal Welfare Strategy: practical extension, implementation and evaluation of the Aquatic Animal Working Group Fish Welfare overarching principles within the recreational fishing sector"
2012/022 "Development of methods for obtaining national estimates of the recreational catch of Southern Bluefin Tuna"
2013/025 "Assessing post-release survival of Southern Bluefin Tuna from recreational fishing"
2013/018 "Using commercial and recreational fisher knowledge to reconstruct historical catch rates for Queensland pink snapper (*Pagrus auratus*) and Spanish mackerel (*Scomberomorus commerson*): long-term data for incorporation into future stock assessments"

2013/201 “Development of a harvest management, governance and resource sharing framework for a complex multi-sector, multi-jurisdiction fishery: the south-east Australian ‘western snapper stock”
2013/205 “Beyond engagement: moving towards a co-management model for recreational fishing in South Australia”
2012/213 “Developing jungle perch fingerling production to improve fishing opportunities”

On occasion time delays were experienced in the provision of advice to FRDC, as a result of the need to provide sufficient time for all steering committee members to familiarise themselves with relevant content. A more directed approach is proposed in future, wherein the Program Coordinator will first review the relevant project outputs and provide a recommendation to the group for endorsement, drawing their attention to relevant issues and reporting elements to try and decrease response time to the FRDC.

Research Extension

A renewed website was developed for Recfishing Research during the current project (www.recfishingresearch.com.au), which hosts information on relevant issues and projects in a userd friendly, easy to navigate environment. Wherever possible, extension products developed to communicate research findings were presented in plain English, in an engaging, magazined style layout suited to the fishing community, or alternatively, audio/visual clips.

Recfishing Research produced a total of twenty-three articles on research issues and projects, and twenty-two radio segments on 2SMs Hi Tide Radio Show during the project. These were then hosted on Recfishing Research’s new website and pushed out through social media.

Whilst Recfishing Research’s social media audience appears to have plateaued at approximately 2100 people, there continues to be encouraging levels of engagement, with 2,100 page likes, highest engagement from Sydney NSW, from age group 25-34 years of age. These results are especially promising given historical difficulties engaging younger audiences using traditional methods. Continued engagement from our audience also illustrates the committed nature of those who are a part in the Recfishing Research Facebook community – as opposed to a community of unengaged individuals. Facebook post reach is at an average of approximately 1,200 people, and organic post reach benchmark is 238. Post reach is highest between 3pm and 9pm with no discernable difference between days of the week. Engagement is 213, likes benchmark is four, and Comments and Shares benchmarks are both at one. Photo posts currently pull the most Comments, Likes and Shares, Link posts reach the most people, and Status posts pull the most Post Clicks – this illustrates that all types of content published on the Recfishing Research page are being received well and are part of a well rounded strategy.

Twitter is building a following at slower pace compared to Facebook – this can be related to a need to increase the amount of unique content through this platform. Recfishing Research has posted three hundred and seventy three tweets during the current project, with an audience of seventy-three followers. Limitations of this platform in terms of word count have limited benefits derived using Twitter to date, however a new strategy is now in place to more effectively deliver a larger audience using this platform.

Recfishing Research’s Youtube Channel has received 8,677 views, with plans to build on this in coming years through the addition of new and unique content.

Conclusion

Recfishing Research has continued to aid in the prioritisation of research, development and extension needs for the recreational fishing sector nationally, and assist in the funding, management and extension of projects addressing these priorities. The recreational fishing community has directly benefited through the delivery of projects that address their needs, and through increased accessibility of project outputs. Fisheries managers have also benefited from increased access to information able to be used to inform decision-making, and through interacting with a community of recreational fishers that is more informed on best practice. The research community have benefited through access to clearly articulated national and multi-jurisdictional RD&E priorities, project management input, and provision of advice to help maximise the likelihood of success in gaining investment through the FRDC's annual open round and Tactical Research Fund.

Recommendations

There are a number of recommendations identified through this project that will be taken up by Recfishing Research moving forward. These include a need to:

- continue to work with funding bodies to communicate value proposition associated with co-investment to achieve mutually beneficial outcomes. Initially this will likely take the form of partnership to facilitate delivery of single projects, but will likely emerge into longer term partnership arrangements as strategic vision and trust between groups increases;

- continue dialogue with representatives of the Department of Agriculture with respect to consideration of a formally recognised valuation for the recreational fishing sector in the allocation of resources towards Research, Development and Extension activities under the *Primary Industries Research Development Act 1989*;

- assist in the ongoing development of a national funding model for the recreational fishing sector through the Australian Recreational Fishing Foundation;

- continue to assist in the implementation of actions identified through the 2012 National Recreational Fishing Conference;

- continue to hold annual national workshops to assist in the identification of multi-jurisdictional and national RD&E priorities for the recreational fishing sector, as this is the best approach to maximise engagement and ownership in priorities identified;

- minimise the number of teleconferences held for Recfishing Research's steering committee, as this meeting style typically hampers the quality of discussion relating to proposals and other issues for consideration.

- Continue with the extension of R&D to target audiences, and in monitoring the effectiveness of efforts to increase effectiveness.

Project materials developed

A number of articles/audio clips on relevant research was developed during the current contract, which were published in the fishing media, stored on Recfishing Research's website, and pushed out through social media. Short summaries of some of these are provided below.

Travelling Tiger tales

This article discusses some fascinating research by University of Queensland PhD student, Bonnie Holmes into the movement and post-release survival of Tiger sharks, funded through the New South Wales recreational fishing trust. Bonnie's research is revealing that these top order predators move and behave quite differently from how we thought they might.

Mighty oaks from tiny acorns grow

Mighty Oaks investigates the findings to date of Canberra University PhD student Alan Couch, who has been investigating factors contributing to the successful spawning and recruitment of Australia's largest freshwater fish species, Murray cod.

Forensic Fisheries

This article looks into the way genetics is revolutionising how we study recreational fisheries around Australia, and considers where innovations in genetic research may take our understanding into the future.

Lock, stock and no smoking barrel

This article summarises the findings of an FRDC-funded study looking into the impacts of stocking on stocked fish populations, and communities, including potential impacts on threatened species.

Sun sets on the Native Fish Strategy

This article summarises benefits delivered to Australia's recreational fishing community from research funded through the Murray-Darling Basin Authority's Native Fish Strategy.


sun sets on the
NATIVE FISH STRATEGY
Article by Matt Barwick
www.FRDC.com.au
So exactly how has the NFS helped to improve our fishing opportunities in the Basin over the last decade?
Draining nearly 1 seventh of Australia's landmass, Australia's largest river system, the Murray-Darling Basin comprises a maze of rivers, dams, wetlands and smaller tributaries, providing a veritable playground for keen fishos...

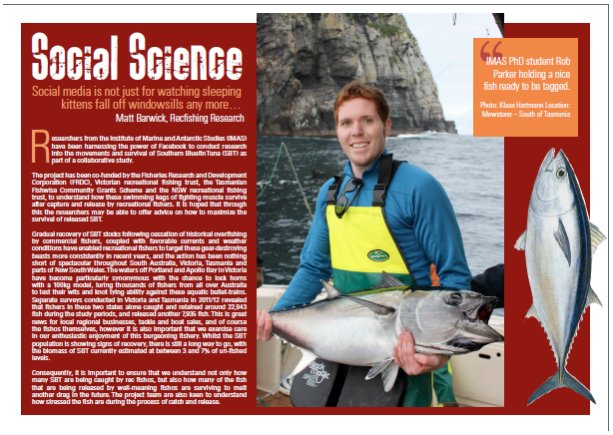
Status symbol

This article looks at the status of Australia's fisheries resources, and summarises results of the first Fish Status Report, funded by the FRDC.


FRDC
STATUS SYMBOL
MATT BARWICK, RECFISHING RESEARCH

Social Science

This article explores the role that Social Media has played in the delivery of FRDC-funded 2013/025 *Assessing post-release survival of Southern Bluefin Tuna from recreational fishing*


Social Science
Social media is not just for watching sleeping kittens fall off windowsills any more...
Matt Barwick, Recfishing Research
IMAS PhD student Rob Parker holding a nice fish ready to be tagged.

Not just a FAD

This article discusses new innovations in Fish Aggregation Device (FAD) design, and considers how these high-tech new devices may change the way we fish in Western Australia.


NOT JUST A FAD
MATT BARWICK, RECFISHING RESEARCH
Can you imagine waking up in the morning, grabbing your phone, but instead of checking your messages, you open an app to check if there are any fish at your favourite spot, and perhaps even what species/size? It's not as far-fetched as you may think...

Project Icefish

This article discusses progress with a project funded under the Department of Agriculture's Aquatic Animal Welfare Working Group, to investigate whether killing fish using an ice slurry provides good animal welfare outcomes.

Saddlesore fish?

This article summarises the findings of a pilot study funded by the Fisheries Research and Development Corporation to investigate factors causing Saddleback syndrome in Yellowfin bream and other species in southeast Queensland, and prevalence of the syndrome among affected populations.

How important is fishing to NSW?

This article summarises results of a project funded by the NSW recreational fishing trust to estimate the economic value of recreational fishing in New South Wales.

Testing mud crabs as easy as A,B,C

This article explains a simple, user-friendly way to work out if your mud crab are full of meat, which was developed as part of an FRDC-funded study investigating ways to maximise the quality of Mud crab.

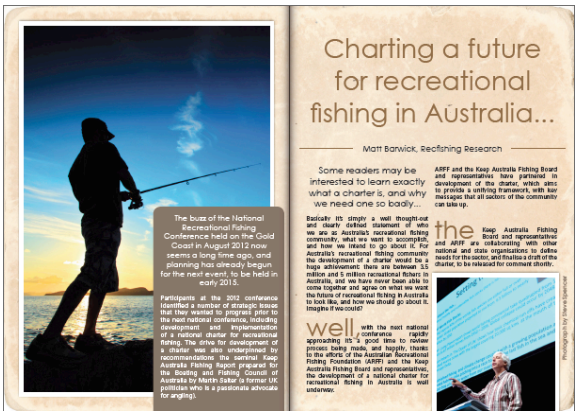
Fix it and they will come

This article looks at the benefits delivered for recreational fishing and tackle stores near Condamine following completion of a range of river rehabilitation activities as part of a Demonstration Reach, funded under the Murray-Darling Basin Authority.

Charting a future for recreational fishing in Australia

This article summarises progress against one of the priority actions identified at the 2012 National Recreational Fishing Conference: the development of a charter for recreational fishing in Australia.

The author summarises key components of the charter, and summarises progress made in its implementation.



Understanding through Citizen Science

This article looks into the role that recreational fishers have played in monitoring the impacts of water quality concerns in Gladstone Harbour, and tracking movement of Barramundi that moved downstream from Awoonga dam after a large flood event in 2010.

Looking back to move ahead

This article considers the findings of a pilot study which sought to provide an understanding of how Queensland's Pink snapper and Spanish mackerel fisheries have changed over time, through examining historical records held by recreational fishers.

Jack lives here

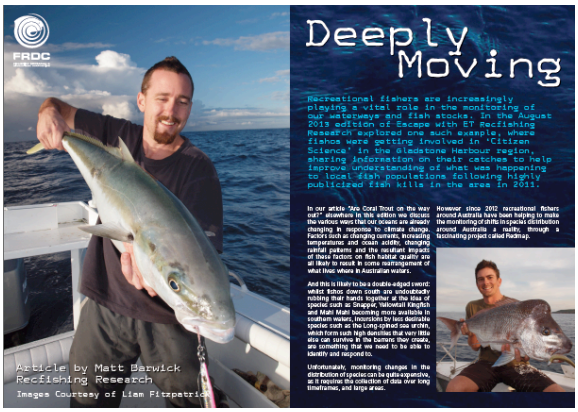
This article explores results to date delivered from a project funded through the NSW recreational fishing trust to understand more about the migration and behaviour the iconic Mangrove Jack, using citizen science.

Are Coral trout on the way out?

This article looks into research conducted by scientists from James Cook University into the likely impacts of climate change on Coral trout, and reveals that this species group appears to be particularly susceptible to likely changes associated with a changing climate.

Deeply moving

This article summarises some of the more interesting results to date produced by one of the most successful and interesting Citizen Science projects in Australia: Redmap, conducted by staff from the Institute of Marine and Antactic Studies.



Getting to the root of it – do snags create fish?

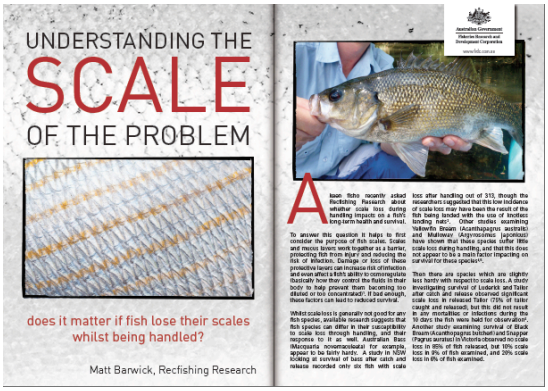
This article explores research funded by the Murray-Darling Basin Authority, which investigated whether re-snagging increases fish production, and what characteristics of snags provide the best habitat.

A new area for recreational fishing research

This article explains who Recfishing Research is, what they do, and what recent changes (such as becoming a Subprogam) means for recreational fishers around Australia.

Understanding the scale of the problem

This article explains what role fish scales play in their biology, examples what happens when fish lose their scales, and considers what fishers can do to minimise scale loss, and maximise fish survival after release.



Appendix 1

Terms of Reference for Recfishing Research's Steering Committee

1. Operating context

Recfishing Research will operate as a Subcommittee of the FRDC with a clear focus on maximizing investment in, and the return on investment from, recreational fishing research, development and extension at a national scale. Strong links will be required between the Steering Committee and peak national/state/territory recreational fishing bodies, the fishing tackle and boating industries and fisheries managers. Recfishing Research will also strive to maximise complementarity and minimise duplication through maintaining strong relationships with Fisheries Research Advisory Bodies (FRABs), Subprograms and Coordinating Programs, and active linkages with recreational fishing licensing programs.

Specifically, Recfishing Research addresses the needs of its clients (primarily the FRDC and Australia's recreational fishing community), by delivering the following functions:

- Facilitating the identification of national/regional RD&E priorities for the sector. RD&E priorities identified and progressed by this body can be national or regional in spatial scale, may relate to specific themes or stocks, can involve either basic or applied science and may be either tactical or long term in nature.
- Promoting the development of proposals which address identified priorities, including exploring co-investment opportunities with prospective partners;
- Providing advice to the FRDC, and working with applicants, to ensure that proposals submitted are targeted, cost-effective, and have a high likelihood of success.
- Active management of FRDC-funded projects with significant flow of benefit to the recreational fishing sector.
- Facilitating communication and consultation between researchers, managers, fishers and funding bodies.
- Ensuring project outputs are timely and fit for purpose.
- Communicating R&D findings to end users to ensure adoption of outputs, and achievement of desired outcomes.
- Evaluation of performance of RD&E initiatives.

2. Membership

Recfishing Research's Steering Committee is made up of eight individuals with detailed understanding of the recreational fishing industry, and funding/delivery of RD&E activities. The Steering Committee in 2014-15 will comprise:

- An independent chairperson;
- A Program Coordinator;
- persons with expertise in one of more of the following areas:
    - applied and current recreational fisheries management expertise;
    - representation from the recreational fishing sector;

- representation from the tackle and/or boating industry;
- representation from the guiding/fishing charter industry;
- recreational fishing media;
- social science expertise; and,
- economics expertise.

Strong linkages with peak national/state/territory recreational fishing bodies, the fishing tackle and boating industries and fisheries managers will be maintained and enhanced. Recfishing Research will also strive to maximise complementarity and minimise duplication through maintaining strong relationships with Fisheries Research Advisory Bodies (FRABs), Subprograms and Coordinating Programs, and active linkages with recreational fishing licensing programs. Additional expertise will be drawn upon as required to assist in the evaluation of technical merits of proposals in a specific area, or in relation to a specific issue.

Positions on Recfishing Research's steering committee are voluntary appointments, made through a call for expressions of interest from individuals possessing requisite skills. Appointments are for a period of two years.

The role of steering committee members includes:

- providing input to the annual review of the RD&E Plan, including identification of driving factors, SWOT analysis review, and involvement in the identification of priorities/activities to address issues identified;
- reviewing research proposals received in the context of their alignment with the agreed RD&E Plan and provide timely feedback to Recfishing Research's Program Coordinator;
- communicating Recfishing Research's Aim and priorities to members of the recreational fishing community, and receiving comment and feedback, which they will communicate to the Steering Committee.
- being actively engaged with ensuring that the methods chosen by researchers for the communication of research results are realistic, achievable and likely to provide the desired outcomes.

2.1. Chairperson

The Chairperson will be an independent, non-governmental person appointed by the Program Coordinator in partnership with the FRDC.

The Chair will be a full member of Recfishing Research and will be responsible for managing meetings of the Group. The Chair will ensure that the Steering Committee fulfils its role as set out above.

The Chair will also report to the FRDC, when requested on the operation of Recfishing Research and or the results of its deliberations.

2.2. Appointment

Nominations of members will be made by Recfishing Research's Program Coordinator and Chair in collaboration with FRDC's Program Manager.

2.3. Term of Appointment

Members remain members of Recfishing Research's Steering Committee for a term of two years.

2.4. Attendance as an Observer

At the discretion of the Chair after discussion with the Steering Committee, the Chair may invite non-members to participate in Recfishing Research meetings. Observers may only participate in discussions at the invitation of the Chair.

2.5. Resignations

A member may resign in writing addressed to the Chair with reasonable notice.

2.6. Termination

A member's appointment may be terminated by mutual agreement of the member and Chair, or by providing reasonable notice given by either party. If a member is unable to attend a majority of meetings in a year then the Chair after consultation with FRDC, may find an alternative person for appointment as a member with the appropriate level of expertise.

2.7. Vacancies

Upon a vacancy occurring Recfishing Research's Program Coordinator and Chair in collaboration with FRDC's Program Manager may nominate a replacement member.

2.8. Expenses

Non-government members shall be entitled to receive funding support for travel and accommodation associated with Recfishing Research meetings.

Travelling expenses of the Chairperson and Non-Government members will be paid at standard economy rates. Generally, observers are not entitled to be recompensed for travelling or personal expenses.

3. Operations

Recfishing Research will meet three times each year as a minimum. The Steering Committee will meet to consider Expressions of Interest (EOIs) submitted to the FRDC in July each year, and this will generally be a face-to-face meeting due to the number of proposals to be considered. The committee will also meet via teleconference in September to discuss revised proposals, and then finally in March to review full proposals submitted. Frequency of meetings thereafter may be determined by the Steering Committee, subject to available budget constraints. The Chair may call special meetings at any time.

Members should anticipate that agendas and papers for meetings will be circulated at least one week prior to the meeting, and that meetings will be run as full-day sessions.

The Chair will manage each meeting and determine the pace and length of deliberations on agenda items. The Chair will seek to ensure that every member has adequate opportunity to participate in the discussions on each item.

Minutes will be kept of every meeting and circulated for comment before being formally adopted at the next meeting.

3.1. Managing conflicts of interest

Recfishing Research members may have conflicts of interest (perceived or otherwise) during the course of their duties. All interests in the matter being considered, whether pecuniary or otherwise, must be declared but common sense should be used for determining if a conflict of interest exists. If there is any doubt of the relevance of an interest, it should be declared so that any potential conflicts can be considered. Types of interest that members must declare includes but is not limited to:

- Financial or economic interest such as inclusion as a project team member on a proposal;
- Employment by a business or organisation involved in an issue or proposal being discussed; or,
- Membership of a group or organisation relevant to the issue or proposal being discussed.

A conflict of interest may occur when the member's interest could conflict or could be perceived to conflict, with the proper performance of the member's duties in relation to the consideration of the matter. For example a conflict of interest occurs when the member can influence Recfishing Research's recommendation to have a direct benefit to the member or the member's business/organisation/group disproportionally to others.

Determining if a conflict of interest exists is done by Recfishing Research's Steering Committee on a case by case basis. The processes for declaring and dealing with a conflict of interest are as follows:

3.1.1. Meetings

To ensure the smooth operation of the meeting, Recfishing Research's Steering Committee should seek to deal with interests and conflicts of interest prior to or at the start of each meeting. Papers and agendas are typically circulated prior to any meeting and members should be able to make a decision as to the need to disclose any relevant interest and its nature prior to the meeting. Any interests should be disclosed prior to the item relevant to the interest being discussed. The other Steering Committee members should then discuss the nature of the interest and decide if there is any conflict of interest, and what action should be taken when that item is discussed. If members subsequently become aware of a relevant interest during the course of a meeting they must immediately disclose the interest and the Steering Committee must consider how the disclosure is to be dealt with at this point.

If the Steering Committee decides that a conflict of interest exists, and that this conflict is likely to interfere with the Steering Committee's consideration of a particular issue or issues, the Steering Committee may:

- ·decide that the member who has disclosed his/her conflict of interest should participate in the discussions concerning the issue but not in formalising the recommendations (in such cases, the member may be asked to retire from the meeting while the decision is made); or
- ask to hear the member's views on the issue and then ask him/her to retire from the meeting while it is discussed by the other members and a decision is formalised.

If the Steering Committee decides that a general conflict of interest exists, the Committee should take a more inclusive approach in view of the role and function of Recfishing Research in terms of making use of the expertise of members and allow the members to participate in the discussion and recommendation. As a guide, it is suggested that members with a conflict of interest should only be excluded from participating in the discussion and recommendation if the matter being considered can have a direct benefit to the individual member or member's business/ organisation/ group rather than all people/ businesses/ organisations/ groups equally.

The Chair should ensure that the minutes/report of the meeting record the declared interests of members and reflects the Steering Committee's decision(s) in regard to the conflict of interest and that these are put into effect at the appropriate point(s) in the meeting.

3.1.2. Reporting Arrangements

Minutes should be concise and focused on outcomes and actions arising, be prepared and circulated promptly after meetings and finalised out of session soon after the meeting.

To capture the benefits of timely and concise advice, the Chair should ensure that Program Coordinator aims to circulate draft minutes to members within two weeks of the meeting and that members aim to clear draft minutes within two weeks of receiving them. Draft minutes must be kept confidential and the final minutes may only be made public after approval by the Chair.

3.2. Confidentiality

The deliberations of the Steering Committee must be treated confidentially in order to provide a forum for independent advice and debate. Members will be able to discuss with their respective groups or organisations issues before the steering committee that are not of a confidential nature, but must not discuss any deliberations of the Steering Committee or circulate meeting agendas, minutes, papers or other materials publicly without the consent of the Chair.

3.3. Reviewing national/regional RD&E priorities

Every 2-3 years Recfishing Research will convene a national workshop for peak bodies, representatives of the tackle, boating, charter and guiding industries, and fisheries managers from each jurisdiction in March to enable the recreational fishing community to come together to establish national/regional RD&E priorities for the coming year. A process for reviewing priorities remotely will be used in between national workshops to manage costs.

3.4. Project Management

Recfishing Research's Program Coordinator will distribute milestone reports, draft final reports and other project outputs for comment by Steering Committee members, with a recommendation for endorsement. Members will be required to respond by advised timeframes, which are typically 1 week for milestone reports, and 3 weeks for larger reports.

When reviewing milestone reports, Steering Committee members are asked specifically to provide advice on whether sufficient evidence is provided to confirm that deliverables have been met, and whether or not this has occurred. Additionally, members are to consider whether timelines are being met, and advise an appropriate course of action if delays are being experienced.

When reviewing draft final reports, Steering Committee members are to consider

- Whether objectives are clearly stated and have been addressed;
- Whether the report adequately describes methods used, nature of data collected and how the data has been analysed;
- If the methodology used is appropriate;
- Whether project outputs have management application and a clear pathway to adoption; and
- If the report provide details on how the results of the project have been communicated, and if so, if they are appropriate.

4. Funding support

Recfishing Research is funded by the Fisheries Research and Development Corporation under project 2013/401 "*Recfishing Research 2.0: a revitalized approach to addressing national RD&E priorities and increasing investment and coinvestment in RD&E relevant to the recreational fishing sector*".

Appendix 2

Social Media Strategy

Goals

Recfishing Research's vision is to improve recreational fishing in Australia through research, development and extension (RD&E).

Recfishing Research does this by delivering the following functions:

- Facilitating the identification of national/regional RD&E priorities for the recreational fishing sector. RD&E priorities identified and progressed by this body can be national or regional in spatial scale, may relate to specific themes or stocks, can involve either basic or applied science and may be either tactical or long term in nature.
- Promoting the development of proposals which address identified priorities, including exploring co-investment opportunities with prospective partners;
- Providing advice to the FRDC, and working with applicants, to ensure that proposals submitted are targeted, cost-effective, and have a high likelihood of success.
- Promoting co-investment to address national/regional priorities.
- Active management of FRDC-funded projects with significant flow of benefit to the recreational fishing sector.
- Facilitating communication and consultation between researchers, managers, fishers and funding bodies.
- Ensuring project outputs are timely and fit for purpose.
- Communicating R&D findings to end users to ensure adoption of outputs, and achievement of desired outcomes.
- Evaluation of performance of RD&E initiatives.

Social Media goals:

- To get as many fishers as possible in Australia to know who Recfishing Research is and what we do (brand awareness);
- To build our audience, thereby enabling us to engage with Australian fishers to discuss issues relevant to the science around recreational fishing;
- To help as many Australian fishers as possible to discover and learn about relevant research findings (extend R&D), to maximize adoption;
- To drive traffic to our website;
- To provide a vehicle for evaluating the performance of web-based extension activities, informing more efficient and effective future delivery.