

# ANNUAL REPORT 2019–20

# Key achievements in 2019-20

- Tropical oyster aquaculture developments commenced.
- National Carp Control Plan finalised.
- Seafood Industry Safety Initiative and SeSAFE training platform launched.
- Eight Australian innovators make the final of FISH 2.0 Global Forum.
- Seafood Directions Conference successfully run by Seafood Industry Victoria.
- Wild-catch prawn provenance project launched.
- Future Oysters Cooperative Research Centre Project (CRC-P) completed.
- National Habitat Strategy published to inform large-scale rehabilitation programs.
- Macroalgae/seaweed culture saw renewed interest.
- 2019 Australian Fish and Chips Awards conducted.
- Fish Forever 2030 National Fishing and Aquaculture Strategy developed.
- FRDC R&D Plan 2020–25 completed.

# Quick guide to the annual report

If you do not have time to read this report in detail, look first in the following sections:

- For an outline of the FRDC's investments and income, read pages i-iv and the financial statements starting on page 131.
- For an overview of operations during the past year, read the letter of transmittal (pages v–ix) and the directors' review of operations and prospects starting on page 5.

More detailed coverage is in these sections:

- The FRDC's national priorities are shown on pages 30, 36 and 39.
- Outcomes by recent and current projects are in the research, development and extension (RD&E) programs reporting starting on page 53 (Environment), page 66 (Industry), page 72 (Communities), page 79 (People) and page 84 (Adoption).
- Performance reporting for the Management and accountability program starts on page 107.
- Financial contributions by industry and governments are listed on pages i-iv and 149.
- Coverage of corporate governance information is in the section starting on page 117.
- The financial statements start on page 131.



The Department of Agriculture became the Department of Agriculture, Water and the Environment (DAWE) on 1 February 2020. For the purposes of this report DAWE will be used throughout. In addition, the Minister for Agriculture, Drought and Emergency Management was sworn in on 6 February 2020 and for the purposes of this report will be referred to as the Minister for Agriculture.

# 2019-20 achievements through investment

# Five years at a glance

#### TABLE 1: INCOME

	2015–16	2016–17	2017–18	2018–19	2019–20
	\$m	\$m	\$m	\$m	\$m
Total income	30.12	37.32	36.00	39.56	33.03 <sup>1</sup>
Industry contributions	7.45	8.18	9.04	10.18	8.42
Total government contributions	20.05	21.76	22.71	23.48	22.08
Project funds from other parties	1.48	5.63	2.02	3.42	0.82
Other revenue	1.14	1.75	2.23	2.48	1.71

1. Gross value of production declined during the year associated with COVID-19, which impacted on contributions.

#### TABLE 2: MATCHABLE INCOME

	2015–16	2016–17	2017–18	2018–19	2019–20
	\$m	\$m	\$m	\$m	\$m
Maximum matchable (government) contribution <sup>1</sup>	6.78	7.25	7.57	7.78	7.45
Actual government matching	6.48	7.25	7.57	7.78	7.19 <sup>2</sup>

1. Government funding and maximum matchable contribution (the maximum amount to which the Australian Government will match industry contributions) are detailed in Appendix A.

2. Gross value of production declined during the year associated with COVID-19, which impacted on contributions/

#### TABLE 3: FINANCIAL INDICATORS OF RESEARCH, DEVELOPMENT AND EXTENSION (RD&E) INVESTMENT

Expenditure	2015–16	2016–17	2017–18	2018–19	2019–20
	\$m	\$m	\$m	\$m	\$m
Total expenditure	28.33	29.26	31.39	35.22	34.44
Total of RD&E projects	24.58	24.41	26.00	29.80	28.94
RD&E Program 1 (Environment)	8.68	7.46	7.94	7.92	8.35
RD&E Program 2 (Industry)	11.54	12.31	11.24	14.48	13.39
RD&E Program 3 (Communities)	0.86	0.98	1.74	1.83	2.25
RD&E Program 4 (People)	1.55	1.34	2.30	2.39	2.20
RD&E Program 5 (Adaptation)	1.95	2.32	2.78	3.19	2.75
Management and accountability	3.75	4.85	5.39	5.41	5.50

#### TABLE 4: NEW, ACTIVE AND COMPLETED PROJECTS

	2015–16	2016–17	2017–18	2018–19	2019–20
Number of approved new projects	116	122	167	145	118
Active projects under management					
during the year	415	408	493	491	440
Number of final reports completed	133	86	85	120	124

#### **TABLE 5**: APPLIED VERSUS BASIC RESEACH PROJECTS

	2015–16	2016–17	2017–18	2018–19	2019–20	2019–20
	\$m	\$m	\$m	\$m	\$m	%
Applied	21.90	22.96	24.56	28.43	27.99	96.7
Basic	2.67	1.46	1.45	1.37	0.94	3.3

#### TABLE 6: PROJECT LENGTH—AVERAGE COST PER PROJECT

Duration	Number of projects	Total investment	Average project value
		\$	\$
Long (36 months and over)	106	64,188,188	605,548
Medium (from 18 and 36 months)	131	45,846,528	349,973
Short (up to 18 months)	203	28,871,697	142,225
Total	440	138,906,414	315,696

#### **TABLE 7**: PROJECT INVESTMENT BY RISK PROFILE

	2016–17	2017–18	2018–19	2019–20	Total
	\$	\$	\$	\$	%
High	2,195,940	1,514,281	1,065,692	669,685	2.3
Low	12,792,771	11,993,516	15,533,813	16,301,505	56.3
Medium	9,438,571	12,495,655	13,204,366	11,965,941	41.4
Total	24,427,281	26,003,453	29,803,871	28,937,131	100.0



# **Summary of contributions**

**TABLE 8**: CONTRIBUTIONS, MAXIMUM MATCHABLE CONTRIBUTIONS BY THE AUSTRALIAN GOVERNMENT ANDRETURN ON INVESTMENT

	А	В	С	D	E	F
Jurisdiction— by year	Maximum matchable contribution	Actual contribution amounts	Percentage of matchable	Distribution of FRDC spend	COI	Return on ntribution (D/B)
	[note 1]	[note 2,3]		[note 4,7]		[note 5,6]
	\$	\$	%	\$	2018–19	5 years
Commonwealth	1,226,595	988,458	81	4,308,710	4.36	2.99
New South Wales	394,963	584,581	148	3,140,065	5.37	4.63
Northern Territory	166,520	217,807	131	980,115	4.50	5.19
Queensland	488,730	683,776	140	3,251,416	4.76	3.94
South Australia	1,080,008	1,148,333	106	3,604,940	3.14	3.47
Tasmania	2,429,368	2,728,387	112	8,456,288	3.10	2.37
Victoria	291,955	281,108	96	1,815,019	6.46	6.43
Western Australia	1,368,593	1,792,415	131	2,986,426	1.67	2.11
Total	7,446,730	8,424,865	113.1	28,937,088	3.43	3.11
Australian farmed prawns [note 8]	202,258	161,555	80	422,016	2.61	2.66

Figures in this table have been rounded, hence totals may not agree with component figures.

- 1. Maximum matchable contribution is the maximum amount that the Australian Government will match industry contributions in accordance with the criteria detailed in Appendix A.
- 2. Note that contribution figures are accrual based—i.e. some payments for the year may have been made but will not show in the figures at the time of publishing.
- 3. There are timing issues in some jurisdictions therefore matching may not occur in the year in which the invoice is raised.
- 4. Distribution of FRDC spend is based on the estimated flow of RD&E benefits to the respective jurisdictions. It includes a deduction of prior project refunds.
- 5. Ratios in column F are derived from the distribution of FRDC spend (column D) for 2019–20 and the previous four years.
- 6. Australian Government investment in the National Carp Control Plan has resulted in an increased return on contribution in Victoria.
- 7. The total distribution of spend excludes \$230,000 (approximately) invested in the Australian Capital Territory.
- 8. Australian farmed prawns are also included in the jurisdictional totals above.



# The FRDC's balanced research investment approach

The FRDC aims to spread its investment in research, development and extension (RD&E) across the whole value chain of commercial fishing and aguaculture, and for the benefit of both Indigenous and recreational fishers. This balanced approach ensures RD&E investment covers issues of critical national importance, as well as recognising the diversity of stakeholder priorities. Ultimately, all FRDC investment in RD&E is driven by the needs of its stakeholders.

# Industry Partnership Agreements investment by program

Investment by Industry Partnership Agreements (IPAs) is driven by the needs of individual sectors. As a result, there will be a higher percentage of funds allocated to the Industry program. However, the FRDC requires IPAs to aim for a balanced portfolio approach to their investment.

Program	\$m	%	
Environment	3.00	27.23	
Industry	6.01	54.54	
Communities	0.82	7.46	
People	0.61	5.53	
Adoption	0.58	5.25	
Industry Partnership Agreement investments total	11.03	100.00	

TABLE 9: INDUSTRY PARTNERSHIP AGREEMENT INVESTMENTS BY PROGRAM

# **Research Advisory Committees investment by program**

Investment made through Research Advisory Committees (RACs) is driven by the needs of the various jurisdictions. However, as with IPAs the FRDC requires RACs to aim for a holistic approach to their investment.

TABLE 10: RESEARCH ADVISORY COMMITTEE INVESTMENTS BY PROGRAM

Program	\$m	%	
Environment	2.39	38.76	
Industry	2.52	40.76	
Communities	0.46	7.38	
People	0.24	3.96	
Adoption	0.56	9.14	
Research Advisory Committee investments total	6.17	100.00	





Australian Government Fisheries Research and Development Corporation

19 August 2020

The Hon. David Littleproud Minister for Agriculture, Drought and Emergency Management Parliament House CANBERRA ACT 2600

Dear Minister,

On behalf of the Board of the Fisheries Research and Development Corporation (FRDC), I have pleasure in presenting the Corporation's annual report for the year ended 30 June 2020.

The report has been prepared and approved by the directors in accordance with our legislative obligations under section 28 of the *Primary Industries Research and Development Act 1989* (PIRD Act); and sections 39 and 46 of the *Public Governance, Performance and Accountability Act 2013* (PGPA Act).

The report provides a clear picture of our performance against priorities and performance indicators in achieving the FRDC's planned outcome (page 13) for you, the Minister for Finance, members of parliament, FRDC stakeholders and the Australian community.

FRDC's annual report [performance statements] is produced in accordance with s39 (1)(a) of the PGPA Act for the 2019–20 financial year. The performance statements start with the directors' review of operations (pages 5 to 10), followed by Report of Operations Part 2: The FRDC's operational results, services and governance (pages 30 to 125). The financial statements and the Australian National Audit Office audit of the FRDC financial statements (starting on page 131) — which returned an un-modified audit report, complete the FRDC performance statements. It is the opinion of the Board of FRDC that the statements accurately present the FRDC's performance in the reporting period and comply with s39 (2) of the PGPA Act.

This report documents inputs (income and expenditure pages i–iv) and, outputs from research and development against the performance measures published in the 2019–20 Portfolio Budget Statements Budget Related Paper No. 1.1, Agriculture Portfolio and the FRDC Annual Operational Plan (pages 16 and 108). The report also includes an overview and assessment of the longer-term outcomes for the Corporation's investment that utilises the methodology developed by the rural research and development corporations (RDCs) (page 90). Report of Operations Part 1: The directors' review of operations and future prospects contains information on planned budgets and future activities.



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# Analysis of key factors affecting performance during the year

The financial year 2019–20 was one of many extremes. Australia has faced not one but three major events: widespread, intense bushfires and the coronavirus (COVID-19) pandemic—both off the back of one of the country's worst droughts. These events had a significant impact on Australia, those working in fishing and aquaculture as well as on the FRDC.

### COVID-19

Throughout the second half of the year, the FRDC monitored and assessed the impacts of COVID-19 on both stakeholders and the organisation. Key impacts felt across fishing and aquaculture revolved around workforce shortages, disruptions to supply chains, restrictions on recreational fishing, Indigenous biosecurity zones being locked down, instances of panic buying which made stocking vessels difficult, and collapse of markets and lack of sales, requiring companies to hold stock. The most exposed parts of the seafood industry were those with products destined for export markets or associated with food service. Indigenous communities were affected and were even more isolated than usual due to travel restrictions. Likewise, industries related to tourism such as recreational fishing were also damaged by the pandemic, albeit this impact was only for part of the year during lock down. As a result of these restrictions there was an increase in seafood consumed at home.

It is clear the impacts of the COVID-19 will continue well past this reporting period.

#### **Financial summary**

At the macro level the Australian economy, up until COVID-19, was tracking well. The Reserve Bank of Australia (May Statement on Monetary Policy) downgraded this view noting that combating the spread of COVID-19 had led to severe restrictions on economic activity in Australia and many countries around the world. The result was a large and near simultaneous contraction across the global economy. Heightened uncertainty about the future has exacerbated the contraction, both directly through weaker investment and consumer spending and via tighter financial conditions. Australia's economic output contracted significantly over the first half of 2020.

There was a decrease in the gross value of production (GVP) for commercial wild-catch and aquaculture, though this was not as pronounced as initially estimated. This will have a downward impact on the FRDC's income in both the short and longer term despite revenue being calculated using a three-year rolling average of the GVP. Fishing and aquaculture have many positives that will be fast tracked to assist the Australian economic recovery. The New South Wales (NSW) Government's agreement to fast track the building of the new Sydney Fish Market is one example of many where governments are investing for jobs and growth, in sectors that show promise.

#### Environmental summary

Australia's ecosystems continue to be influenced and impacted by a range of issues such as climate change, species interactions (sharks), pollution (in particular plastics), urbanisation and use by humans. These topics continue to hold the attention of the community. In particular, the broader community remains focused on the sustainability of fishing and aquaculture—although COVID-19 did alter some societal views—and what people value and trust (local versus imported).

There was a continued focus on biosecurity during the year partly as a result of the re-emergence of White Spot Disease in south Queensland. All sectors are focused on increasing biosecurity readiness to reduce risks. As part of the broader biosecurity debate the FRDC delivered the National Carp Control Plan to the Government in early 2020 for review and future decision making.

#### Societal summary

A major change through the year was on how Australia's community interacted and engaged. Fear, worry and stress are normal responses to perceived or real threats, and at times when we are faced with uncertainty or the unknown. While COVID-19 is a physical illness, it also brought with it a range of mental health issues. Of key concern during this period were vulnerable populations and how to best protect them. It was pleasing to see the research by FRDC on quantifying mental health needs in the seafood sector, supported by the \$600,000 funding from Commonwealth Government for a Seafood Industry Australia led national mental health program.

Indigenous communities faced greater challenges both from a health and economic perspective. Work continued to understand Indigenous communities' values and priorities and how best to incorporate them in the development of policy and regulations to enable Indigenous people to achieve a greater engagement in fishing.

# Key performance indicators

The FRDC met the majority of the 2019–20 Portfolio Budget Statements performance indicators.

The two financial targets of income and expenditure were not met. The income target for 2019–20 was \$35.00 million and \$33.03 million was achieved. The financial expenditure target was \$41.44 million and actual expenditure was \$34.44 million.

For a full explanation of financial target variance, see page 143 in the financial statements for the difference between forecast and actual income and expenditure.

Portfolio Budget Statements (PBS) performance measures	Targets 2019–20	Results
Perception of the commercial fishing industry increased from 28% to 40% by 2020.	Perception of industry increases to 36%.	Achieved. The most recent survey of community perception (June 2019) shows that 46% believe the industry is sustainable.
Understand the quantity of potential production from Australia's fishing and aquaculture resources.	One report completed on the quantity of potential production from Australia's fishing and aquaculture resources.	Achieved. Project 2016-056 measured Australia's wild-catch production potential at 293,500 tonnes, a substantial increase on the 166,000 tonnes caught in 2016–17 (see page 38).
Advance two or more new or emerging aquaculture opportunities/species for which RD&E has identified clear opportunities and technologies for good production and profitability growth, as measured by increases in harvest tonnages.	Two thousand tonnes of additional production.	Achieved. National government production statistics not available. Forecasts and individual company records indicate that production will exceed the 2019–20 target.
Partners have a RD&E plan.	Ninety per cent of partners have a RD&E Plan.	Achieved. Ninety-five per cent of IPAs and RACs have plans in place.
Partners invest in a balanced portfolio across the FRDC purpose themes: environment, industry, communities, people and adoption.	Investment portfolios include investment across FRDC purposes.	Achieved. See pages i–iv.

Portfolio Budget Statements (PBS) performance measures	Targets 2019–20	Results
Projects focus on the FRDC Board's assessment of priority research and development issues.	Ninety-five per cent are a priority.	Achieved. Projects align with strategic priorities set out in FRDC's Annual Operational Plan and partner plans.
Projects are assessed as meeting high standards/peer review requirements for improvements in performance and likely adoption.	Ninety-five per cent are a high priority.	Achieved.
Maintain ISO9001:2008 accreditation.	FRDC maintains certification.	Achieved. See page 100.
Submit planning and reporting documents in accordance with legislative and Australian Government requirements and timeframes.	One hundred per cent met government requirements.	Achieved. All documents submitted in accordance with requirements.
Implement best practice governance arrangements to promote transparency, good business performance and unqualified audits.	Achieve unqualified audit result.	Achieved. See audit report pages 128–129.
Demonstrate the benefits of RD&E investments by positive benefit cost analysis results.	Benefit analysis undertaken on one investment area.	Achieved. Average benefit cost analysis results, see pages 63, 69, 75, 81, 87, 92.
Commence collection of voluntary marketing funds, pending legislative changes.	An amount of \$350,000 to be collected.	Not achieved. No voluntary funds collected.
Establish full statutory marketing levy collection with industry sectors for sectors, where requested and pending levy being established.	One marketing levy established.	Not achieved. Two marketing levies voted on. One successful but not progressed, the other voted down by industry.

# Key factors contributing to performance

Throughout the year, the FRDC's focus has been on delivering its core business, investing in priorities to promote sustainability, improve productivity, profitability and grow aquaculture and finalise projects disseminating the knowledge generated.

The FRDC engaged and communicated extensively, using formal consultative structures (representative organisations, Research Advisory Committees, Industry Partnership Agreements, and the Indigenous Reference Group); as well as with the broader range of our stakeholders. The development of the new R&D Plan 2020–25 included expansive stakeholder engagement and as COVID-19 emerged it became more important to maintain linkages with and provide the latest information to our stakeholders to assist them.

The FRDC continues to work collaboratively across all the rural research and development corporations (RDCs) on national issues such as climate change, innovation and people development. An important part of this has been working on a new collaborative investment vehicle to address them in a coordinated way.

The directors' review of operations (found on pages 6–10 of this report) provides further detail on events and activities that impacted the FRDC during the year.

### Conclusion of the FRDC's RD&E Plan 2015–20

This report also marks the fifth year of reporting against the FRDC's RD&E Plan for 2015–20. This plan brought with it a number of key changes for the FRDC. In particular, it was the first time the FRDC set three overarching key priority areas to address (see pages 30–52 for detailed reports).

The first priority aimed to not only underpin the sustainability of Australia's fisheries through good R&D investment but also increase awareness and inform community perceptions—a key metric for the priority. It is fair to say the FRDC exceeded expectations in these regards with community perceptions increasing from 24 per cent for the commercial fishing industry and 40 per cent for all fishing and aquaculture in the 2015 survey, up to 37 per cent for the commercial fishing industry and 47 per cent for all fishing and aquaculture in the 2019 survey. A significant body of work was done to achieve this including the release of three Status of Australian Fish Stocks reports which saw around 90 per cent of the fish caught in Australia assessed with a majority rated sustainable.

The second priority focused on improving the productivity and profitability of the seafood industry. This is a difficult area to assess at a micro level (every fisher or fishery), however at the macro level the gross value of production for commercial fishing and aquaculture increased from around \$2.5 billion in 2014–15 up to \$3.1 billion in 2018–19 before a marked reduction in 2019–20 (down to \$2.6 billion) due to COVID-19. It is important to note, that had COVID not have happened the value of fishing and aquaculture was expected to increase to around \$3.4 billion. Overall, most industry sectors improved their positions during the five-year RD&E Plan period. This combined with a better community perception is a good outcome for fishing and aquaculture.

The third priority focused on growing the value of aquaculture. Again, the results over the five years were very positive. Key farming sectors such as Atlantic Salmon and Barramundi both increased production and value. The aquaculture sector also saw important inflows of investment and expansion across all areas. The potential to expand new species was also positive, with the R&D for Profit project to develop Yellowtail Kingfish aquaculture seeing not only an increase in knowledge and fish health, but also new lease sites made available across Australia which could grow the production potential from 5000 to 60,000 tonnes. Additionally, towards the end of the RD&E Plan a focus on farming tropical oysters in the north and west of Australia took hold with significant investment and lease (water) space allocated. However, it was not all clear sailing for aquaculture with two serious disease outbreaks occurring—White Spot Disease in prawns and Pacific Oyster Mortality Syndrome. Both of these required considerable effort from all stakeholders (management agencies, researchers and industry) which is now paying off with both prawns and oysters on the road to recovery and expansion.

The FRDC's investment via its RD&E Plan 2015–20 delivered solid outcomes for all stakeholders. Initial benefit cost analysis from over 60 projects undertaken during the Plan's five-year term had (in present value terms) a total investment of \$58.38 million and generated estimated total benefits of \$281.89 million which gave a weighted average benefit cost ratio of 4.83 to 1. More information on each of the priority areas is detailed in the body of this annual report.

I take this opportunity to acknowledge the strong support of my fellow directors in guiding the FRDC towards outcomes that will benefit people in fishing and aquaculture, as well as the broader Australian community.

Yours faithfully,

RWilliam

Mr John Williams Chair

This annual report describes events in the fifth year of FRDC's RD&E Plan 2015–20. Because it is the end of a strategic plan 'cycle', the graphics in this report intend to show both dawn and dusk (the beginning and end of a daily cycle), and the lunar cycle which affects the waters and tides where fishers of Australia harvest their catch.



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REPORT OF OPERATIONS PART 1: THE DIRECTORS' REVIEW OF OPERATIONS AND FUTURE PROSPECTS



# THE YEAR IN REVIEW

The FRDC, like many organisations across Australia, has had a mixed, stressful, but relatively successful year given the events that have developed. For the first half of the year, the outlook was positive across all fishing and aquaculture. In particular, the aquaculture sector continued to see good growth and investment. Recreational fishing remained a popular pastime, and FRDC's Indigenous Reference Group was providing excellent input to a wide range of initiatives across Government.

In the second half of the year the story was quite different. Ocean heat waves, bush fires and the coronavirus pandemic placed huge pressures on both stakeholders and staff. Impacts ranged from direct financial constraints through to personal (physical and mental) and broader community issues.

Over the last six months both directors and staff spoke with people from across fishing and aquaculture to gauge how they were faring, looking for ways to assist. Unlike previous disasters, it was clear that no two people had the same story—even those in the same fishery or business.

However, despite the impacts the crisis brought out the best in many, with people reaching out to provide support and offer a helping hand to those in need. Likewise, there were rays of hope where companies changed direction and showed how perseverance and commitment even in dark times can still lead to good results. Recreational fishing is seeing a resurgence in participation in areas not COVID-19 locked down.

The following sections summarise the key issues the Board addressed during the year. The letter of transmittal (beginning on page v) also forms part of the Board's report of operations and outlines some of the broader issues faced in the operating environment.

# **FRDC Chair changes**

The Hon. Ron Boswell was reappointed to Chair the FRDC for a second three-year term in August 2019 by the then Minister for Agriculture Bridget Mackenzie. In January 2020, Ron announced he would step down as FRDC Chair. The FRDC and the fishing and aquaculture community thanked and acknowledged Ron for his exceptional commitment and contribution.

Following the resignation Professor Colin Buxton acted in the role until 10 March 2020 when Mr John Williams commenced the role of FRDC Chair.

# **Ministerial changes**

A number of ministerial and portfolio changes occurred during the year following the Department of Agriculture and the Department of the Environment and Energy merging to create the Department of Agriculture, Water and the Environment (DAWE) on 1 February 2020.

Portfolios Ministers during the year were David Littleproud (Agriculture, Drought and Emergency Management), Sussan Ley (Environment) and Assistant Minister Jonathon Duniam (Fisheries, Forestry and Regional Tourism).

The Hon. David Littleproud was appointed as Minister for Agriculture following the resignation of Senator Bridget Mackenzie who was Minister for Agriculture up to 2 February 2020.

# **COVID-19 response**

Early 2020 the FRDC staff and Board monitored the progression of COVID-19 and began planning how best to prepare for what might occur. By March 2020 it was clear significant changes would need to be implemented. The starting point was to ensure the welfare and safety of the staff and stakeholders. The FRDC reviewed and updated its policies regularly providing updates via the website.

From March to June the FRDC undertook a major engagement and communication program to provide stakeholders with updates (for example government assistance packages) and information to assist them. Central to this were two COVID-19 editions of *FISH* magazine and a new weekly e-newsletter.

# **Research program**

Another key activity following the COVID-19 outbreak saw the FRDC contact all its researchers to gauge an understanding of the impacts that COVID-19 restrictions would have on them and their projects. The focus was to ensure their health and wellbeing. Where projects and activities, such as fieldwork, were impacted the FRDC varied projects to accommodate timeline changes.

The FRDC also delayed progressing new applications received and cancelled the April 2020 call for applications.

# The FRDC's new Research and Development Plan 2020-25

On 18 June 2020, the Assistant Minister Jonathon Duniam approved the FRDC's Research and Development (R&D) Plan 2020–25.

The R&D Plan 2020–25 forms a central part of the strategic planning process that drives organisational focus and impact. The plan was informed by a series of reviews, research and extensive consultation. Consultation focused around scenario planning, which can be helpful when planning in an uncertain environment.

The new plan responds to a shared vision for fishing and aquaculture, aims to deliver impact in five outcome areas, supported through implementation of five cross-cutting enabling strategies. The FRDC's new plan is ambitious, aiming to push boundaries and drive experimentation on new ways to take fishing and aquaculture into the future. The plan aligns with key national targets and global commitments, such as the shared industry and Australian Government target of building agriculture to \$100 billion by 2030, and the United Nations Sustainable Development Goals.



# **Statutory Funding Agreement**

The 10-year FRDC Statutory Funding Agreement was signed by the Minister for Agriculture on 5 April 2020. Individual funding agreements with RDCs outline what is expected of them. This includes expectations of performance and transparency, as well as accountability to levy payers, the government and the public. The funding agreements are renegotiated based on the performance of the RDC during the term of the funding agreement (usually four years).

# Australian National Audit Office Probity Audit

The Australian National Audit Office (ANAO) undertook a probity audit of the five statutory RDCs in 2019 which included AgriFutures Australia, Cotton RDC (CRDC), Fisheries RDC (FRDC), Grains RDC (GRDC) and Wine Australia. The objective of the audit was to assess the effectiveness of the rural RDC's management of probity. The report was published on 18 December 2019.

In managing probity issues, key conclusions were the CRDC was largely effective and AgriFutures Australia, the FRDC and GRDC and Wine Australia were partially effective. The corporations' probity arrangements in relation to governance, policies and internal controls were largely appropriate. The CRDC effectively complied with its applicable probity requirements, while the other four corporations partially complied with Wine Australia the least effective.

The FRDC Board supported all recommendations. A subsequent audit found FRDC had exceeded the audit review requirements.

# Review of the FRDC investment and partnership structures

The draft of the review undertaken by Forrest Hill into the FRDC's partnership structures such as the Research Advisory Committees, Industry Partnership Agreements and subprograms was circulated to these partners for comment. The review found that there was broad support for the partner process with options put forward around improvements to collaboration, changes to assist in linkages, consolidation of some committees and better extension. The FRDC has implemented a staged approach to implementing improvements in its planning, prioritisation and assessment processes to address the stakeholder feedback.

# Submissions: Inquiries and reviews

During the year the FRDC made numerous submissions to a range of inquiries and reviews. They included:

- House of Representatives: Inquiry into growing Australian agriculture to \$100 billion by 2030,
- Senate: Inquiry into the impact of seismic testing on fisheries and the marine environment,
- Independent review of the Environment Protection and Biodiversity Conservation Act 1999,
- National Agriculture Workforce Strategy,
- Agriculture Levy Review legislation,
- Tasmanian Legislature Finfish Aquaculture,
- Sharing Australia's Commonwealth fisheries resources,
- Independent review of agricultural and veterinary (AGVET) chemical regulatory framework.

# National Carp Control Plan

Over the past three years, DAWE and the FRDC have invested in a world-first program to assess the feasibility of using Cyprinid herpesvirus 3 (the carp virus) as a biological control agent for introduced common carp in Australia, as part of the National Carp Control Plan. In January 2020, the FRDC delivered its assessment for consideration by government.

The FRDC's National Carp Control Plan forms one of several important inputs that will inform a decision by Australian, state and territory governments on the carp virus. In addition to the FRDC's work, a final decision on carp biocontrol will require further public consultation and regulatory approval.

# National RD&E Seafood Industry Safety Initiative

The National RD&E Seafood Industry Safety Initiative was developed to deliver improved workplace health and safety in the Australian seafood industry through a cross stakeholder partnership that addresses gaps and/or inefficiencies that affect safety.

The scope of the activities for the initiative are focused on the commercial wild-harvest and commercial aquaculture sectors, with the overarching goal of working towards zero fatalities and reduction in workplace safety incidences.

A number of associated projects underpin and help deliver the initiative. Key supporting activities include Sesafe which aims to provide a platform of safety education material and Seafood Industry Australia's 'Our Pledge', that commits to "value our people, look after them and keep them safe".

# Collaboration

Collaboration was a priority area for the FRDC during the year. As an organisation, the majority of our investments are collaborative by nature. However, it is important to highlight the FRDC also works across primary industries with the rural RDCs to tackle larger common issues.

During the year this has included playing an active role in the Council of Rural Research and Development Corporations (CRRDC), which has coordinated efforts in response to the modernising RDC discussion coming out of the performance review of the rural innovation system. It has also led to the development of a new climate initiative which aims to fast track investment and response to the key areas associated with changing environmental conditions. The FRDC has worked with eight other RDCs to develop a new investment vehicle that aims to enhance collaborative RD&E to deliver transformational, cross-sectoral outcomes to the stakeholders of the agricultural value chain in Australia. A broader set of collaboration initiatives the FRDC has worked on is highlighted throughout the report and on pages 21–23.

# **Innovation focus**

### EvokeAg

EvokeAg was held on 18–19 February 2020 at the Royal Exhibition Building in Melbourne. This year, the FRDC partnered with AgriFutures to sponsor the conference, taking the opportunity to run a panel session, which showcased areas of opportunity within the blue economy space. The FRDC showcased the key innovation activities—TekFish and Blue-X—which provided an opportunity to bring innovators, investors and stakeholders together.

#### Fish 2.0

The FRDC's partnership with FISH 2.0 culminated with eight Australian companies making the finals at the Global Innovators Forum held in Stanford, California on 4–5 November 2019.

The Global Forum confirmed that the sustainable seafood sector is now on firm footing with other agricultural and technology investment areas and is no longer on the fringe. The investor representation at the forum highlighted that sustainable seafood production and aquaculture was a key area for future investments. Australia's participation in FISH 2.0 helped raise the profile for innovation and production in our region. It also highlighted to the world the many and diverse investment opportunities, not only in production but also the numerous innovations being developed.

### Mapping community trust

The FRDC is part of the Community Trust in Rural Industries collaborative project, run by AgriFutures and funded by the CRRDC.

The project aims to explore what the issues are around community trust looking at risk, threat or opportunities that exist for building better trust with the community for primary production. Year one results show rural industries are well trusted, but there remain areas where the community is uncertain about some issues. However, this finding presents opportunities for the relevant sectors to make improvements and address those issues.

### International collaboration

The FRDC continued to develop and build international collaboration partnerships and opportunities to work on global issues. The FRDC is a member of the International Coalition of Fisheries Associations which is committed to science-based and fully participatory fishery conservation and management processes. The group meets at the Food and Agriculture Organization of the United Nations (FAO) during the year to discuss key issues including the FAO Code of Conduct for Responsible Fishing (2020 is the 25th anniversary of the code), Convention on International Trade in Endangered Species (CITES), marine plastics and labour issues.

The FRDC had contributed to the development of a global seafood leadership program with the United States, United Kingdom and Canada, however the emergence of COVID-19 saw this program cancelled.

# Significant events after 30 June 2020

Nil.



# FINANCIAL TARGETS 2020-21

TABLE 11: INCOME OVERVIEW 2020-21

Forecast income	2020–21
	\$m
Total revenues from the Australian Government	21.78
Australian Government 0.5% AGVP	14.52
Matching of industry contributions	7.26
Contributions revenue from industry	7.30
Projects revenue from other parties	3.88
Other revenue (such as interest)	0.20
Marketing and promotion	0.00
Total income	33.16

 TABLE 12: AUSTRALIAN PRAWN FARMERS' LEVY

	2020–21
	\$
FRDC expenditure on R&D projects	368,000
Australian Prawn Farmers Association (APFA) R&D levy contribution	200,000

Australian prawn farmers' levies are collected under the PIRD Act and the Fishing Levy Regulations. This levy is paid to FRDC by DAWE under a special appropriation as per the PIRD Act.

#### TABLE 13: EXPENDITURE OVERVIEW 2020-21

Forecast expenditure		2020–21
		\$m
R&D		26.87
١.	Drive digitisation and advanced analytics	0.20
II.	Strengthen adoption for transformational change	0.20
III.	Promote innovation and entrepreneurship	0.07
IV.	Build capability and capacity	0.20
V.	Provide foundational information and support service	0.03
Total F	7&D	27.57
Comm	Communications	
Corporate costs (includes information and communications technology)		4.76
Total e	expenditure	33.11

#### PIRD ACT REQUIREMENTS

	2020–21
	\$
Remuneration and allowances to directors/members	420,000
Cost recovery expenses to pay to the Commonwealth	15,000
Selection committee expenses and liabilities	60,000

#### COST RECOVERY POLICY

	2020–21
	\$
Cost recovery expenses to the Commonwealth	15,000





# THE CORPORATION

FRDC is a statutory corporation within the Australian Government's agriculture portfolio and is accountable to the Parliament of Australia through the Minister for Agriculture. Revenue for RD&E investment is based on a co-funding model between the Australian Government and the commercial fishing and aquaculture industries.

The Corporation was formed on 2 July 1991 and operates under two key pieces of legislation the *Primary Industries Research and Development Act 1989* (PIRD Act) and the *Public Governance, Performance and Accountability Act 2013* (PGPA Act).

### 2030 vision

The FRDC will invest to pursue the shared vision of Australia's fishing and aquaculture sectors of building collaborative, vibrant fishing and aquaculture, creating diverse benefits from aquatic resources, and celebrated by the community.

#### FRDC outcome

Increased economic, social and environmental benefits for Australian fishing and aquaculture, and the wider community, by investing in knowledge, innovation and marketing.

#### **FRDC** mission

The FRDC's mission is to act as a national thought leader, facilitating knowledge creation, collaboration and innovation to shape the future of fishing and aquaculture in Australia, for the benefit of the Australian people.

### FRDC role

To plan, invest in and manage research and development for fishing and aquaculture, and the wider community, and ensure that the resulting knowledge and innovation is adopted for impact.

### Reporting

Progress against the annual operational plan (AOP) and RD&E Plan 2015–20 are measured against a performance management framework that sets out how progress will be evaluated using metrics that are appropriate, timely and provide an accurate picture of the impact of the FRDC's investment. The framework aligns reporting and evaluation with the FRDC's statutory obligations.

#### **Responsible ministers**

The portfolio Minister for Agriculture is the Hon. David Littleproud MP and the Assistant Minister is Senator the Hon. Jonathon Duniam (Fisheries, Forestry and Regional Tourism).

#### Stakeholders

The FRDC works with a diverse and geographically dispersed collective of stakeholders that share a connection and interest in fishing and aquaculture.

#### Representative organisations

The FRDC has four ministerially declared representative organisations.

- Australian Recreational and Sport Fishing Industry Confederation Inc., trading as Recfish Australia (representing recreational and sport fishers),
- Commonwealth Fisheries Association (representing commercial fishers operating in Commonwealth waters),
- National Aquaculture Council (representing the aquaculture industry),
- Seafood Industry Australia (representing the seafood industry).

The FRDC also involves the Indigenous Reference Group and the Australian Recreational Fishing Foundation in all representational organisation activities.

More broadly the FRDC works with members of commercial wild-catch, aquaculture, recreational, Indigenous and post-harvest sectors, fisheries managers, researchers, non-government organisations and the Australian community.

# **FRDC Funding Agreement**

Australia's rural RDCs are the mechanism by which primary producers and the government co-invest in RD&E for industry and community benefits. This partnership between industry and government is reflected in joint funding and in input to RDC priorities and planning processes.

The Australian Government has previously entered into agreements with the RDCs which are industryowned companies as a means to define and govern aspects of their relationship. The Parliament of Australia has legislated to require similar negotiated agreements between the Australian Government and the statutory RDCs.

The Funding Agreement established under the PIRD Act requires establishment of necessary accounting systems, procedures and controls in accordance with the PGPA Act and the Funding Agreement, including a cost allocation policy. The FRDC's Cost Allocation Policy sets how to allocate direct and indirect costs across the FRDC's research and development and marketing programs. The Policy is available from the website—www.frdc.com.au

Review of the performance of all RDCs is important to ensure accountability and help foster a culture of continuous improvement. The agreement between the government and the FRDC establishes a framework for periodic, independent reviews.

# Investment strategy—a balanced research investment approach

The FRDC aims to spread its investment in RD&E across the whole value chain of the commercial fishing and aquaculture industry, and for the benefit of both Indigenous and recreational fishers.

The FRDC will, in line with its RD&E Plan 2015–20, and Statutory Funding agreement invest in:

- a balanced portfolio of projects (type, length and risk),
- outputs (project milestone and report),
- three priority areas and five programs (Environment, Industry, Communities, People and Adoption),
- outcomes (benefit cost analysis).

All R&D or RD&E plans (FRDC, sector and jurisdictional) need to demonstrate how they achieve a balanced portfolio of investment. RD&E investments are regularly assessed to ensure the FRDC maintains a balanced portfolio that meets the needs of its stakeholders, including the Australian Government and the Australian community.

The portfolio is monitored through the FRDC's project management system which is based on the key metrics above to inform future investment decisions and ensure a balance is maintained. The FRDC ensures funding applications are developed and reviewed by the RACs in line with broader portfolio requirements. A breakdown of investment for the past year can be seen on pages i–iv.

The FRDC seeks to achieve maximum leverage from its investments by providing research administration and services using a value-adding model. Research projects have input provided by the FRDC during their development and assessment phase in order to decide on a specific outcome which is then actively managed and monitored.

### Cost allocation policy

The Board, as the accountable authority, is required by the PGPA Act to establish and maintain systems of risk and control to create an operating environment that promotes the proper use and management of public resources, in pursuit of both the public good and the purposes of the entity for which it is responsible.



# Future strategic planning

Two key documents drive the FRDC's future strategy, operations and investment. These are the FRDC's R&D Plan 2020–25 and FRDC's Annual Operational Plan (AOP). Both documents aim to help deliver the Fish Forever 2030 Strategy (currently in draft and will form a foundation for the Australian Government's National Fishing Plan). Progress and achievements are detailed in each year's annual report (AR).



The 2020–21 AOP will be the first of five that will drive the investment for the R&D Plan 2020–25. Each AOP will build on and be informed by previous investment. The proposed approach towards implementation promotes innovation aimed at growing Australia's fishing and aquaculture sectors. This includes increasing production from the same resources and embracing principles that underpin the circular economy. Investment by the FRDC also aims to better enable the commercial fishing and aquaculture sectors to make greater contributions towards the Government's target of agriculture being valued at \$100 billion by 2030.

#### New R&D Plan-new focus

On 1 July 2020, the FRDC's R&D Plan 2020–25 commenced. The Plan 2020–25 was developed through a comprehensive process of environmental scanning, consultation and analysis. The R&D Plan considers key national initiatives such as the National Marine Science Plan, the Government's target to grow Australian agriculture to \$100 billion by 2030 and a draft shared vision for all sectors of fishing and aquaculture entitled "Fish Forever: A shared 2030 vision for Australia's fishing and aquaculture community". It also recognises key international plans and obligations such as the United Nations Sustainable Development Goals.

The plan focuses on five R&D outcomes, supported by five enabling strategies that build capability and provide foundational support to the delivery of the outcomes.

The FRDC will continue to invest in the delivery of outputs and impacts to achieve the R&D outcomes. However, how that investment is made (procurement/selection and contracting) will be determined by the type of activity. It will focus on ensuring the highest level of probity while providing agility in responding to the ever-changing environment faced by fishing and aquaculture in Australia.

Few challenges are ever without opportunity. The focus of R&D Plan 2020–25 is to meet these challenges, respond and wherever possible capitalise on them. The FRDC will work with stakeholders to ensure existing partnership and engagement structures (such as Industry Partnership Agreements) are best able to provide the insight on priorities and assist the FRDC in responding to issues and take full advantage of opportunities when they arise.



FIGURE 1: THE FRDC'S R&D PLAN 2020–25: FIVE OUTCOMES (WHITE CIRCLES) SUPPORTED BY FIVE ENABLING STRATEGIES.

# **Relationships with stakeholders**

The FRDC works with diverse and geographically dispersed groups who operate or interact with fishing and aquaculture stakeholders. Some of these relationships are driven by a shared vision of working to address issues of concern, with some reinforced through mandate or legislation.

To meet and deliver on these needs the FRDC Board and staff normally visit locations where they can engage directly with those involved in fishing and aquaculture and see issues firsthand. However, this year COVID-19 made it difficult to do this. FRDC is committed through formal policy to:

- treat stakeholders courteously and professionally,
- provide them with quality service,
- respond to written enquiries within 10 working days of receipt by the FRDC,
- return telephone calls by the close of business on the following day at the latest,
- provide information that is current and accurate.

Engaging with stakeholders plays an important part of the work program for FRDC staff members. Over the course of a year, the FRDC aims to meet with its key stakeholders and participate in discussions on priorities, investment and related issues.

This year the FRDC engaged with stakeholders to develop the new R&D Plan 2020–25. The journey to develop the new R&D Plan took 18 months and included research, discussions, deep thinking, conflict, resolution, prioritisation, awareness raising and many meetings. Key activities included:

- Establishment of two national groups of leaders and innovators from across each of the five fishing and aquaculture sectors, management agencies including representatives of DAWE, researchers, and representatives of conservation non-government organisations to co-design elements of the plan.
- Engagement of these groups over several workshops to undertake system mapping, scenario development, and analysis.
- Integration of broader stakeholder input through the FRDC's annual stakeholder planning workshop held in Adelaide during September 2019, and regional workshops held in Brisbane, Melbourne and Perth during September/October 2019.
- Regular stakeholder updates were provided in FRDC's stakeholder briefings and FISH magazine.
- Comments were invited from a range of stakeholders including:
  - FRDC representative bodies throughout the plan's development,
  - directors of fisheries agencies from each jurisdiction through the Australian Fisheries Management Forum,
  - research providers through the national Research Provider Network,
  - broader input was also invited through publication of the draft plan and an accompanying survey on FRDC's website in March 2020.

### **Research Advisory Committees**

The FRDC supports a network of Research Advisory Committees (RACs)—one covering Commonwealth fisheries and one in each state and the Northern Territory. The RACs play an important role in delivering on efficient, effective planning and investment processes, and the development of project applications. The FRDC works to ensure a majority of research funding applications are submitted through, reviewed and prioritised by the RACs. The RACs represent all fishing and aquaculture, fisheries managers and researchers, and most have environmental and other community interest representation.

Commonwealth	Peter O'Brien
New South Wales	Peter Dundas-Smith
Northern Territory	Rik Buckworth
Queensland	Cathy Dichmont
South Australia	Don Plowman
Tasmania	lan Cartwright
Victoria	Peter Rankin
Western Australia	Brett McCallum

The RAC Chairs at the end of 2019–20 were as follows.

For further information on the RACs go to www.frdc.com.au

#### Industry partners

The FRDC has continued its close relationship with seafood industry sectors. Industry Partnership Agreements (IPAs) are a key part of the FRDC business because they provide individual sectors with greater certainty for long-term investment against their RD&E plans.

Each IPA develops a RD&E plan containing its specific priorities, from which it determines the focus of its annual call for applications. The RD&E strategic plans for the IPAs can be found on their individual webpages—frdc.com.au/Partners/Industry-Partnership-Agreements. These RD&E plans and priorities form the basis of investment for the coming financial year. During the year the FRDC has IPAs with the following organisations:

- Abalone Council Australia,
- Australian Abalone Growers Association,
- Australian Barramundi Farmers Association,
- Australian Council of Prawn Fisheries,
- Australian Prawn Farmers Association,
- Australian Southern Bluefin Tuna Industry Association,
- Oysters Australia,
- Pearl Consortium,
- Southern Fisheries,
- Southern Rocklobster Limited,
- Tasmanian Salmonid Growers Association,
- Western Rock Lobster Council.

### Australian Government

The Minister for Agriculture and the department provide the key priorities that need to be addressed from an Australian Government perspective. The department acts as the day-to-day policy intermediary between the offices of the Minister, Assistant Minister and the FRDC.

### Australian Fisheries Management Forum

The Australian Fisheries Management Forum (AFMF) is attended by the heads of the Commonwealth, state and territory government agencies responsible for management of fisheries and aquaculture. The AFMF discusses issues relating to fisheries and aquaculture management.

The FRDC understands that adoption of research outputs by management agencies is a key to optimising management outcomes. It will continue to work with the AFMF, participating as an invited representative to its meetings, providing advice and ensuring the AFMF's priorities are incorporated into planning and prioritisation processes.

### Rural research and development corporations

The FRDC continues to partner with other RDCs on a range of activities to enhance joint strategic outcomes. The FRDC attends meetings of the CRRDC, as well as meetings of executive directors, business managers and communications managers. It continues to be an active member of these groups driving a number of key areas in particular the CRRDC evaluation program.

The FRDC also partners and participates with other RDCs at the project level. A key area for collaboration has been the R&D for Profit Program and projects in which the FRDC is a co-investor. The FRDC has assisted in coordinating sponsorship and participation in events such as EvokeAg, ABARES 'Outlook' conference and individual projects on data, safety and community perceptions.

### **Research partners**

Investment in research is the FRDC's core business. As a result, it is vital to the FRDC's success that good relationships are built and maintained with its research partners. In any given year, the FRDC will have over 400 active projects under management.



#### TABLE 14: EXAMPLES OF STAKEHOLDER COLLABORATION

	Project/activity	Brief description	Partners
Collaborating on cross- sectoral issues	Rural Research and Development for Profit Program: Natural Capital Accounting	Natural capital is the soil, air, water and biodiversity—the natural resources used for food and fibre production. This project seeks to determine whether natural capital accounting could support decision making and drive better productivity of primary industries, which depend on natural capital.	Forest and Wood Products, Cotton RDC (CRDC), NSW Department of Primary Industries (NSW DPI), Commonwealth Scientific and Industrial Research Organisation (CSIRO), Ecological Australia, HVP Plantations, VicForests, Australian Bureau of Statistics, Bureau of Meteorology, OneFortyOne Plantations.
	Community Trust in Rural Communities	Research program to build the capacity of food and fibre industries to productively engage with the community with the aim of building community trust.	AgriFutures, Australian Pork Limited, Australian Eggs, CRDC, Dairy Australia, Grains RDC (GRDC), LiveCorp, Meat & Livestock Australia, Sugar Research Australia, National Farmers' Federation, NSW DPI, CSIRO, Seftons.
	People development	FRDC invests with other RDCs in a range of people development areas (e.g. safety education through Primary Industries Education Foundation Australia), leadership through Nuffield Australia and the Australian Rural Leadership Program that build capacity, encourage partnerships and learning across rural industries.	All RDCs and multiple rural bodies.
	National Marine Science Plan (update)	FRDC is on the Executive of the National Marine Science Committee (NMSC) which comprises more than 40 organisations. The NMSC oversees more than \$1 billion of public investment in marine science.	Forty plus organisations including CSIRO, Integrated Marine Observing System, Bureau of Meteorology, Australian Navy, Greening Australia, Department of Industry, Innovation and Science, DAWE, Great Barrier Reef Marine Park Authority, Australian Antarctic Division, University of Tasmania, James Cook University, South Australian Research and Development Institute (SARDI), Western Australian Marine Science Institution.

A list of acronyms/abbreviations used in this table are on page 179.

	Project/activity	Brief description	Partners
Collaborating on cross- sectoral issues (continued)	Status of Australian Fish Stocks	Assessment of 150 fish species status across eight jurisdictions into a national reporting framework. Delivers against United Nations Sustainable Development Goal 14 (Life below water)	NSW DPI, Victorian Fisheries Authority, Tasmanian Department of Primary Industries, Parks, Water and Environment (Tas DPIPWE), Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES), Western Australian Department of Primary Industries and Regional Development, Northern Territory Department of Primary Industry and Resources, SARDI, Queensland Department of Agriculture and Fisheries.
	International Coalition of Fisheries Associations	This group shares knowledge in fisheries and aquaculture from production to consumption with the goal of leveraging knowledge tools and having a consistent approach to emerging issues.	Canada, Denmark, France, Iceland, Japan, New Zealand, Norway, South American Fisheries Coalition, Spain, The Netherlands, United Kingdom, United States of America.
Extension and adoption	R&D Plan 2020–25	Engage across fishing and aquaculture sectors to coordinate identification and deliver of collective activities in pursuit of shared 2030 vision.	All stakeholders. Key include representative organisations, managers and researchers.
	National RD&E Seafood Industry Safety Initiative	The initiative is a cross stakeholder partnership to enhance adoption of work health and safety best practice through industry focused extension. This includes industry- led Safety Roadshows, 'Fish Safe Australia' website.	Seafood Industry Australia, Australian Maritime Safety Authority, Austral Fisheries, AgriFutures, Australian Eggs, Australian Pork Limited, Australian Wool Innovation, CRDC, Dairy Australia, GRDC, Meat & Livestock Australia.
	Stock assessment toolbox	Project provides a strategic view of the framework Australia should adopt with respect to stock assessments. Develops a toolbox that makes stock assessment packages accessible, allows Australian assessors to contribute their models, and provides resources for their use.	Cathy Dichmont Consulting, CSIRO, NSW DPI, Victorian Fisheries Authority, Tas DPIPWE, ABARES, Western Australia Department of Primary Industries and Regional Development, Northern Territory Department of Primary Industry and Resources, SARDI, Queensland Department of Agriculture and Fisheries.

	Project/activity	Brief description	Partners
Future collaboration activities/ projects	Australian Agricultural Innovation Investment Company	Participation in the establishment of a new collaborative investment vehicle. The new entity (working title Australian Agricultural Investment Company) will identify nationally significant cross-sectoral opportunities for increasing the productivity and profitability of the agricultural supply chain, develop strategies to facilitate a collaborative approach to realising those identified opportunities, and will secure the necessary resources to then execute those strategies.	Led by Meat & Livestock Australia with a working group consisting of GRDC, CRDC, Australian Eggs, FRDC, Australian Pork Limited and Dairy Australia.
	Joint RDC Climate Initiative	The purpose of the RDC-led Climate Initiative is to deliver practical, implementable solutions for resource managers through innovative approaches that address climate change and its impacts.	Council of Rural Research and Development Corporations (CRRDC), all RDCs, CSIRO, DAWE. Led by CRDC and the working group of Dairy Australia, GRDC, Meat & Livestock Australia, CSIRO, DAWE, CRRDC.
	Smarter Regions Cooperative Research Centre (CRC)	The Smarter Regions CRC aims to empower regional Australia to gain the maximum benefit from the artificial intelligence (AI) revolution. It will transform existing industries and grow a technology sector in and for regional Australia.	Adelaide University, Sydney University, Wine Australia, GRDC and others. FRDC sector partnerships with Southern Rock Lobster Limited, Australian Council of Prawn Fisheries, Tasmanian Salmonid Growers Association, Australian Abalone Growers Association, Australian Prawn Farmers Association, Oysters Australia








REPORT OF OPERATIONS PART 2: THE FRDC'S OPERATIONAL RESULTS



## Inputs to output

The FRDC developed a flexible approach to how it funds projects to align with the principles of 'lead, collaborate and partner' in its RD&E Plan 2015–20.

This means projects can sit under the categories of:

- national priorities or infrastructure, collaboration or partnerships (sector or jurisdiction), or
- FRDC's five foundation programs (Environment, Industry, Communities, People, Adoption).

See Figure 3 on the following page.

#### How to read the project reports

To show where each project or activity story in this section of the annual report sits within the FRDC's investment framework, a code has been used as shown in the grid below. The grid shows the national priorities, infrastructure, collaboration or partnerships and FRDC's foundation programs. The purpose is to show that a single project can cross a number of fields. The coding also allows the reader to see how a project fits within the investment framework.

NATIONAL PRIORITY	INFRASTRUCTURE	PARTNER: Jurisdiction	PARTNER: Industry	COLLABORATION
ENVIRONMENT	INDUSTRY	COMMUNITIES	PEOPLE	ADOPTION

For example, FRDC's investment in the SAFS reports is funded under national priorities and collaboration but is also coded against FRDC programs—Environment, Communities and Adoption.

NATIONAL PRIORITY	INFRASTRUCTURE	PARTNER: Jurisdiction	PARTNER: Industry	COLLABORATION
ENVIRONMENT	INDUSTRY	COMMUNITIES	PEOPLE	ADOPTION



resources.



## FRDC NATIONAL PRIORITIES

# Priority 1. Ensuring that Australian fishing and aquaculture products are sustainable and acknowledged to be so

#### Strategy

Continue to prioritise investment in RD&E that contributes to the sustainability of fishing and aquaculture, including consideration of target species; bycatch species; threatened, endangered and protected species; and the broader marine environment.

Build understanding of the drivers of social licence to operate and respond to community concerns and needs for information with science-based evidence.

#### **Principal inputs**

During 2019–20, there was \$1.34 million or around 4.6 per cent of the total R&D investment for this priority.

Priority area activities	Portfolio Budget Statement (PBS) target 2019–20	Achievement
Perception of the commercial fishing	Perception of	The most recent survey of community
industry increased from 28% to 40%	industry increases	perception (June 2019) shows that 46%
by 2020.	to 36%.	believe the industry is sustainable. Results
		are available from www.frdc.com.au

Target	2016–20	Performance
The number of species in the national Status of Australian Fish Stocks (SAFS) reports increases to include 200 species.	In 2016 the target was 114 species. In 2018 (160 species). In 2020 (200 species).	Not achieved. One hundred and twenty species covering 406 stocks were assessed in the 2018 SAFS. The 2020 SAFS will contain 150 species. In addition, the FRDC delivered a Shark Report Card that covered and assessed 194 species comprising 199 stocks, of these 124 stocks were assessed to be sustainable at current levels of fishing.
The number of species classified as 'undefined' is reduced from the 2016 figure of approximately 30% to less than 10%.	In 2016 (~30%). In 2018 (~20%). In 2020 (<10%).	Not achieved. Current levels indicate undefined rates at 13%. Workshops have been undertaken in all jurisdictions to increase the use of methodologies to further reduce the number of 'undefined' species (Project number 2017-102: Reducing the number of undefined species in future Status of Australian Fish Stocks reports: Phase two—training in the assessment of data-poor stocks).
Positive perceptions of the commercial fishing industry increase from 28% to 40% by 2020 as measured through independently commissioned FRDC stakeholder surveys.	In 2016 (28%). In 2017 (30%). In 2018 (34%). In 2019 (36%). In 2020 (40%).	Achieved. The number of respondents who believe the community perception of the Australian fishing industry (as a whole) is sustainable is 46% in community perceptions survey.

The following table shows progress in achieving the deliverables in the FRDC's RD&E Plan 2015–20.

## Five-year review of priority 1

**Priority 1 aim**: By 2020, the community has effective access to, and understanding of, RD&E that supports fishing and aquaculture sustainability and informs improved perceptions of Australian seafood.

This priority aimed to not only underpin the sustainability of Australia's fisheries through good R&D investment but also to increase awareness and inform community perceptions—a key metric for the priority. It is fair to say the FRDC exceeded expectations in these regards with community perceptions growing from 24 per cent for the commercial fishing industry and 40 per cent for all fishing and aquaculture in the 2015 survey, up to 37 per cent for the commercial fishing industry are available from www.frdc.com.au

A significant body of work was done to achieve the aim including the release of three SAFS reports which saw around 90 per cent of the fish caught in Australia assessed, with a majority rated as sustainable. A key indicator was reducing the number of undefined stocks to less than 10 per cent of the total. Considerable work was undertaken with jurisdictions to review and access data and to minimise the number of undefined or unclassified fish stocks which has seen the number drop from 29 per cent in the 2014 report down to 13 per cent in the 2018 SAFS.

Following the 2016 edition, the FRDC and the SAFS advisory working group conducted a review aimed at improving future editions. Changes were made around stock status classification categories: the 'environmentally limited' classification was removed, the 'overfished' classification was replaced by 'depleted', and transitional stock categories became 'recovering' and 'depleting'.

The SAFS reports not only provide a solid picture of the status of fish stocks assessed, but they have also harmonised approaches between jurisdictions.

## Smartphone app for fish stocks

Another positive output was developing phone apps for both Google Play and Apple. The apps were designed to allow consumers to easily browse the information in the SAFS reports. The app makes the information on the status of Australia's commercial fish species more accessible, distilling information from the SAFS reports into clear language appropriate to a lay audience.

Search SAFS Sustainable Fish Stocks in the Google Play Store (for Android) or the Apple App Store (for iPhone) now or visit https://www.fish.gov.au/app

# Examples of project activity during the year

## Tuna story to inspire new generation of fishers

#### Project 2017-09

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NATIONAL PRIORITY	INFRASTRUCTURE	PARTNER: Jurisdiction	PARTNER: Industry	COLLABORATION
ENVIRONMENT	INDUSTRY	COMMUNITIES	PEOPLE	ADOPTION

The remarkable story behind the recovery of Southern Bluefin Tuna from an endangered species to a globally sustainable fishery is told in a recently released Australian documentary.

The combined efforts of Australian science, industry innovation and community education have been showcased in the documentary 'Life on the line—The story of the Southern Bluefin Tuna', which tells the story of how these highly prized, temperate ocean dwellers were brought back from the brink of commercial extinction.

Produced and narrated by photojournalist and ardent fisher AI McGlashan, the documentary tells of how the Southern Bluefin Tuna (SBT) (*Thunnus maccoyii*) stocks went into freefall due to overfishing and how the fish was rescued from its near demise. It also explains how the strategies and science that saved the SBT now stand as a sustainability model for fisheries worldwide.

Life on the line provides an engrossing insight into this warm-blooded marine species and its decadelong lifecycle that sees it reaching 200 kilograms and two metres in length by the time it has traversed the Southern Ocean. The film details the commercial pressures that decimated the SBT population and the extraordinary individuals who led its recovery, in the process creating a new, sophisticated industry worth more than \$100 million annually in Australia alone.

The documentary was funded by the Australian Government through the Australian Fisheries Management Authority (AFMA) and the FRDC, both of which were instrumental in the SBT success story, along with the CSIRO.

Two technological developments were particularly critical in the recovery of the species. First, Australia's SBT fishers took the lead in developing a new approach, learning how to catch juvenile fish to grow them out in ocean pens off the coast of Port Lincoln, South Australia. The fishers became farmers.

> The second was the advent of genetic 'fingerprinting' and satellite tagging for population monitoring and management. Given SBT begin life in waters off Java and north-west Australia before they traverse the Southern Ocean beneath Australia and South Africa, these technologies remain crucial for setting evidence-based quotas that are now respected by all countries and markets with commercial interests in the species.

## The beginning

The SBT story starts in the early 1980s when the species' red meat was so prized in markets such as Japan—which consumes 80 per cent of the global catch—that a single fish could fetch tens of thousands of dollars. But this boom time for fishers was followed quickly by diminishing catches. By the time the market was peaking, the SBT population was already in terminal decline.

At the time, Japan was still catching more than 40,000 tonnes of SBT a year and Australia about 21,000 tonnes, but the population was estimated to be at barely five per cent of 1960s levels.

Something drastic needed to be done and Australia took a leading role in setting up the Commission for the Conservation of Southern Bluefin Tuna. The commission allowed the three main catching countries, Japan, Australia and New Zealand, to manage the fishery cooperatively.

#### Data gathering

Without access to any reliable population data, the three countries estimated that a combined annual catch of 11,750 tonnes would allow stocks to recover. Instead, stocks kept falling. By 2004, the situation was critical and perplexing. A United States scientist on the conservation commission said it was clear that the quota was not being adhered to.

Confident in the records being kept by Australian fishers, Glenn Hurry arranged for a team led by Southern Australian Bluefin Tuna Association Chief Executive Officer Brian Jeffriess to visit Japan and calculate how much SBT was being sold.

The numbers finally started to make sense and they gave fisheries management data that would allow a scientifically based approach to getting the fishery back to a biologically safe level. Critically, Australia resisted calls to close the fishery, arguing it needed to be kept open to help fund the necessary research.

This also gave the Port Lincoln-based industry the impetus to rethink its entire operation.

## **Collaborative action**

The answer the industry came up with was tuna farming, but no one had ever before attempted to 'ranch' wild SBT, an apex ocean predator that has to swim its body length every three seconds to stay alive.

The technique developed was to net juvenile tuna in the ocean, then tow them to inshore pens that are large enough and deep enough to allow the young fish to grow under free-range conditions until ready for harvest. Feeding the penned tuna also led to the development of a massive industry supplying locally caught pilchards, the tuna's natural food in the wild.

The need to collaborate is one lesson learned, says Al McGlashan, and the other is the critical role of science. The documentary highlights, in particular, the research undertaken by the CSIRO in Hobart and by the Institute for Marine and Antarctic Studies (IMAS) at the University of Tasmania.

Principal CSIRO research scientist Richard Hillary has been monitoring SBT populations through an advanced mark and recapture model. This uses each tuna's unique genetic 'fingerprint' for an identify-and-release program.

The technology takes advantage of high-throughput robotic DNA sampling adapted from human diagnostics and is able to compile a database of tens of thousands of fish. This is supplemented by satellite tagging of a representative sample of fish as they round the south-east corner of Australia.

The resulting population database enables an evidence-based approach to setting quotas. It has also facilitated a community education push that has seen recreational SBT fishers, too, become a part of the overall SBT research and management effort.

Principal investigator with IMAS Sean Tracey says recreational fishers and game fishing operators have become champions of SBT, with some also being involved in tagging as part of an increased emphasis on catch-and-release. With the recreational sector operating in different areas to commercial fishers, this wider community engagement has significantly extended researchers' coverage.

Al McGlashan believes the SBT recovery is an inspiring story that should be known in the wider community for the lessons learned and for creating a shared sense of responsibility towards what he describes as an iconic marine species. SBT is officially assessed as 'recovering' in the SAFS reports.

To view the movie https://www.youtube.com/watch?v=hjdb1AVUnVI&feature=youtube

## New guides to future fisheries

#### Project 2016-234, 2015-203, 2015-208, 2010-061

For further information: James Larcombe, james.larcombe@agriculture.gov.au and Alistair Hobday, alistair.hobday@csiro.au

NATIONAL PRIORITY	INFRASTRUCTURE	PARTNER: Jurisdiction	PARTNER: Industry	COLLABORATION
ENVIRONMENT	INDUSTRY	COMMUNITIES	PEOPLE	ADOPTION

Conversations around the sustainability of Australian fisheries have come a long way since the status of individual species was singled out as the primary indicator of performance. From a single species, to multi-species fisheries, bycatch, habitats and now even the performance of fisheries managers themselves—all of these have come under scrutiny as fisheries management continues to evolve.

New guidelines released in November 2018 are part of this increasingly integrated approach, adding to the rigour of Australia's Commonwealth fisheries management processes. They provide an evidencedriven approach that could also provide value in other fisheries jurisdictions around Australia. They are:

- Guidelines for the implementation of the Commonwealth Fisheries Harvest Strategy Policy,
- Guidelines for the implementation of the Commonwealth Fisheries Bycatch Policy.

The first of these, the revised Harvest Strategy Policy guidelines, was co-funded by DAWE and the FRDC, and is a companion to the updated *Commonwealth Fisheries Harvest Strategy Policy*. The originals of both these harvest strategy documents were released in 2007.

#### Harvest strategies

In the Commonwealth, harvest strategies are a set of pre-agreed rules designed to achieve defined biological and economic objectives for commercial fish stocks in a given fishery.

The key biological objective in the policy is to maintain with high confidence all fish stocks above a biomass limit where the risk to the stock is regarded as unacceptable (the biomass limit reference point).

The primary objective was to maximise economic returns from each fishery. It formally introduced maximum economic yield as the target for Commonwealth fisheries management.

Since the introduction of the first *Commonwealth Fisheries Harvest Strategy Policy* in 2007, overfished or depleted stocks have been rebuilding. No fish stock solely managed by the Commonwealth has been classified as subject to overfishing since 2012. The value of Commonwealth fisheries has seen improvements over the same period.

James Larcombe says these results, and the generally positive feedback from stakeholders, pointed to the success of the original Harvest Strategy Policy and guidelines. But following an extensive review, the second edition of the Policy have been updated to incorporate more than a decade of new fisheries science and experience in implementing harvest strategies along with feedback from stakeholders.

Some key changes include the application of the policy to by-product species, more direction on meeting environmental and economic objectives in multi-species fisheries, additional clarity around internationally managed fisheries, and guidance on applying harvest strategies under changing environmental and climatic conditions.

"In this edition of the guidelines we have also really focused on how to design harvest strategies that target maximum economic returns across the wide range of fisheries that AFMA [Australian Fisheries Management Authority] manages," James says. "For example, in the valuable Northern Prawn Fishery, harvest levels are determined from a complex bioeconomic model designed to maximise future profits across four different species.

"In the guidelines we also suggest approaches that are suitable for smaller, lower value fisheries, and other kinds, that seek to balance the costs of implementing a harvest strategy while at the same time delivering on the policy requirements for sustainability and profitability."

#### Proactive management

Australian management agencies have been on the front foot for many years when it comes to managing for, and demonstrating, the sustainability of fisheries. While many countries have a harvest strategy; Australia is one of the few that has a bycatch policy as well.

The Guidelines for the implementation of the Commonwealth Fisheries Bycatch Policy, which supports the Commonwealth Fisheries Bycatch Policy were originally developed in 2000.

Key revisions in the policy include improved guidance on species classification and policy coverage for all species, and the inclusion of a risk-based approach to monitoring, assessing and managing bycatch. There is consideration of cumulative impacts on bycatch species, and a performance monitoring and reporting framework is also provided.

The bycatch guidelines provide impetus to improve data collection to help fishers demonstrate that they are meeting the obligations. This was identified as a gap in existing practices, and has reinforced the need for cost-effective and smart data collection through technologies such as electronic monitoring and digital logbooks, which can provide fast, easy and accurate reporting, in near real time.

The development of the new bycatch guidelines was funded by DAWE.

#### More information

The Commonwealth Fisheries Harvest Strategy Policy and guidelines—http://www.agriculture.gov.au/fisheries/domestic/harvest\_strategy\_policy

The Commonwealth Fisheries Bycatch Policy and guidelines—http://www.agriculture.gov.au/fisheries/ environment/bycatch/review

The Best practice guidelines for Australian fisheries management agencies is available from—http://www.frdc.com.au/media-publications/fish/FISH-Vol-27-2/New-guides-to-future-fisheries.



## FRDC NATIONAL PRIORITIES

# Priority 2. Improving productivity and profitability of fishing and aquaculture

#### Strategy

Invest in RD&E to understand the drivers of, and impediments to, productivity and profitability growth in all fishing and aquaculture sectors; research means of increasing sustainable production and profitability; link these to business education; encompass the needs of Indigenous communities.

## **Principal inputs**

During 2019–20, there was \$0.99 million or around 3.4 per cent of the total R&D investment for this priority. The following table provides a guide to progress in achieving the deliverables in the FRDC's RD&E Plan 2015–20.

Target	2016–20	Performance
Provide RD&E to support increased trade of fishing and aquaculture products into countries with free trade agreements by some 300%.	Three hundred per cent.	Achieved. Rocklobster and salmon are now exporting direct to China (estimated to be worth over \$600 million a year, up from \$56 million for these two species). Trade database is being utilised by industry. FRDC coordinated fishing and aquaculture input into the development of European Free Trade Agreement.
Understand the quantity of potential production from Australia's fishing and aquaculture resources.	One report completed on quantity of potential production from Australia's fishing and aquaculture resources.	Achieved. Project 2016-056 measured Australia's wild-catch production potential at 293,500 tonnes, a substantial increase on the 166,000 tonnes caught in 2016–17.

Target	2016–20	Performance
Increase knowledge to improve the utilisation of fisheries resources by Indigenous Australians.	Two reports completed.	Achieved. Indigenous Reference Group (IRG) undertaking scoping project to collect Indigenous catch data. IRG undertaking work to extend the knowledge of R&D undertaken over past five years.
Increase knowledge to identify obstacles and opportunities to increase productivity through habitat.	Two reports completed.	Achieved. National Habitat Strategy completed (Project number 2015-501 Recfishing Research Subprogram: Empowering recreational fishers as champions of healthy fish habitat). New project initiated to undertake social and economic assessment of the value of recreational fishing.

## Five-year review of priority 2

**Priority 2 aim**: By 2020, deliver RD&E for fishing and aquaculture to increase productivity and profitability consistent with economic, social and environmental sustainability.

This priority focused on improving the productivity and profitability of the seafood industry. This is a difficult area to assess at a micro level (every fisher or fishery), however at the macro level the gross value of production for the fishing and aquaculture increased from around \$2.5 billion in 2014–15 up to \$3.1 billion in 2018–19 before a marked reduction in 2019–20 (down to \$2.6 billion) because of COVID-19. It is important to note, should COVID not have happened the value of fishing and aquaculture was expected to increase to around \$3.4 billion. Overall, most industries improved their positions during the five-year RD&E plan period. This combined with a better community perception is a good outcome for fishing and aquaculture.

FRDC project 2016-056 measured Australia's wild-catch production and found there was a far greater potential national catch (see project overview on following page).

The FRDC's Indigenous Reference Group (IRG) initiated the project 'Building the capacity and performance of Indigenous fisheries', released in June 2018, which analysed seven initiatives across six fisheries jurisdictions. The project found that fishery assets contribute only a small amount to the total economic wellbeing of Indigenous communities. Communities vary greatly in their understanding of their fishery assets and in their engagement with, access to and use of marine or freshwater fishery resources. As part of the project, seven case studies were developed with

community participants about actual or proposed fishery initiatives to identify processes that have worked and potential barriers to be overcome. The project identified six attributes for an Indigenous fisheries venture that provide a sound foundation for success. The IRG continues to work on this issue, extending the knowledge and assisting Indigenous communities to develop new opportunities

# Examples of project activity during the year

## Doubling up on wild fisheries

## Project 2016-056

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NATIONAL PRIORITY	INFRASTRUCTURE	PARTNER: Jurisdiction	PARTNER: Industry	Industry COLLABORATION
ENVIRONMENT	INDUSTRY	COMMUNITIES	PEOPLE	ADOPTION

In recent years, Australia's wild-harvest fisheries have averaged a yield of 166,000 tonnes, a decline of almost 30 per cent on our 'peak fish' production. That was in 2004–05, when 236,000 tonnes were harvested. While some fisheries continue to attribute the reduction in yields to dwindling fish stocks, there has been a substantial investment in fisheries research and management over more than a decade to ensure this is not the case.

#### More fish in the sea

Researchers undertaking a FRDC-funded project identified that current fished stocks, rebuilt to the baseline where necessary, could allow for double the current harvest, which would set a new peak for the industry.

The project team, led by the CSIRO, included fisheries scientists from each jurisdiction, who calculated the maximum sustainable yield (MSY) for 290 fish species and stocks (as some species have multiple stocks). These species represented 84 per cent of the average national catch for the period (2014–15 to 2016–17).

This allowed the team to estimate what the biomass and sustainable harvest volume could be for each of these species. MSY was used as a consistent reference point for the calculations (not as a recommended target for fishing). In practice, some jurisdictions and species have different reference points, such as maximum economic yield (MEY).

The project used a three-year catch average as the basis for calculations, which also includes 27,000 tonnes of fish from stocks that were unable to be assessed as part of this project.

When researchers tallied the total MSY for the 290 species and stocks they were able to assess, it came to 345,000 tonnes compared to an actual catch of 139,000 tonnes of these species. That is an additional 206,000 tonnes, and a potential national catch of 371,500 tonnes.

Small pelagic species such as Australian Sardine, mackerels and redbait were big contributors to the potential increase, although, in practice, the total allowable catch set for these species is highly conservative. This reflects the role these species play in the ecosystem: they are the foundation of the food chain for many ocean species, including birds and mammals.

Recognising this, the researchers also recalculated the potential national catch using the current total allowable catchs for the small pelagic species rather than MSY, adding this to the MSY total for the other assessed species.

This reduced the potential national catch by 78,000 tonnes to 293,500 tonnes, still a substantial increase on the 166,000 tonnes caught in 2016–17.

The project did not consider any changes to fish biomass that might result from climate change, nor the development of any new fisheries or harvesting of other products, such as seaweeds. It was also based on all fish stocks being above a reference point that achieves MSY, including some species that are not currently assessed as sustainable, such as Snapper (South Australia) and Blacklip Abalone (Central Western Zone, Tasmania), which will need to rebuild their populations.



## FRDC NATIONAL PRIORITIES

# Priority 3. Developing new and emerging aquaculture growth opportunities

### Strategy

Identify research constraints to industry growth—such as potential markets, cost of production, survival, deformities and uniformity of growth—and invest in RD&E to identify opportunities for successful and competitive commercial activity.

## **Principal inputs**

During 2019–20, there was \$0.8 million or around 2.8 per cent of the total R&D investment for this priority.

Priority area activities	PBS target 2019–20	Achievement
Advance two or more new or emerging aquaculture opportunities/species for which RD&E has identified clear opportunities and technologies for good production and profitability growth, as measured by increases in harvest tonnages.	Two thousand tonnes of additional production.	Achieved. While national government production statistics are not available (data privacy for producers in some jurisdictions) it is clear from company records that production has increased. Further, the three-year R&D for Profit projects on developing new white fish (Yellowtail Kingfish) was completed during the year and the project facilitates expansion. New leases allocated for an additional 48,000 tonnes of production.

## Five-year review of priority 3

**Priority 3 aim**: By 2020, deliver sufficient RD&E for significant commercialisation of at least two new or emerging aquaculture growth opportunities with demonstrated potential for profitable business operations.

This priority focused on growing the value of aquaculture. Again, the results over the five years were very positive. Key farming sectors such as Atlantic Salmon and Barramundi both increased production and value. The aquaculture sector also saw significant inflow of investment and expansion across all areas.

A signature investment for the FRDC was into further developing Yellowtail Kingfish. The goal was to put more Yellowtail Kingfish on more Australian dining tables, as a 'white flesh' fish option for domestic household consumption. Central to this has been the 'Kingfish for Profit' (K4P) research program which was cofounded with the Australian Government providing a \$3.65 million grant through the then Department of Agriculture and Water Resources Rural R&D for Profit program. Contributions from other partners including the FRDC brought the total project funding to \$7.3 million.

The research program has brought this consumption goal a step closer, improving both the production efficiency and profitability benchmarks of Yellowtail Kingfish aquaculture. At the beginning of the K4P project in 2016, national Yellowtail Kingfish production was estimated at about 1200 tonnes. The FRDC anticipated that this would increase to about 5000 tonnes by 2022, which industry is on track to deliver. By the end of 2018, as the project was winding up, production projections had increased along with allocations of potential farm sites. The independent benefit cost analysis for the project suggests that over a 15-year timeframe a \$17.20 benefit will be realised for every dollar invested in this program based on projections of 48,000 tonnes of Yellowtail Kingfish a year by 2030.

Additionally, towards the end of the RD&E Plan 2015–20 there was a new focus on farming species of oysters more suited to tropical climates. The research has led to developments in the north and west of Australia emerge, with significant investment and lease (water) space allocated. It is likely the investment undertaken will take several more years to complete and for the value and potential of the new oysters to be measured.

It is important to note that aquaculture while having expanding and increasing production still faced serious issues from disease. During the period two significant disease outbreaks occurred—White Spot Virus in prawns and Pacific Oyster Mortality Syndrome. Both of these required significant effort from all stakeholders (management agencies, researchers and industry) and this effort is now paying off with both prawns and oysters back on the road to recovery and expansion.

# Examples of project activity during the year

# Australian aquaculture is coming of age with increasing scale and diversity

#### Multiple project codes

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NATIONAL PRIORITY	INFRASTRUCTURE	PARTNER: Jurisdiction	PARTNER: Industry	COLLABORATION
ENVIRONMENT	INDUSTRY	COMMUNITIES	PEOPLE	ADOPTION

Aquaculture production worldwide has been growing at a rate of almost 8 per cent a year for the past decade—growth that is expected to continue at a similar rate for many years to come, to support the world's increasing food protein needs.

In Australia, growth has been less rapid, averaging about 4.3 per cent a year for the decade to 2017–18, but is still rising with increasing demand for seafood and the influence of food media, such as *MasterChef*. Popular programs like this have increased consumer awareness of seafood provenance, sustainability, quality and traceability—all strengths of aquaculture.

While the sector accounted for 36 per cent of Australia's total seafood production in 2017–18, this represented 44 per cent of the value: 97,406 tonnes worth \$1.41 billion from the total seafood production of 271,133 tonnes worth \$3.2 billion.

It is clear that aquaculture will continue to be the driving force for growth in Australian seafood and has been a significant focus for the FRDC, forming a large part of its submission to the \$100 billion Australian agriculture inquiry. In developing its submission, the FRDC also developed a data analysis tool to predict future GVP volume.

While this overview of activity builds on the two previous aquaculture forecasts the FRDC has written, it only focuses on the major sectors. Over the next 10 years, development is also likely to occur for new and emerging species including seaweed, Cobia, Queensland Grouper and tropical oysters.

#### Atlantic Salmon

Tasmania's Atlantic Salmon industry is Australia's most valuable seafood sector—wild or farmed—with 58,000 tonnes produced in 2018–19, worth \$833 million.

Having doubled production during the past decade, the industry has exceeded its own expectations. Last year it revised its 2030 target from \$1 billion in value to \$2 billion.

Extensive marketing and product development have seen Atlantic Salmon become Australia's most popular seafood. Stringent biosecurity measures protecting Tasmania's salmon industry from external and internal disease threats have enabled them to reliably supply a high-quality product to domestic and international markets.

The Tasmanian Government continues to provide support for the industry, which is the largest agrifood contributor to the state's economy. In 2017 the government released the *Sustainable Industry Growth Plan for the Salmon Industry* as part of major management reforms, streamlining processes and introducing additional steps to provide greater public and industry certainty.

This includes detailed mapping of areas suitable for expansion, as well as 'no go' zones, and also a commitment to deeper ocean sites, potentially outside state waters. The United Nations Food and Agriculture Organization believes that deep-ocean aquaculture, producing both plant and animal food products, will be a major global food resource for the future.

The Australian Government, which manages Commonwealth waters outside three nautical miles, outlined the need for legislative reform in its *National Aquaculture Strategy*. This is likely to include an amendment to the *Commonwealth Fisheries Management Act 1991* to allow individual jurisdictions to extend their existing aquaculture regulations to adjoining Commonwealth waters.

In preparation for aquaculture in offshore waters, the Atlantic Salmon industry (both here and overseas) is working to develop pens specially designed for highenergy wind and wave conditions of exposed ocean sites.



## Prawns

Prawn farming has had a turbulent couple of years with the outbreak of White Spot Disease in 2016. The outbreak severely impacted the farms located in southern Queensland and resulted in a drop in production for the sector from 2016 to 2018, to about 4500 tonnes a year.

Over the next two to three years this volume is expected to double to about 10,000 tonnes. Further, larger increases are forecast out to 2025.

The disease outbreak has seen biosecurity and on-farm management become a major focus of efforts for prawn farmers (as it has for other aquaculture producers). However, it has not curbed the sector's enthusiasm, with many businesses looking to scale up and increase production.

## Barramundi

The Australian Barramundi Farmers Association (ABFA) says production by its members is also continuing to increase and reached 9000 tonnes in 2018–19.

National statistics to date have not reflected the full extent of production, as data from two of Australia's largest operators—Humpty Doo Barramundi in the Northern Territory and MainStream Aquaculture in Victoria—has been excluded under commercial-in-confidence provisions. But both companies have agreed to allow their production statistics to be included.

The ABFA is anticipating a major increase in production in the next five years, with a production target of 25,000 tonnes by 2025. Investment in the infrastructure to achieve this is already underway.

## Yellowtail Kingfish

Yellowtail Kingfish (YTK) farming has been evolving slowly in Australia for two decades. In 2016 YTK production was estimated at 1200 tonnes, and came almost solely from South Australia.

However, the recently completed \$7.3 million Kingfish for Profit (K4P) research collaboration, funded by DAWE and the FRDC, has helped to give production new impetus.

Fish producers, researchers and feed manufacturers came together in the three-year project, which has produced new findings on feed formulations, fish growth and water temperature that will help bring fish to market more efficiently and sustainably.

While predictions for the species' potential production have been large—upwards of 60,000 tonnes across Australia—production is more realistically expected to remain at much lower levels in the near future, with producers targeting the premium food service sector markets in Australia and overseas.

The limited number of producers means that YTK is also not included in national fisheries statistics, although estimates for 2019 are for more than 4000 tonnes.

## Other species

Despite Australia's aquaculture revolving around a small number of key species, other species such as Murray Cod, Silver Perch, Cobia, Queensland Groper are now also stepping up and continue to grow.



#### TABLE 15: AUSTRALIAN AQUACULTURE PRODUCTION AND PROJECTIONS

Species	2006–07	2017–18	Comments	2021–22
				projections
	tonnes	tonnes		tonnes
FISH		-		
Salmonids (Atlantic Salmon, trout)	25,253	61,413	Offshore farming is being established and will increase production, a counter to warming inshore waters, which reduce production.	75,000– 80,000
Southern Bluefin Tuna	7,486	8,000	No major increase likely; a slight increase in quota might allow more fish to be ranched.	9,000
Barramundi	2,590	5,668*	New farms and expansions on existing farms to increase production. * Does not include production from Northern Territory or Victoria.	12,000
Yellowtail Kingfish (YTK)	n/a	n/a	Existing and new aquaculture leases in Western Australia expected to increase YTK production in coming years. South Australia also ramping up production.	5,000
Murray Cod	n/a	266*	Production based in New South Wales (NSW) and Victoria. * Figure based on NSW production.	3,000
Other species	772	3,183	Totals include Silver Perch, Cobia, Queensland Grouper.	2,000
CRUSTACEANS				
Prawns	3,284	4,205	Expansions of prawn farms in the north are expected to increase production.	10,000
Other species	299	166	Stable but low production of yabbies, marron and Redclaw. New Moreton Bay Bug production underway.	250
MOLLUSCS				
Edible oysters	14,299	8,824	Pacific Oyster production recovering from Pacific Oyster Mortality Syndrome in Tasmania. R&D underway for tropical Blacklip Oysters.	15,000
Blue Mussels	3,145	3,781		5,000
Abalone	468	1,027		1,800
Pearl oyster	n/a	n/a	No figures provided because of limited commercial operators.	n/a
MISCELLANEOUS				
Other	n/a	873		5,000
Seaweed	n/a	n/a	Emerging aquaculture production.	5,000
TOTAL	57,596	97,406		148,050– 153,050

Source: FRDC and ABARES. n/a: Not available.



## FRDC NATIONAL PRIORITIES

## National RD&E infrastructure

The FRDC has four subprograms (Aquatic Animal Health and Biosecurity, Recfishing Research, Human Dimension Research and the Indigenous Reference Group) and one coordination program (Social Science and Economics Research Coordination).

The FRDC will continue to use the system of nation-wide groups and lead in these areas of RD&E. It will also lead in the areas of people development and service delivery.

#### **Principal inputs**

During 2019–20, there was \$3.44 million or around 11.9 per cent of the total R&D investment for this priority.

#### **Strategies**

- Continue to invest in leadership capacity building.
- Co-invest with partners in other areas of capacity building.
- Invest with universities in students to study marine science-specific topics relevant to the FRDC's stakeholders.
- Collect and analyse data to better understand the training needs of fishing and aquaculture.
- Partner in the development of research centres of excellence.

# Examples of project activity during the year

## Protecting the consumer

#### Project 2014-035

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NATIONAL PRIORITY	INFRASTRUCTURE	PARTNER: Jurisdiction	PARTNER: Industry	COLLABORATION
ENVIRONMENT	INDUSTRY	COMMUNITIES	PEOPLE	ADOPTION

Capacity has been built to protect New South Wales consumers of Spanish Mackerel from the southward migration of ciguatera fish poisoning. Ciguatoxins (CTXs), which are generated by certain species of marine micro-algae, are responsible for what is the most frequently reported fish-borne illness across the world's tropical regions—ciguatera fish poisoning (CFP).

But in Australia, an increasing number of people in subtropical regions have also started to be confirmed as suffering from CFP. Twenty years ago, CFP was unheard of in New South Wales, but the past two decades have seen at least 30 confirmed reports, with many more cases likely to be unreported. CFP symptoms include a combination of gastrointestinal and neurological symptoms, typically a reversal of hot and cold sensation, which can last from days to several months.

CTXs are produced by single-celled *Gambierdiscus* micro-algae, a warm water-loving species, and work their way up the food chain to accumulate in predatory, apex reef fish species. Confirmed cases of CFP in northern New South Wales relate mainly to the consumption of Spanish Mackerel, with some reports related to Redthroat Emperor and Purple Rockcod in 2015.

The southern movement of CFP cases may appear slight, but it marks deeper underlying ecological shifts that are not well understood. Shauna Murray is leading two new research projects that she hopes will help identify what is causing those shifts and what can be done to update fisheries management practices to protect seafood consumers.

An earlier project funded by the FRDC and the Sydney Fish Market helped establish a new marine biotoxin facility at the Sydney Institute of Marine Science (SIMS), along with sophisticated ciguatoxin testing capabilities.

The SIMS facility is crucial to the new research projects that aim to identify and map the biological and ecological factors causing CTXs in Spanish Mackerel in New South Wales.

The key outcome of the project was to determine whether guidelines used needed to be updated to exclude potentially CTX-affected fish from sale. Current guidelines restrict catches from known CTX-affected sites and also prohibit the catch of certain fish species over 10 kilograms, to reduce the likelihood that fishers or consumers will eat fish that have a bioaccumulation of the toxins.

NSW Government Food Authority CFP risk management and current catch guidelines are available from http://www.foodauthority.nsw.gov.au/rp/fish-ciguatera-poisoning



## FRDC NATIONAL PRIORITIES

## Collaborate

The FRDC will provide the means (incentives) so that sectors or jurisdictions may leverage funding where there is alignment between their RD&E priorities and those at the national level. This will encourage sectors to collaborate. Specific areas of RD&E such as people development, service functions and social sciences will be actively supported by the FRDC.

## **Principal inputs**

During 2019–20, there was \$3.44 million or around 11.9 per cent of the total R&D investment for this program.

The following table provides a guide on the progress the FRDC has made in meeting its output target.

Activity	Input	Comment
Incentive Fund	Invest \$360,000	The collaboration fund target was exceeded due to addition
	into collaborative	of external funds, such as the National Carp Control Plan
	projects.	which was deemed a collaborative program of activity.

# Examples of project activity during the year

## **Community Trust in Rural Industries**

## Project 2019-042

For further information: Virginia Johnstone, virginia.johnstone@seftons.com.au or Emily Ogier, emily.ogier@utas.edu.au

NATIONAL PRIORITY	INFRASTRUCTURE	PARTNER: Jurisdiction	PARTNER: Industry	COLLABORATION
ENVIRONMENT	INDUSTRY	COMMUNITIES	PEOPLE	ADOPTION

The FRDC is part of the Community Trust in Rural Industries collaborative project, run by AgriFutures Australia, and jointly funded by the rural RDCs.

The project aims to explore the issues around community trust in rural industries. It will examine the risks, threats, and/or opportunities for primary production based on the community's trust. The project will provide FRDC stakeholders with insights into similarities/differences between seafood and other rural industries, and where there may be opportunities to collaborate with other industries for improving trust and acceptance.

Year 1 research results are available from the project webpage—http://frdc.com.au/project/2019-042. Key messages from the first phase of the research include:

- Trust is important and offers producers the licence for innovation (to improve) and ultimately freedom to operate—but only when trust exists.
- The 'community' does not see Australian rural industries the way those who work in them do.
- Trust in rural industries is generally strong but levels of trust vary across the community and by industry.
  - Levels of trust in Australian fisheries and aquaculture industries are moderate compared with other rural industries.
  - Forty-three per cent trust Australian fisheries and aquaculture industries; 39 per cent don't know and 18 per cent don't trust.
- The research identified the three strongest drivers of the community's trust in rural industries as:
  - Environmental responsibility—having confidence that industries are using the land and sea in a sustainable, responsible way with minimal impact or damage, and not sacrificing the environment for profit.
  - **Responsiveness**—industry demonstrating that they are listening to, respecting and responding to community concerns and perspectives.
  - **Products of rural industries**—the community highly values the sector's outputs; from the nutrition they provide in the Australian diet to raw materials for Australian manufactured goods.

Priorities for industry to improve trust include:

- The community wants to know it is being heard and understood by rural industries and seeks ongoing reassurance that their concerns are being addressed. This requires industry to be responsive to community attitudes and to communicate any changes. The community does not expect industry to be faultless, but it does expect industry to proactively engage on areas of community concern, and in turn respond to breaking issues and crises quickly.
- There is opportunity for industries to respond productively and consistently. The research showed that one industry acting irresponsibly negatively affects the community's opinion of all rural industries. Having available guidance on best-practice approaches will empower industries to build trust in their own industries and in the sector.
- The community's main information sources are the internet, television news, television current
  affairs and social media. These channels can be used by industry to communicate action and engage
  directly with the community, particularly on those issues where large portions of the community
  were uncertain—such as whether rural industries listen to and respect community concerns,
  responsible water use and rural industries' waste products/run-off causing environmental damage
  to coastal areas.

An extra survey during COVID-19 found that levels of trust in Australian rural industries increased during this period, highlighting that community trust can be changed or that COVID-19 has demonstrated how important farmers and fishers are to the community—namely people need food.

Future research will focus on which industry strategies can improve trust in the longer term, with key topic areas including water use, animal welfare and food safety.

## **Building resilience in fisheries**

#### Project 2013-210

For further information: Renae Tobin, renae.tobin@jcu.edu.au

NATIONAL PRIORITY	INFRASTRUCTURE	PARTNER: Jurisdiction	PARTNER: Industry	COLLABORATION
ENVIRONMENT	INDUSTRY	COMMUNITIES	PEOPLE	ADOPTION

Change is inevitable, whether it be management, environmental or economic. Improving how industries cope with and adapt to change becomes increasingly important as rates and cumulative effects of change escalate.

A collaborative team from James Cook University, CSIRO, Fisheries Queensland (within the Department of Agriculture and Fisheries), and the Queensland Seafood Industry Association worked together to explore how different types of fishing businesses adapted to different types of change within Queensland's east coast fisheries.

The team documented the diversity of Queensland's east coast commercial fishing businesses and developed innovative types of business models. It then explored whether there were key characteristics within these business types that improved access to adaptation options, and whether there were common challenges or constraints to adaptation across the industry and between business types.

The findings highlighted the complexity of the industry and the individual nature of responses to change, with no clear 'recipe for success' or predictor of failure. Communication and shared learning were critical, and managers as well as representative bodies and industry leaders need to develop communication mechanisms that are currently lacking. Within the industry, fishers feel a lack of security, which seems to stem from uncertainty in future management plans. This leads to an incapacity to plan, experiment and adapt successfully to change in the long term.

## Sustainable Fishing Families project

#### Project 2016-400

For further information: Tanya King, tanya.king@deakin.edu.au

NATIONAL PRIORITY	INFRASTRUCTURE	PARTNER: Jurisdiction	PARTNER: Industry	COLLABORATION
ENVIRONMENT	INDUSTRY	COMMUNITIES	PEOPLE	ADOPTION

In recent years, concern for the health, safety and wellbeing of the professional wild-catch fishing industry has been growing in Australia. In response, this project conducted the first national survey of the health, safety and wellbeing of the Australian professional fishing industry. The results of the survey undertaken in 2017 provide a baseline for the state of wild-catch industry members across a range of indicators, including reported physical and mental health; factors affecting health and safety; factors affecting levels of stress; health and safety behaviours; and access to health services and information.

The project also conducted and evaluated an intensive pilot program specifically tailored for fishing families. The program was modelled on an existing and highly successful program, Sustainable Farm Families<sup>™</sup>, developed and delivered by the National Centre for Farmer Health at the Western District Health Service, Victoria. The materials and presentations were reviewed and modified to reflect the specific strengths and challenges of the fishing industry.

This award-winning program is now available for use by fishing communities across the country. The Sustainable Fishing Families project was a collaboration of academic and practical expertise and included participants from Deakin University, the National Centre for Farmer Health, University of Tasmania and the University of Exeter, United Kingdom.



## FRDC NATIONAL PRIORITIES

## Partner

## Jurisdictional and industry sector research priorities

Under partnership agreements the RD&E priority-setting process will be led by the relevant sector or jurisdiction. As part of this process the FRDC has put in place a requirement that each group maintain a balanced portfolio (see the table that follows and pages i–iv). Project selection and approval while accepting recommendation from the groups remains the responsibility of the FRDC Board.

In the tables that show the status of deliverables, the icons below mean that:

$\bullet \bullet \bullet$	Partner is performing well. For example, RD&E Plan in place; investment targets being met; priorities are being funded; and projects are on time and delivering.
••	Partner partially meets expectations. For example, RD&E Plan in place; priorities or investment targets not being met; and projects are on time and delivering.
•	Partner is not meeting expectations. For example, RD&E Plan not in place; or investment targets, priorities, or projects not delivering or being met; or budget under or over spent.

## **Industry Partnership Agreements**

## **Principal inputs**

During 2019–20, there was \$11.03 million or around 38.1 per cent of the total R&D investment for partnership agreements. This is 5 per cent above the AOP forecast budget.

The following tables provide a guide on the targets and progress the FRDC has made in achieving them during the year:

Target	Progress
Partners have a RD&E plan.	Ninety-five per cent of partners have an RD&E Plan.
Partners invest in a balanced portfolio across the	Investment portfolios include investment across
FRDC purpose themes—environment, industry,	FRDC purposes.
communities, people and adoption.	

IPA with	Rating	Output and key achievements
Australian Abalone Growers Association (AAGA)	•••	Completed a new strategic plan 2020–25 that includes RD&E priorities. Research portfolio includes investment across FRDC purpose themes industry and adoption. Key Research projects commenced to investigate and reduce summer mortality in farmed abalone.
Australian Barramundi Farmers Association (ABFA)	•••	Finalising new strategic RD&E Plan 2020–24. Key activity includes completion of situational analysis for Australian farmed Barramundi to guide future ABFA advocacy activities and prioritisation of R&D. The CRC for Developing Northern Australia funded aquaculture industry situational analysis identified that Barramundi farming will make a significant contribution to expansion of aquaculture production across northern Australia.
Abalone Council Australia (ACA)	••	Held a workshop that focused on abalone assessment and management (what have we learned, what are the gaps and where can we do better) attended by industry representatives, researchers and managers (2018-193). The ACA have initiated a number of projects with a strong focus on improving industry data collection, data use and decision-making processes. These are key projects that will aid the management of the Australian abalone resource. In addition, the ACA hosted the 2019 Trans-Tasman Abalone and Paua Convention. The ACA remains engaged in the Fight Food Waste CRC and are exploring projects to optimise abalone use.
Australian Council of Prawn Fisheries (ACPF)	•••	Good balance of investment across the portfolio. Several key projects made significant progress in the 2019–20 year (2018-172: Methods to profile and connect the provenance of wild-caught prawn fisheries and their values to the community and 2016-261: Investigating the use of trace element profiles to substantiate provenance for the Australian prawn industry). Both projects will heavily inform future investment and work for the IPA.
Australian Prawn Farmers Association (APFA)	••	Completed a new strategic plan 2020–25 that includes RD&E priorities. Good balance of investment across the portfolio. Completed several key projects which include impacts of White Spot Disease reoccurrence minimised by fortunate timing and increased biosecurity measures implemented on prawn farms. Participated and helped complete CRC for Developing Northern Australia funded aquaculture industry situational analysis which identified that prawn farming will make a significant contribution to the expansion of aquaculture production across northern Australia.
Australian Southern Bluefin Tuna Industry Association (ASBTIA)	••	The ASBTIA IPA continued to focus investment into improving efficiencies in production of Southern Bluefin Tuna (SBT). In 2019–20 new projects focused on maximising product quality pre-harvest (2019-166: The effects of vitamins and feeding frequency on the extension of the colour shelf life and maintenance of flesh quality of fresh and frozen SBT flesh) and post-harvest (2019-158: Investigate suitability of alternative bleeding practices of SBT post-harvest and their impact on product quality) to improve optimisation of the SBT resource. While few projects were completed during the period, project 2016-044 (Next-generation close-kin mark recapture: Using SNPs [single nucleotide polymorphisms] to identify half-sibling pairs in SBT and estimate abundance, mortality and selectivity) yielded results that fed directly into the international Commission for the Conservation of Southern Bluefin Tuna quota-setting process.
Oysters Australia (OA)	•••	Have commenced development of a new RD&E Plan (2020–24). New Oysters Australia Chair and Executive Officer are working to progress a new strategic R&D plan to guide future investment to address industry priorities.

IPA with	Rating	Output and key achievements
Pearl Consortium (Pearls)	•••	Good balance of investment across the portfolio. Completed several key projects which are informing future strategies and R&D investments continues to deliver important commercial outcomes.
Southern Ocean (SO)	•••	Good balance of investment across the portfolio. Key project was the collection of tissue samples from Antarctic Toothfish across the Southern Ocean and the identification and evaluation of markers for use in a close-kin biomass estimate to differentiate between Antarctic Toothfish stocks and any subsequent management implication.
Southern Rock Lobster Limited (SRL)	•••	Good balance of investment across the portfolio. Completed several key projects which are informing future strategies mainly around supply chains and traceability (2018-176: Refine the Southern Rock Lobster cold chain and 2016-228: SRL IPA: Traceability systems for wild-caught lobster, via Sense-T and pathways to market).
Tasmanian Salmonid Growers Association (TSGA)	••	The TSGA continue to invest in good levels of RD&E to underpin development of the industry, namely around aquatic animal health and development of vaccines (2019-164: TSGA-IPA: A five-year aquatic animal health R&D program for the Tasmanian salmonid aquaculture industry). There are some areas of RD&E which could be improved, specifically around areas of reputation and social acceptability.
Western Rocklobster Council (WRLC)		The WRLC IPA continues to be under-expended against the income. There has been an improvement in priorities and projects coming forward and expenditure next financial year is significantly up. New projects have included a collaborative project with Southern Rocklobster Limited and several projects seeking to understand biological elements related to recruitment and are likely to inform future management under changing environmental conditions, (2019-159: Developing an independent shallow-water survey for the Western Rock Lobster Fishery: tracking pre-recruitment abundance and habitat change, and 2019-099: Climate driven shifts in benthic habitat composition as a potential demographic bottleneck for Western Rocklobster: understanding the role of recruitment habitats to better predict the under-size lobster population for fishery sustainability).

## **RAC** partnership agreements

## **Principal inputs**

During 2019–20, there was \$6.17 million or around 21.3 per cent of the total R&D investment for jurisdictional RACs. This is 26 per cent below the AOP forecast budget. The drop is primarily the result of COVID-19 and its impact on public call funding rounds.

RACs exist with the Commonwealth (COM), New South Wales (NSW), the Northern Territory (NT), Queensland (QLD), South Australia (SA), Victoria (VIC), Tasmania (TAS) and Western Australia (WA).

The following tables provide a guide on the targets and progress FRDC has made in achieving them during the year.

Target	Progress
Partners have a RD&E Plan.	Ninety-five per cent of partners have an RD&E Plan.
Partners invest in a balanced portfolio across the FRDC purpose themes—environment, industry,	Investment portfolios include investment across FRDC purposes.
communities, people and adoption.	

RAC	Status	Comment
RAC-COM	•••	Good balance of investment across the portfolio. Number of key focus areas that include SBT in relation to the assessment and management. Climate was another focus area with two projects (2016-059: Adaptation of Commonwealth fisheries management to climate change; and 2016-139: Decadal scale projection of changes in Australian fisheries stocks under climate change) both looking at management and adaption strategies.
RAC-NSW	•••	Research to support market opportunities for key New South Wales wild-caught species (2017-018: Improving survival and quality of crabs and lobsters in transportation from first point of sale to market; 2016-173: Trade Mission: Creating a niche market for the supply of NSW wild-caught mixed finfish to China through the GFRESH B to B E-commerce platform).
RAC-NT	•	Development of FishPath tool to support the management of small, inshore fisheries (2015-215: Low cost management regimes for sustainable, small low-value fisheries based on coastal inshore species).
RAC-QLD	••	An understanding of how environmental flows link to the management of key commercial species (2015-012: Influence of freshwater flows on growth and abundance of Barramundi and mud crab in the Northern Territory).
RAC-SA	•••	New investments addressed a range of priority areas including fishery- ecosystem interactions (2019-063: Assessment of the sustainability of common dolphin interactions with the South Australian Sardine Fishery; 2020-002: Quantifying the exposure, protection and recovery of seafloor habitats in Spencer Gulf to prawn trawling) and declining snapper abundances (2019-044: Quantifying post-release survival and movement of Snapper: Informing strategies to engage the fishing community in practices to enhance the sustainability of an important multi-sector fishery; 2019-046: Cost-effective, non-destructive solutions to developing a pre-recruit index for Snapper). In addition, South Australia Research Advisory Committee co-funded cultivation trials of the red seaweed (2019-144) as an emerging industry.
RAC-TAS	•••	A key focus area this year was to address destructive urchin grazing. Two projects (2016-208: Waste to profit in urchin fisheries: Developing business opportunities to ensure fishery sustainability and safeguard reef dependent fisheries from destructive urchin grazing; and 2019-128: Commercial upscaling of sea urchin processing waste as an agricultural fertiliser and soil ameliorant) are looking at utilisation, with one identifying a compound in urchins which can help with frost tolerance in some horticulture species. Another key activity has been the partnership with the Indigenous Reference Group to investigate opportunities and impediments for Indigenous businesses to harvest and sell or market seafood.
RAC-VIC	••	Evaluate the economic and social contributions of commercial wild-catch fisheries and aquaculture to Victorian community wellbeing complete (2017-092: Valuing Victoria's wild-catch fisheries and aquaculture industries).
RAC-WA	•••	Research to support the recovery of fisheries following the 2011 marine heatwave (2015-026: Understanding recruitment variation (including the collapse) of Saucer Scallop stocks in Western Australia and assessing the feasibility of assisted recovery measures for improved management in a changing environment; and 2011-762: Recovering a collapsed abalone stock through translocation).



## OUTPUTS—ANALYSIS BY FRDC PROGRAM

## **Program 1: Environment**

Australia has a broad range of freshwater and marine habitats that support a diverse range of aquatic species. Australia's maritime zone is one of the largest in the world covering about 13.6 million square kilometres which is about twice the area of Australia's land mass. This zone contains about 4500 known species of finfish (and perhaps tens of thousands of invertebrate species)—most in relatively small numbers.

Federal, state and territory government agencies have legislative responsibility under fisheries legislation and the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for managing the fisheries and aquaculture activities within their jurisdictions.

## **Principal inputs**

During 2019–20, there was \$8.35 million or around 28.9 per cent of the total R&D investment for this program.

## Reporting in relation to the EPBC Act

Section 516A requires annual reports for Commonwealth entities to report against the criteria set out in this section of the Act. The section requires the FRDC to outline how it impacts on the environment through its activities. FRDC's annual report covers its two primary functions—its internal operations and footprint and the external projects it funds.

# Examples of project activity during the year

## Deep dive to new ocean frontiers

## Project 2015-025

For further information: Daniel Lerodiaconou, daniel.ierodiaconou@deakin.edu.au

NATIONAL PRIORITY	INFRASTRUCTURE	PARTNER: Jurisdiction	PARTNER: Industry	COLLABORATION
ENVIRONMENT	INDUSTRY	COMMUNITIES	PEOPLE	ADOPTION

Victoria's new data-rich marine ecosystem maps and models have revealed important patterns in the dynamics of Southern Rock Lobster and Blacklip Abalone fisheries, which will improve management of these high-value species

The amount of sunlight a landscape receives, the shape of the hills and valleys—even the flow of wind —all have clear implications for the vegetation that grows and the animals it supports. It is a similar story for marine environments, although there are different factors at play.

To better understand what those factors are, the interplay between them and the implications for fish populations, researchers have developed complex models that produce detailed maps of the ocean floor overlaid with myriad physical, biological and oceanographic information.

This process has been completed recently for Victorian waters as part of an FRDC-funded project focusing specifically on the dynamics of Blacklip Abalone (*Haliotis rubra rubra*) and Southern Rock Lobster (*Jasus edwardsii*) fisheries.

The project mapped 2512 kilometres of Victorian coast and inshore waters—about 12,000 square kilometres of water out to three nautical miles—to produce highly detailed, localised and dynamic marine maps. This kind of approach requires expertise from a broad spectrum of disciplines to integrate the many different kinds of data used.

Several different datasets were combined to map the sea floor. The Victorian Department of Environment, Land, Water and Planning provided bathymetry data (the ocean equivalent of topography) from its Future Coast Program, which was collected to model storm surges. This data, generated by lasers (LiDAR) operated from an aeroplane, provided the first comprehensive state-wide pictures of seabed structure.

However, as lasers are not effective where the water depth is 25 metres or more, Deakin University added its own sea floor data, which it has been collecting since 2014, using its in-house multi-beam sonar. This has filled substantial sea floor knowledge gaps, as sonar systems can provide seabed data to characterise deeper reefs and benthic habitats.

The mapping is generally at a scale of between one and 2.5 metres for laser-generated data and less than one metre for sonar data. These sea floor structural maps have been especially useful to the abalone and rock lobster industries, as both target species rely on sea floor structures for habitat.

The sea floor maps were an important requirement for modelling the hydrodynamic characteristics that influence abalone and rock lobster larval dispersal patterns.

Further integration of catch and fish stocks data dating back to the early 1990s provided by fishers and Victorian fisheries managers has also helped better understand patterns of larval survival.



Combining these elements with information on sea floor structure and oceanographic and sea surface temperature data from the Integrated Marine Observing System (IMOS) has allowed the research team to model biomass changes through time.

The research has identified the need for sustained monitoring of oceano-graphic conditions, such as waves, which is now being addressed through the Victorian Department of Environment, Land, Water and Planning and the IMOS.

#### Abalone genetics

The team also collected the DNA of Blacklip Abalone across 30 sites, along with data on site seabed structures and environmental conditions. The resulting analysis shows how abalone has responded to environmental changes such as converging ocean currents, sea temperature and wave energy, not just at broad regional scales (10s to 100s of kilometres) but also at local spatial scales (100s to 1000s of metres).

Industry engagement was also a critical part of the project's success, including feedback on the abalone abundance models and patterns observed.

The research team collaborated with commercial fishers to sample 900 abalone for the genomic component of the study and characterised geomorphic traits of 30 reefs across the state's three abalone fishing zones.

For abalone and rock lobster, the project has successfully identified important reefs, dominant larval dispersal pathways and the role of selection on larval recruitment processes. For abalone, the project has additionally produced biomass distribution models.

#### **Broader applications**

Given the detail of the data, one of its many uses may well be to identify habitat important to abalone and rock lobster. The data will also provide a guide to the most productive areas of ocean habitat where investment in restorative technologies, such as reef reseeding or translocation of animals, might get the best return on investment.

The project outputs will have multiple uses for fishers, conservation and our understanding of our geological history. The sea floor maps are accessible to the public. Other outputs and the models are currently not publicly available, but work is underway to make everything accessible through the Australian Ocean Data Network.

## **Marine plastics**

Project 2017-199

NATIONAL PRIORITY	INFRASTRUCTURE	PARTNER: Jurisdiction	PARTNER: Industry	COLLABORATION
ENVIRONMENT	INDUSTRY	COMMUNITIES	PEOPLE	ADOPTION

Globally the issue of microplastic contamination in our marine environment has been of increasing concern and as such, it is an area of interest for Australian and New Zealand

researchers. The majority of research focuses around determining the prevalence and type of plastics causing concern, with only a small amount of work investigating the impact to human health. In February 2019, Food Standards Australia, New Zealand published a statement around microplastics in food, which indicated that based on the research to date plastic contamination of the food chain is unlikely to result in immediate health risks to consumers. As such, they have listed this issue as a 'watching brief'.

The FRDC have supported a pilot project 2017-199, led by the University of Adelaide and SafeFish, to determine how widespread the presence of microplastics in the gastrointestinal tract of commercial species of Australian fish and molluscs and compare this to international data.

In addition, the Food and Agriculture Organization of the United Nations have also been looking at the issues and have produced two publications:

- Microplastics in Fisheries and Aquaculture—What do we know? Should we be worried? http://www.fao.org/3/ca3540en/ca3540en.pdf
- Microplastics in fisheries and aquaculture: Status of knowledge on their occurrence and implications for aquatic organisms and food safety. http://www.fao.org/3/a-i7677e.pdf

## Supported by society

## Project 2017-158

For further information: Karen Alexander, karen.alexander@utas.edu.au; Kirsten Abernethy, kirsten.abernethy@gmail.com and Emily Ogier, emily.ogier@utas.edu.au

NATIONAL PRIORITY	INFRASTRUCTURE	PARTNER: Jurisdiction	PARTNER: Industry	COLLABORATION
ENVIRONMENT	INDUSTRY	COMMUNITIES	PEOPLE	ADOPTION

A deeper understanding of societal support can provide the fishing and aquaculture industry with a greater chance of achieving the outcomes they want.

If having the support of your community could be made to formula, what would the ingredients be? A pinch of visibility, a dash of positive media coverage and half a cup of social capital, perhaps?

Unsurprisingly, the answer is not that simple and while a formula would be nice, in reality the answer is rather more complicated. Instead of prescribing a formula, a recently completed FRDC-funded project, 'Determinants of socially-supported wild-catch fisheries and aquaculture in Australia', has sought to broaden the understanding of what securing societal support—or as many in the fishing and aquaculture industry would understand it, social licence to operate—really entails.

The project was undertaken by marine social scientists at the Institute for Marine and Antarctic Studies (IMAS) at the University of Tasmania and Sea Change Consulting in Port Fairy, Victoria.

It was commissioned as part of the FRDC's Human Dimensions Research Subprogram, which oversees the inclusion of social and economic dimensions for all FRDC research proposals, basically broadening the context in which problems are defined and solved.

The project will allow for gaps and issues to be more effectively identified, providing a clearer pathway for research investment when tackling what are often wickedly complex issues.

"Identifying the determinants is a pivotal moment for the subprogram," Emily Ogier says. "It means we can be more systematic about what RD&E we invest in to address declining societal support at a time when fisheries and aquaculture are making greater efforts to be more sustainable."

In order to identify common factors or determinants, the researchers conducted a comparison of case studies that demonstrated societal support, or the loss of it—two of which were representative of wild-catch fisheries and two which represented aquaculture.

Out of this process the researchers identified 16 influencing factors or determinants, which were then combined into the following groups:

- the behaviours of the people working in and representing the fishery or aquaculture farms,
- how industry builds trust with groups they need support from,
- the ability of industry to have influence over how they are perceived,
- the context or situation they are operating in.

The research revealed some of the complexity involved in achieving societal support and why it is difficult to take a prescriptive, one-size-fits-all approach. For example, researcher Kirsten Abernethy says it is important to recognise that societal support is dynamic. "It is not something that you simply have or don't have. Some groups of people will support a fishery or aquaculture business and others won't, and their level of support can waver and change over time."

The project also revealed that building societal support takes time, is difficult to build in times of crisis and can be lost quickly.

The context for every fishery and aquaculture farm also varies and often there may be parts of a situation that are beyond the control of an operator or business. This could include politics or past experiences with fishing and aquaculture.

The FRDC has created a dedicated Building Community Trust webpage that provides access to tools and resources to help Australian fisheries and aquaculture operators take action to improve levels of societal support. This includes resources developed by the FRDC and other stakeholders.

Visit https://www.frdc.com.au/Issues/Building-Community-Trust

## Seabird interactions: Shy Albatross

## Project 2016-118

For further information: Rachael Alderman, rachael.alderman@dpipwe.tas.gov.au

NATIONAL PRIORITY	INFRASTRUCTURE	PARTNER: Jurisdiction	PARTNER: Industry	COLLABORATION
ENVIRONMENT	INDUSTRY	COMMUNITIES	PEOPLE	ADOPTION

Seabirds are attracted to fishing vessels through the availability of fishery discards, increasing the risk of injury or mortality from interactions with fishing gear. This project used novel DNA dietary analysis methods, seasonal seabird foraging ranges and fishery catch data to establish a baseline of data from which to evaluate the impact and efficacy of future management/operational or other changes to fisheries with regard to seabird interactions.

Shy Albatross scats were collected from Albatross Island in Bass Strait every three months from 2014 to 2018 and the food DNA identified in each. A total of 1655 Shy Albatross scats were collected during the project, for which DNA were extracted and sequenced. The results provide a range of end users with data and supporting information for a variety of management and conservation applications, including sustainable fisheries management, ecological risk assessments, and continued conservation and management of Shy Albatross populations.





# Delivering the National Carp Control Plan

The FRDC established the National Carp Control Plan (NCCP) in December 2016, to assess the feasibility of using *Cyprinid herpesvirus 3* (CyHV-3), as a tool to substantially reduce carp numbers.

Carp (*Cyprinus carpio*) have been in Australia for over 100 years and are now established in all states and territories, except the Northern Territory. As an introduced pest species carp is causing major disruptions to Australia's delicate native ecosystems.

Since carp numbers exploded in Australia in the 1970s, a variety of measures have been used to try and control them. However, all have been unsuccessful in reducing carp impacts on a large scale. Biological control (a virus) offers some key advantages over other control approaches as it can be species specific and highly effective when used correctly. It is also relatively cost effective.

The NCCP is addressing the questions: *Is it feasible to release the carp herpes virus to control carp? If so what is the most effective way to release and manage the virus?* 

More than 15 research institutions worked to deliver the research to inform the Plan, which was presented to the Australian Government in January 2020.

The final decision on whether to release the carp virus to control carp will be made by government ministers from all federal jurisdictions. The FRDC's role has been to present a science-based plan to Government for its consideration on the next steps.

## **Delivering the Plan**

The Plan brings together results from each of the 18 research projects and numerous planning investigations commissioned as part of the NCCP.

The Plan also includes the feasibility assessment based on three main criteria:

- Will the virus be an effective biocontrol agent?
- Will the virus infect other species?
- Can the risks associated with the release be managed?

The Plan also includes an implementation strategy, should the Government decide to release the virus. This is supported by a cost-benefit analysis and a number of case studies outlining how the release might be managed in specific regions.

With the delivery of the Plan to Government, the FRDC's main role concluded. The FRDC is still involved in coordinating some additional research related to the NCCP.

The Australian Government will evaluate the Plan and seek the view of state governments to decide whether to proceed with the virus release. If the decision is made to proceed, a phase of legislative approval will follow before reaching the final implementation stage in which the virus would be released.

## Bringing together all NCCP research

The Plan is the culmination of three years' work, during which 18 research projects and numerous planning investigations considered all aspects of releasing a virus to control carp in Australian waterways.

The Plan is accompanied by a suite of technical papers summarising the research undertaken as well as the final research reports for each project.

## Some key findings from the NCCP research include the following

#### Carp numbers

This work has provided the first estimate of carp biomass and density across the continent.

In May 2018 this was 205,744 tonnes, with a lower and upper limit of 117,532 and 356,482 tonnes, respectively. The range provided accounts for the statistical challenge of producing a single figure.

During a single wet year, such as May 2011, the carp biomass estimate was 368,357 tonnes, with a lower and upper limit of 184,234 and 705,630 tonnes, respectively.

The figures are a snapshot of a point in time. However, the work has highlighted how carp densities of more than 100 kilograms per hectare cause damage to the ecosystem. Densities of 200 to 400 kilograms per hectare were found through much of the middle and lower reaches of Australia's major southern river systems.

This data pinpoints the areas where carp control is most urgent and where it will have the greatest impact.

#### The effect of the virus on carp

The research assessed how effective the virus would be at reducing carp populations and how long this effect would last.

Based on modelling undertaken by the CSIRO, effective deployment of the carp virus will reduce carp populations by 40 to 60 per cent for at least 10 years.The modelling shows that the virus will be able to reduce carp populations below the 150 kilogram per hectare damage threshold.

#### Native species

The original 2017 CSIRO study on the interactions between the carp virus and Australian native species indicated that no native species appeared to show any sign of infectious disease.

The NCCP undertook a review of impacts on other or non-target species to ensure the Australian Government has the most thorough scientific evidence upon which to base its decision on whether to release the virus. The review highlighted that some additional work could be done to increase confidence that there would not be any impacts on other species.
#### Water quality

Understanding water quality impacts of carp mortality is important to assess the risks of virus release and to inform carcass management and water treatment.

There are two potential impacts on water quality from carp mortality—reduced oxygen levels and algae outbreaks.

The carp decomposition process will cause algae and other organisms to thrive, which in turn will cause the oxygen level in the water to drop. This may impact on native species which are susceptible to reduced levels of oxygen. Cyanobacterial (blue green algae) blooms are also more likely when additional nutrients (e.g. from carp mortality) are added to water bodies.

Results have shown that there would be no large-scale impacts on water quality in natural waterbodies, especially where there is some flow. There are higher risks in still and shallow waterbodies. Carcass management would be required in waterbodies with poor water flow and high carp density to avoid water quality impacts in these sensitive locations.

The research also found that even with the highest likely levels of carp mortality, water treatment plants are already equipped to cope with the purification that would be required. Parameters have also been developed to identify appropriate treatments for each level of carp contamination to ensure safe drinking water for the community.

#### Environmental risk assessment

The study evaluated the ecological risks associated with releasing the virus in a variety of Australian ecosystems, such as wetlands, river systems, lakes and impoundments. The work relied on the water quality research as described earlier.

The assessment highlighted a number or risks that could have a medium level of impact on natural systems. Many risks would be negligible or could be mitigated by management measures.

The work also highlighted the importance of timing the possible release to minimise the impact on fish-eating birds, which would be relying on carp as a food source, especially while raising their chicks.

The report discussed mitigation strategies to minimise these risks and the residual risk after the strategies are implemented. Mitigation is mostly centred on the timing of the release.

#### Clean-up and carcass management

A detailed review of available studies on clean-up of fish kills revealed the importance of planning and preparation. This information, paired with the knowledge of the carp densities present in different areas, will assist in coordinating the carcass management efforts where required.

#### Community and stakeholders' attitudes

Social risk assessment and surveys found that communities are mostly accepting of carp control using the carp virus. However, people's attitudes towards the virus release were found to depend on their familiarity with the NCCP, personal interactions with waterways, knowledge of carp impacts, as well as on their values and sense of community responsibility towards environmental stewardship.

A comprehensive survey of relevant stakeholders was also conducted to gather the views of a wide range of groups who may be impacted by the virus release. These included the tourism sector, commercial fishers, traditional owners, recreational fishers, the koi industry, and the native fish aquaculture sector.

Recommendations were included in this project on how to best minimise and manage impacts to these groups.

#### Case studies

The NCCP implementation strategy is high level, allowing for the virus release to be adapted to local conditions, should it go ahead.

However, a number of detailed case studies have been included in the NCCP to provide examples of how virus deployment and carcass management could occur in specific regions. The chosen case studies in the Lachlan, Mid Murray River and Lock 1 to Lock 3 in South Australia assessed every aspect of implementation including: implementation planning, communication and engagement, regional coordination, operations preparation, virus deployment, carcass management, surveillance, and monitoring and evaluation.

The case studies also provided real-world information to use in calculating the cost of virus release, should it be deemed feasible.

As the NCCP draws to a close, the www.carp.gov.au website will continue as a central repository of research completed as part of this work.

# Communicating the work of the NCCP

Throughout the life of the Plan, a comprehensive communication strategy has been implemented by the FRDC.

This consisted of regular updates on the progress of the NCCP in *FISH* magazine as well as regular media releases to inform the general public of research results as they became available. During the financial year 2019–20, four media releases were sent out Australia-wide.

An online platform was also established and advertised to over 5000 stakeholders, where interested parties could view the details of each research project as it was completed. The platform allowed stakeholders to provide feedback and their comments were included into the NCCP for Government's consideration.

Stakeholder input was also sought in person through six-monthly meetings where researchers presented their results and were available to answer questions.

#### **NCCP in COVID-19 times**

After the NCCP was presented to Government in January 2020, work continued on additional research designed to augment and cross-check previous scientific work.

This is when the COVID-19 pandemic hit Australia.

COVID-19 has caused significant delays for final project completion. The FRDC and the Government have been in close communication to ensure both parties are aware of the rapidly changing situation.

While all possible planning and risk mitigation is in place to ensure that research can go forward and be completed in a timely manner, a level of risk remains, particularly capacity at Australian Centre for Disease Preparedness (formerly Australian Animal Health Laboratory) in the evolving COVID-19 situation.

There will be a check-in point in October 2020 to firm timelines for work going forward.



#### **BENEFIT COST ANALYSIS**



#### An impact assessment of FRDC investment in Shark Futures: A report card for Australia's sharks and rays

#### Project: 2013-009

Title: Shark Futures: A report card for Australia's sharks and rays Research organisation: James Cook University Principal investigator: Colin Simpfendorfer, James Cook University Period of funding: March 2013 to March 2019 FRDC program allocation: Environment 80% Adoption 20% Benefit: Funding for the project over the three years totalled \$0.37 million (present value terms) and produced estimated total expected benefits of \$1.26 million (present value terms). This gave a net present value of \$0.88 million, a benefit cost ratio of 3.4 to 1, an internal rate of return of 24.7% and a modified internal rate of return of 10.0%.

#### What the report is about

This report presents the results of an impact assessment of the FRDC investment in a project to synthesise the available information on sharks and shark-like rays in Australian waters and to prepare a report card on their status. The project arose from the world-wide concern for the status of sharks and rays and to ensure continuing effective management of Australia's sharks and ray species.

Australian resource management of sharks and rays in Australian waters is recognised as world-leading, but there are still a number of issues and information gaps that face Australian managed sharks and rays. Information is often fragmentary, difficult to access, and limited to a few species that are targeted by fisheries. Apart from the need for Australian government decision makers to have up-to-date and accurate information, the growing information needs of global initiatives such as Shark-Plan 2 and Environment Protection Biodiversity Conservation (EPBC) listings required synthesised information on the status of Australian managed sharks and rays. Hence, the synthesis of knowledge about Australian managed sharks and global management.

The funding of FRDC's project 2013-009 (A report card for Australia's sharks and rays) addressed the need to continue to manage sharks and rays in Australian waters both for their continuing sustainable use as well as for ecological considerations and the maintenance of biodiversity. A total of 320 species of sharks and rays inhabit Australian waters, some of these are endemic. Sharks are inherently vulnerable from overfishing as well from their life history characteristics as they are less productive than many other fish species. To continue to manage shark and ray species sustainably, fisheries managers require up-to-date information, including access to locally relevant information. In 2013 appropriate information was often not readily available and such information, if available, was difficult to interpret for management decision making.

FRDC's project 2013-009 was developed from discussions with managers and decision makers in several Australian and state government departments. A project was developed to assist fisheries managers to manage species with the greatest need. Government processes required such information for domestic fisheries management and planning, biodiversity management including endangered species listings and marine park management, and as an input into a number of international treaty obligations and processes in which Australia was involved (e.g. Food and Agriculture Organization of the United Nations (FAO), International Plan of Action (IPOA Shark)).

#### Results/key findings

The major outputs from the project included a synthesis of available information on sharks and sharklike rays in Australian waters, a report card on their status, the development of a database, and a website. Sources of information included formally published literature, observer programs, shark control programs, fisheries data and expert knowledge.

The overall finding was that Australia is effectively managing its sharks and shark-like rays and the majority of the populations are considered sustainable. However, some species of concern were identified where improved management is required to ensure stocks are not overfished.

Prospective users of the improved synthesised information include Australian fisheries managers (e.g. by-catch management, identification of research priorities) and an Australian contribution to international treaty processes such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and Shark-Plan 2.

Over time the investment in up-to-date information, the shark and shark-like ray database and website will assist the current and future effective and sustainable management of sharks and rays in Australian waters, as well as a contribution that will be manifest globally.

Outcomes	<ul> <li>Recommendation 1 has been actioned and the project information is now on FRDC's website—www.fish.gov.au.</li> <li>Recommendation 3 has been partly actioned; the Red List assessments of rays have been completed as part of the National Environmental Science Program (NESP) funded Shark Action Plan (Colin Simfendorfer, pers. comm., 2020).</li> <li>Recommendation 4 has been partially actioned via the NESP Shark Action Plan work and is expected to be finalised soon (Colin Simfendorfer, pers. comm., 2020).</li> <li>Prospective users of the improved set of integrated information include Australian fisheries managers (e.g. for by-catch management, and for identification of research priorities).</li> <li>Prospective users include managers of Australian and state fisheries, as well as environmental non-government organisations.</li> <li>The project has resulted in improved priority setting for Australian and state fishery management in terms of shark and shark-like ray management.</li> <li>The outputs of the project allowed Australia to continue to contribute positively to international treaty processes such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and the FAO IPOA Shark.</li> </ul>
Impacts	<ul> <li>Contribution to improved prioritisation of research leading to research resource allocation efficiency.</li> <li>Reduced chances of a shark and shark-like rays' species becoming more vulnerable and even extinct in Australia's waters.</li> <li>Continued Australian support for the current social licence to fish and continued sustainable access to sharks and shark-like ray species for commercial fisheries, as well as for recreational and Indigenous purposes.</li> <li>Contribution/endorsement of Australia's image world wide as being an effective fisheries manager.</li> </ul>

#### Public versus orivate impacts

Most impacts identified in this evaluation are related to effective management of sharks and shark-like rays in Australian waters. Both private and public impacts have been delivered by investment in the project 2013-009. These impacts will include the continued catching of some species of sharks and rays in Australian fisheries as well as highlighting where some species of sharks and shark-like rays require more research or where changed management of species is required to ensure specific stocks are not overfished.

#### Impacts overseas

Australia's positive image and reputation for its management of fisheries has been maintained and potentially enhanced due to the investment in the project. In addition, the methods employed in assembling information may provide a model that could be used by other countries in assessing their management of such fish species.

Economic	<ul> <li>Continued access to catch some selected sharks and shark-like rays in Australian fisheries.</li> <li>Contribution to improved prioritisation of research leading to research resource allocation efficiency.</li> </ul>
Environmental	<ul> <li>Continued effectiveness of biodiversity and environmental management of sharks and shark-like rays in Australian waters, with reduced likelihood of a shark and ray species decline.</li> </ul>
Social	<ul> <li>Contribution/endorsement of Australia's image world-wide as being an effective fisheries manager.</li> <li>Continued Australian support for the current social licence to fish and continued sustainable access to sharks and shark-like ray species for commercial fisheries, as well as for recreational and indigenous purposes.</li> <li>Contribution to increased capability and capacity with respect to assembling key fisheries information at a species level for fisheries management purposes.</li> </ul>

TRIPLE BOTTOM LINE CATEGORIES OF PRINCIPAL IMPACTS FROM PROJECT 2013-009

#### Conclusions

The overall finding of the project investment was that Australia is effectively managing its sharks and shark-like rays and the majority of the shark populations are considered sustainable. Some species of concern were identified where improved management was required to ensure stocks are not overfished.

The findings of the project will likely generate support for continued access to sharks in commercial fisheries as well as reduced chances of a shark and shark-like ray species becoming more vulnerable in Australia's waters, at least in the medium term.

Funding for the project over the three years totalled \$0.37 million (present value terms) and produced estimated total expected benefits of \$1.26 million (present value terms). This gave a net present value of \$0.88 million, a benefit cost ratio of 3.4 to 1, an internal rate of return of 24.7 per cent and a modified internal rate of return of 10.0 per cent.



# **OUTPUTS—ANALYSIS BY FRDC PROGRAM**

# Program 2: Industry

Demand for high-quality seafood is predicted to outstrip supply in both domestic and export markets. Similarly, in the recreational and customary sectors the demand for high-quality fishing experiences will outstrip supply. There is a need to increase both the production and the value of the catch, and to take advantage of future opportunities. For the commercial sector, business profitability and international competitiveness are overriding concerns. This program aims to assist all sectors improve their overall performance. The following pages provide examples of the R&D currently underway. For a full listing of projects visit the FRDC website—www.frdc.com.au

#### **Principal inputs**

During 2019–20, there was \$13.39 million or around 46.3 per cent of the total R&D investment for this program.

# Examples of project activity during the year

#### Safe work practices

#### Project 2017-046

For further information: Kate Brooks, kate@kalanalysis.com.au

NATIONAL PRIORITY	INFRASTRUCTURE	PARTNER: Jurisdiction	PARTNER: Industry	COLLABORATION
ENVIRONMENT	INDUSTRY	COMMUNITIES	PEOPLE	ADOPTION

This project, undertaken by a team of researchers, workplace health and safety specialists, industry association and Australian Maritime Safety Authority representatives, responded to a call to research how barriers to the adoption of safe(r) workplace health and safety practices could be identified and addressed.

The objective of the project was to identify why fishers' behaviours and attitudes were not changing positively, despite training, information and coronial pressure to adapt existing workplace health and safety approaches.

The project had a three-stage approach including a literature review, safety climate survey and focus group discussions. Identifying a number of issues, the findings provide a clear pathway and opportunity to change how we approach safety and the development of workplace health and safety culture in the fishing industry, and to achieve significantly improved outcomes for fishers and their families.

The Australian Maritime Safety Authority has been working on generating changes to approaches and engagement regimes, fully detailed in the 'Extension and adoption' section of this report. These initiatives will help to establish more effective relationships between regulators and industry, with the result of assisting industry to develop a stronger safety culture.

#### Safety at sea

#### Project 2018-106

For further information: Geoff Diver, geoffdiver@iinet.net.au

NATIONAL PRIORITY	INFRASTRUCTURE	PARTNER: Jurisdiction	PARTNER: Industry	COLLABORATION
ENVIRONMENT	INDUSTRY	COMMUNITIES	PEOPLE	ADOPTION

In recent years there have been a number of instances where vessels have been lost causing the deaths of a significant number of fishers. In some cases, the vessels were lost before the crew could activate the vessel's Emergency Positioning Radio Beacon (EPIRB). EPIRB forms the basis for the formal search and rescue (SAR) agencies in Australia, and the absence of an EPIRB signal can significantly diminish the effectiveness of a search and rescue mission.

This project examined other electronic platforms typically found on fishing vessels and investigated if these could be incorporated into a process, policy or procedure which could increase the maritime safety of the Australian fishing fleet. In analysing these electronic platforms, it was concluded that EPIRB should remain the primary distress signalling platform for Australian fishing vessels. EPIRB signals are monitored globally by dedicated SAR authorities which have the expertise and resources to triage the initial distress signal, and coordinate a SAR mission. The report also discusses other safety issues such as the development of a safety management system, and other quantitative risk assessment processes, as well as making 14 recommendations to aid in increasing sea safety.

## Spotlight on Australian Salmon

**Projects 2006-018, 2013-711.3, 2016-121, 2017-023, 2018-306; CRC 2008.794.10, 2008.794** For further information: Janet Howieson, j.howieson@curtin.edu.au

NATIONAL PRIORITY	INFRASTRUCTURE	PARTNER: Jurisdiction	PARTNER: Industry	COLLABORATION
ENVIRONMENT	INDUSTRY	COMMUNITIES	PEOPLE	ADOPTION

Can collaboration between fishers and the seafood supply chain help the under-rated wild-caught Australian Salmon find a place in a consumer market dominated by a red-fleshed import?

Australian Salmon's image problem is twofold. One is its poor reputation as a fresh fish offering. The other is its unfavourable comparison with the market-leading Atlantic Salmon. For commercial fishers, both issues have contributed to falling demand and prices so low the fish is hardly worth catching.

Australian Salmon have a pinky-brown coloured flesh when raw, which turns pale—almost white when cooked. They are more like herring than salmonids and the Australian Herring (*Arripis georgianus*) is a member of the same family.

#### Fishers' challenge

During the past decade, the FRDC has invested in several research projects to identify ways to make better use of Australian Salmon. It is officially designated as 'sustainable' in the 2018 SAFS reports (www.fish.gov.au), and it could be harvested in significantly larger quantities than it currently is.

As a fisheries resource, it has the potential to return a much greater value to fishers, and to the community more broadly, than it currently does. With Australians importing almost 70 per cent of the seafood they eat, there is a growing economic and social imperative to eat local.

But among fishers and fishmongers, Australian Salmon is often considered a bait species and not worth the care needed to prepare it for the dinner table. And this fish does need care; it is unforgiving of mistreatment.

A quick kill by brain spiking the fish, then bleeding and immediately chilling is considered best practice to maintain the quality of the flesh (see FRDC Aquatic Animal Welfare—Research). However, Australian Salmon are often harvested in large numbers from shallow water by hauling nets onto beaches, which can make clean and speedy processing a challenge. It may be difficult in these conditions, but not impossible to maintain fish quality, as an FRDC-funded project has demonstrated. This project developed best practice processing techniques and quality standards for the fish in Western Australia, which has previously provided the majority of the national harvest, although volumes have fallen in recent years.

In other states, fishers might also purse seine fish onto vessels rather than beaches. Some make this choice to avoid sand contamination and improve processing; for others it is part of compliance with state regulations that prohibit beach landings, such as in Tasmania and Victoria.

#### Distribution of Australian Salmon

There are two closely related species of Australian Salmon, each of which forms a single, independent biological stock that crosses several fisheries jurisdictions.

The Eastern Australian Salmon (*Arripis trutta*) is found in southern Queensland, New South Wales, Victoria and Tasmania. Large mature fish are most commonly found off the coast of New South Wales. Eggs and larvae disperse, and maturing fish return north to spawn, usually aged two to four years.

The Western Australian Salmon (*Arripis truttaceus*) is found in south-western Western Australia, South Australia, Victoria and Tasmania. It spawns off southwest Western Australia, with eggs and larvae dispersing eastward. Fish return west to spawn, usually aged three to five years.

The Western Australian Salmon species grows to 85 centimetres and 10 kilograms. The Eastern Australian Salmon grows slightly longer, to 87 centimetres, but is lighter, at less than eight kilograms.



#### **BENEFIT COST ANALYSIS**



#### An impact assessment of FRDC investment in Maximising net economic returns from a multi-species fishery

#### Project: 2015-202

Title: Maximising net economic returns from a multi-species fishery Research organisation: CSIRO Oceans and Atmosphere Flagship Principal investigator: Sean Pascoe Period of funding: July 2015 to September 2017 FRDC program allocation: Industry 75%, Environment 25% Benefit: Funding for project 2015-202 totalled \$0.67 million (present value terms). The FRDC investment costs were \$0.40 million (present value terms). Though currently there is no evidence that the project outputs have been utilised, the findings may lead to future changes to Commonwealth fisheries management (and, potentially, the management of other fisheries) via increased attention to total economic outcomes including interests of consumers and non-market impacts. Such future changes, in turn, may result in productivity and/or profitability impacts for Australian fishers, reduced prices for consumers of Australian fish, and improved economic and environmental sustainability for some Australian fisheries.

#### What the report is about

Setting management reference points and targets in multi-species fisheries is complex (Department of Agriculture, Fisheries and Forestry (DAFF), 2013). While the pursuit of a fishing offtake target that maximises net economic returns (NER) or maximum economic yield (MEY) is considered logical, it was recognised that such a pursuit may result in some less prominent commercial species being at higher risk than would be desirable. This was because the offtake of such species could result in their population levels falling to below their individual sustainable yields. This increased risk could be associated with higher industry costs in the long term in order to return some species to sustainable populations.

Also, another review of Commonwealth fisheries policy and management had already highlighted the importance of giving greater consideration to issues of bycatch and other environmental factors when setting management targets (Borthwick, 2012). Other FRDC projects (e.g. 2011/200) had developed techniques to approximate economic-based target reference points in multi-species fisheries. However, such projects did not address potential constraints on targets to ensure that populations of individual species are not reduced to levels that may result in high risk of stock collapse, or the scenario of the potential future costs of allowing minor stocks to recover.

Further, the previous studies had not identified how to monitor the transition to NER, particularly for minor species where data were limited. The DAFF (2013) report had recognised that setting catch targets which are incompatible with the relative catch mixes was likely to result in substantial undercatch of some species and over-catching and discarding of other species. This issue was considered relevant to the Commonwealth South East Shark and Scalefish Fishery (SESSF). This is a multi-species and multi-gear fishery. The SESSF, and the trawl component in particular, was targeted as the main case study for the current project. This fishery was chosen as the SESSF was experiencing issues with balancing actual catch with catch targets.

Other background to the current project was that NER and MEY were restricted to the net economic gain by commercial fishers and did not include the interests of consumers. The current project extended its scope to include consumer interests in NER and MEY, not just long-term commercial fisher profitability that accounted for sustainability issues.

#### **Results/key findings**

Currently there is no evidence that the project outputs have been utilised. However, the findings of the investment in project 2015-202 may lead to future changes to Commonwealth fisheries management (and, potentially, the management of other fisheries) via increased attention to total economic outcomes including interests of consumers and non-market impacts.

Outcomes	• No evidence of changes to how the SESSF is managed were discovered during the period of assessment. However, it is possible that the project findings may be used to improve future SESSF management decisions to ensure sustainable management of the multi-species fishery.
Impacts	<ul> <li>Though currently there is no evidence that the project outputs have been utilised, the findings may lead to future changes to Commonwealth fisheries management (and, potentially, the management of other fisheries) via increased attention to total economic outcomes including interests of consumers and non-market impacts. Such changes are likely to lead to improved economic and environmental sustainability of affected fisheries.</li> <li>Potential beneficiaries of the project will be both the commercial fishing industry and consumers; industry will potentially benefit from improved quota setting processes that better align with their catch and also result in reduced frequency of closures to allow recovery of threatened species; consumers potentially will benefit from reduced prices for the more abundant fish species.</li> </ul>

#### Public versus private impacts

Both public and private potential impacts were identified for the project. Private impacts may be delivered as a result of increased productivity and/or profitability for Australian fishers achieved through improved quota setting and management of fisheries. Further, consumers of Australian fish may benefit from reduced market prices because of increased abundance of some fish species. Public impacts may potentially be delivered through improved environmental sustainability of Australian fisheries as a result of improved management.

TRIPLE BOTTOM LINE CATEGORIES OF PRINCIPAL POTENTIAL IMPACTS FROM PROJECT 2015-202

Economic	<ul> <li>Maintained and/or increased productivity and/or profitability for commercial fisheries through improved quota setting and management of Commonwealth and, potentially, other Australian fisheries. Industry will potentially benefit from improved quota setting processes that better align with their desired catch and improved overall fisheries management resulting in reduced fishery closures to allow recovery of threatened species.</li> <li>Associated with increased productivity for fishers, consumers of fish may benefit from reduced market prices for more abundant fish species.</li> <li>Potential changes to Commonwealth fisheries management (and, potentially, the management of other fisheries) via increased attention to total economic outcomes including interests of consumers and non-market impacts. Such changes are likely to lead to improved economic and environmental sustainability for affected fisheries.</li> </ul>
Environmental	• As noted above, potential changes to fisheries management may lead to improved environmental sustainability for affected Australian fisheries.
Social	• Nil

#### Conclusions

Funding for project 2015-202 totalled \$0.67 million (present value terms). The FRDC investment costs were \$0.40 million (present value terms). Though currently there is no evidence that the project outputs have been utilised, the findings may lead to future changes to Commonwealth fisheries management (and, potentially, the management of other fisheries) via increased attention to total economic outcomes including interests of consumers and non-market impacts. Such future changes, in turn, may result in productivity and/or profitability impacts for Australian fishers, reduced prices for consumers of Australian fish, and improved economic and environmental sustainability for some Australian fisheries.





# **OUTPUTS—ANALYSIS BY FRDC PROGRAMS**

# **Program 3: Communities**

The fishing industry forms an integral part of many rural and regional communities. For the long-term sustainability of the fishing industry, it is important the interactions and co-dependence between the community and industry be understood. For a full listing of projects visit—www.frdc.com.au

#### **Principal inputs**

During 2019–20, there was \$2.25 million or around 7.8 per cent of the total R&D investment for this program.

# Examples of project activity during the year

#### Common ground

#### Project: 2017-069

For further information: Chris Calogeras, chris@c-aid.com.au

NATIONAL PRIORITY	INFRASTRUCTURE	PARTNER: Jurisdiction	PARTNER: Industry	COLLABORATION
ENVIRONMENT	INDUSTRY	COMMUNITIES	PEOPLE	ADOPTION

The capacity for Indigenous involvement in fisheries and aquaculture is growing through an approach that puts communication at its core.

Fisheries science and management have many concepts in common with Indigenous community practices, but the lack of a shared language has often made it difficult to bring the two together. Finding ways to do just this was the aim of an inaugural Indigenous fishery capacity-building workshop held in Brisbane earlier this year.

Organised by the FRDC's Indigenous Reference Group (IRG), the three-day event was designed to help Aboriginal and Torres Strait Islander (ATSI) people participate in fisheries management discussions and strengthen their voice in the decision-making process.

Capacity building starts with clear communications, says chair of the IRG, Stan Lui, who is also an environmental program manager with the Torres Strait Regional Authority.

The concepts around fisheries management among Indigenous and non-Indigenous people are similar, but are just couched in different terms.

When Indigenous communities talk about storylines, this equates to migratory patterns in the equivalent scientific terminology. Management-speak, such as biomass limits and total allowable catches have their equivalent in Indigenous practices, learned in childhood. For example, to never take as much as you can, but always leave some behind to regenerate so that there is more to harvest next time.

This project is about making those linkages and giving ATSI people a broader understanding. So, when they are in fisheries meetings or talks they understand exactly what the terminology means and the concepts behind it. We are building bridges between people and pulling down barriers.

Fifteen Aboriginal people from around Australia who are passionate about fisheries attended the workshop, gaining greater knowledge about management practices and the terminology used in policies and regulation, as well as sharing issues important to them.

Sessions included understanding the protocols and structures of management meetings, stock assessment methods and fishery management frameworks, among others.

The program provided a two-way learning process helping both sides to better communicate and understand terminology used by ATSI people, and how that aligns with management-speak.

As the language barriers are broken down, people will be able to step confidently into this space. With greater understanding, more opportunities will emerge for Indigenous input, or 'buy-in' into management tools such as harvest strategies as they are being developed.

Capacity building is a key priority for the FRDC's IRG. The overall aim of the capacity-building program is to have more Indigenous men and women participating actively in fisheries and build in succession planning for Indigenous communities.

Resources developed for the workshop are expected to be available from the FRDC website (https:// www.frdc.com.au) once the project is completed.



# Fisher conversation helps shape industry pledge

#### Project 2017-242

For further information: Seafood Industry Australia, info@seafoodindustryaustralia.com.au

NATIONAL PRIORITY	INFRASTRUCTURE	PARTNER: Jurisdiction	PARTNER: Industry	COLLABORATION
ENVIRONMENT	INDUSTRY	COMMUNITIES	PEOPLE	ADOPTION

Many community and industry values align, but further action is needed to help secure the social licence of the Australian seafood sector.

Whether you call it trust, acceptance or social licence—listening to, acknowledging and responding to community concerns is critical to the future of the Australian seafood industry. So much so that Seafood Industry Australia's (SIA) members have made building the industry's social licence their number one priority.

Assisted by the FRDC, SIA has assessed current and emerging community concerns using data from risk management agency Futureye, the FRDC and the Marine Stewardship Council. The primary concerns identified relate to sustainability, the environment, accountability, animal welfare and industry safety.

SIA also assessed the industry's values and current practices. These were found to mostly align well with community values such as responsible fishing practices, environmental stewardship, connecting with communities and sharing information about fisheries, fishing practices and products.

From this process has grown 'Our Pledge', a statement, still in development, from industry that responds to community concerns and acknowledges the industry's responsibility for the future.

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Social licence is front and centre for our members and the wider industry, and SIA is taking a proactive approach to ensure our industry's ongoing acceptance within the community by developing 'Our Pledge'.

SIA has taken 'Our Pledge' to workshops around the country to discuss it with SIA members and as many other industry participants as possible before it is finalised and made public.

SIA has consulted with over 50 industry sectors at these meetings. There's a broad range of views about the industry from highly favourable to suspicious. The goal of the project is to demonstrate our authentic practices that help us look after the marine environment and contribute to the community.

For further information visit the SIA website – https://seafoodindustryaustralia.com.au/.



#### An impact assessment of FRDC investment in Sustainable Fishing Families: Developing industry human capital through health, wellbeing, safety and resilience

#### Project: 2016-400 Title: Sustainable Fishing Families: Developing industry human capital through health, wellbeing, safety and resilience Research organisation: Deakin University Principal investigator: Tanya King Period of funding: Year ending June 2016 to June 2018 FRDC program allocation: Communities 100% Benefit: The investment in this project will likely be translated into improvements in the long-term health, safety and wellbeing of Australian commercial fishers. Funding for the project over the two years totalled \$0.23 million (present value terms) and produced estimated total expected benefits of \$1.18 million (present value terms). This gave a net present value of \$0.95 million, a benefit cost ratio of 5.1 to 1, an internal rate of return of 60.9% and a modified internal rate of return of 12.3%.

#### What the report is about

This report presents the results of an impact assessment of the FRDC investment in a project to improve the health and wellbeing of those engaged in the wild-catch fishing industry. The investment was precipitated by earlier pressures highlighting the need for health and safety improvements including the safety culture that currently existed.

Project 2016-400 addressed these issues via a national survey of the professional wild-catch fishing industry addressing a number of health and wellbeing indicators. The survey established a baseline set of health and wellbeing information. Then followed an intensive pilot program on health, safety and wellbeing that was aimed specifically at fishers and fishing families; the program was modelled on the previously successful Sustainable Farm Families Program.

The current project evolved from an earlier FRDC-funded project 2012/402 entitled 'Staying healthy, industry organisations' influence on behaviours and services used by fishers. This earlier project both reported an urgent need for nationwide baseline data on mental health concerns in the commercial fishing sector, on the detailed health requirements of fishers, and the differences between the health challenges faced by fishers compared to those faced by farmers. Health issues faced by Australian farmers had already been addressed by the Sustainable Farm Families<sup>™</sup> Program. The program directed at farmers had already delivered significant health benefits to farmers and farming communities.

The funding of the Sustainable Fishing Families project addressed the need to recognise the importance of the human capital role in the Australian commercial fishing industry. The project also addressed a need identified by the Victoria Research Advisory Committee, formerly the Victoria Fisheries Research Advisory Body, to identify and address potential losses incurred though fisher poor health and wellbeing (including mental health).

#### **Results/key findings**

The major findings from the survey identified the health symptoms experienced by fishers, as well as their levels of psychological distress. The factors contributing to their symptoms included both physical and mental issues. The health and safety behaviours of fishers were identified as well as how they accessed health information and whether they sought assistance or treatment.

Despite difficulties in recruiting fishing families to the pilot program, seven fishing families participated in the pilot program. The program was successful based on the evaluation by those participating in workshops, as well as the evaluation of the program as a whole. Outcomes from the program included improvements in fitness and diet, as well as elicitation of follow-ups with general practitioners. The most common referral was for cardiovascular disease and associated risk factors.

The pilot program delivered implications for fishing families and communities, health professionals, industry associations, fishing managers and policy makers. A number of recommendations were made in the final report.

Over time the investment in the survey and pilot program is likely to lead to greater awareness of issues associated with the health, safety and wellbeing of fishers and fishing families leading to potential policies and programs to elicit behavioural changes and promote increased wellbeing within the wild-catch fishing industry.



Outcomes	<ul> <li>The first national benchmarking survey delivered information that provided a baseline information on the status of health and wellbeing of Australian commercial fishers. The survey information also informed issues related to the pilot training program.</li> <li>The pilot Sustainable Fishing Families Program was successful based on the evaluation by those participating in workshops, as well as the evaluation of the program as a whole.</li> <li>Outcomes from the pilot training program included improvements in fitness and diet of fishers, as well as elicitation of follow-ups with general practitioners. The most common referral was for cardiovascular disease and associated risk factors. Also, having a better understanding of one's own health and wellbeing can assist with making self-improvements and a stronger focus on areas that need attention.</li> <li>In addition, the project delivered greater awareness of commercial fisher health and wellbeing issues to fishing industry associations, fishing managers and policy makers, community organisations and health professionals associated with commercial fishing.</li> <li>A key outcome of the project has been the taking up of the issue of mental health in the fishing sector, through programs like Rural Alive and Well (Tasmanian Seafood Industry Council), the Project Regard project (Women in Seafood Australasia) and the funding of a mental health workshop by FRDC in Adelaide (Tanya King, pers. comm., 2020).</li> <li>Seafood Industry Australia (SIA) now list mental health as a central concern for the industry, and the federal government has provided \$600,000 to implement a mental health program targeted at the industry (Tanya King, pers. comm., 2020);</li> <li>Further information on SIA and mental health is available at— https://seafoodindustryaustralia.com.au/our-priorities/mental-health/</li> </ul>
Impacts	<ul> <li>Improved health (including mental health and safety) and wellbeing of the commercial fishers and their families involved in the pilot program.</li> <li>Improved health (including mental health and safety) and wellbeing of commercial fishers and their families delivered via potential future initiatives that build on the experiences, findings and recommendations of project 2016-400.</li> <li>Potential contribution to improved health, safety, and wellbeing of fishers through improved understanding and management of issues by industry associations, fishing managers, policy makers and health professionals.</li> <li>Contribution to increased research capability and capacity with respect to understanding factors affecting the health and wellbeing of commercial fishers and their families.</li> </ul>

#### Public versus private impacts

Most impacts identified in this evaluation are related to improved health (including mental health and safety) and wellbeing of commercial fishers and their families. These impacts will apply to some individual fishers participating in the pilot program, as well as a contribution to potentially improved future programs and other industry management and policy changes that may evolve from project 2016-400.

Some public impacts will be in the form of improved industry and policy management that provides attention to the health and wellbeing of commercial fishers.

TRIPLE BOTTOM LINE CATEGORIES OF PRINCIPAL IMPACTS FROM PROJECT 2016-400

Economic	<ul> <li>Contribution to potential improved health (including mental health), safety and wellbeing of the seven fishers who undertook the pilot training program.</li> <li>Potential contribution to improved health (including mental health), safety and wellbeing of other fishers through improvements to future wellbeing fisher programs that build on project 2016-400.</li> <li>Potential contribution to improved health, safety and wellbeing through improved understanding and improved management of the issues by industry associations, fishing managers, policy makers and health professionals.</li> </ul>
Environmental	• Nil
Social	<ul> <li>Contribution to increased research capability and capacity with respect to understanding factors affecting the health (including safety) and wellbeing of commercial fishers and their families.</li> </ul>

#### Conclusions

The investment in this project will likely be translated into improvements in the long-term health, safety and wellbeing of Australian commercial fishers. Funding for the project over the two years totalled \$0.23 million (present value terms) and produced estimated total expected benefits of \$1.18 million (present value terms). This gave a net present value of \$0.95 million, a benefit cost ratio of 5.1 to 1, an internal rate of return of 60.9 per cent and a modified internal rate of return of 12.3 per cent.

As only one impact of those identified was not valued, the investment criteria as provided by the valued benefit are likely to cover adequately the impacts adequately. However, confidence in the assumptions made to value the impacts was considered to be only low to medium.





# **OUTPUTS—ANALYSIS BY FRDC PROGRAM**

# Program 4: People

People are the cornerstone of every industry. For the fishing industry, it is vital that it continues to attract and develop people who will take the industry to a sustainable and profitable future. The FRDC has taken a strong role in supporting people development, from employing and developing young researchers, through to facilitating access to leadership development for all levels of industry. Development of people is also a critical element and pathway to realising the benefits of the FRDC's investment in R&D.

Projects funded under Program 4 primarily address the FRDC's People program. However, this is also addressed, as a secondary but very important element, by projects within programs 1 and 2. For a full listing of projects visit FRDC's website—www.frdc.com.au

#### **Principal inputs**

During 2019–20, there was \$2.2 million or around 7.6 per cent of the total R&D investment for this program.

# Examples of project activity during the year

#### **FISH 2.0**

#### Project 2017-219

For further information: Monica Jain, mantaconsulting@gmail.com

NATIONAL PRIORITY	INFRASTRUCTURE	PARTNER: Jurisdiction	PARTNER: Industry	COLLABORATION
ENVIRONMENT	INDUSTRY	COMMUNITIES	PEOPLE	ADOPTION

The FRDC experiment in partnering with the United States based Fish 2.0 has delivered some good results. Eight of the 40 companies who took part in the FISH 2.0 Australian program made it to the global finale at Stanford in the United States.

The FRDC partnership culminated at the Global Innovators Forum held at Stanford, California on 4–5 November 2019. The core elements of Fish 2.0 included a series of entrepreneur training workshops that included exposure to investor feedback, an online (pitch readiness) assessment program, which again provided investors feedback and helped innovators improve their pitch, a series of investor education publications and an ongoing communications campaign to raise awareness and engagement in the sustainable seafood sector.

This year's forum confirmed that the sustainable seafood sector is now on firm footing and is no longer on the fringe. The investor representation at the forum reflected this mainstreaming, including not just 'seafood' investors, but individuals and funds from the broader 'ag-tech' world and agricultural banking. For the first time, the leading United States seafood distributors were there too, and were amazed at the innovation happening in their own sector.

The winner judged 'Fish 2.0 Top Innovator Award—Australia' by the forum was Australian Crayfish Hatchery.

#### Aquaculture focus for science stars

#### Project 2008-339

For further information: Elliot Scanes, elliot.scanes@sydney.edu.au

NATIONAL PRIORITY	INFRASTRUCTURE	PARTNER: Jurisdiction PARTNER: Industry		COLLABORATION	
ENVIRONMENT	INDUSTRY	COMMUNITIES	PEOPLE	ADOPTION	

Combining marine biology and food production, marine biologist Elliot Scanes won this year's FRDCsponsored Science and Innovation Awards for Young People in Agriculture, Fisheries and Forestry.

The awards are presented at the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) annual Outlook conference each March. The research awarded featured the microbiome of oysters, high-value nutritional supplements from algae, and systems to concentrate oxygen in aquaculture ponds.

Elliot plans to investigate the microbiome of oysters, an area of research he says has the potential to improve oyster resilience in the face of disease and climate challenges.

The first step will be to assess what organisms make up the microbiota inside oysters, a process made possible by new technology and techniques. He says all animals, be they oysters or people, have microorganisms—bacteria, viruses, fungi and other single-celled animals—that live within them.

"These microorganisms are really important to our health and wellbeing, but we're really only just discovering how important they can be." He will then look at how climate change, especially the warming of the oceans, might affect the microbiota inside oysters.

The second part of the research will be to identify whether existing techniques, such as selective breeding, can be used to improve that microbiota.

Elliot says the immune systems of oysters might not be as strong as that of mammals. This, combined with their exposure to changing environments, leaves them vulnerable to diseases and other pathogens. "Microorganisms associated with oysters are really important in helping them fight disease, and also to be healthy in general," he says. "We know that diseases are one of the biggest issues with oyster growing. If we can wind that back a little bit, it'll be really rewarding to know that we actually helped the industry that way."

Elliot is based at the University of Sydney and will partner with the NSW Department of Primary Industries on the research.

#### **BENEFIT COST ANALYSIS**



#### An impact assessment of FRDC investment in Seafood Marketing Symposium 2018 Showcasing Our Seafood— A spectrum of opportunities

Project: 2017-196 Title: Seafood Marketing Symposium 2018 Showcasing Our Seafood—A spectrum of opportunities Research organisation: Queensland Seafood Marketers Association Principal investigator: Marshall Betzel Period of funding: June 2018 to October 2018 FRDC program allocation: People 50% Industry 50% Benefit: Funding for the project over the two years totalled a modest \$0.06 million (present value terms) and produced estimated total expected benefits of \$0.20 million (present value terms). This gave a net present value of \$0.14 million, a benefit cost ratio of 3.3 to 1, an internal rate of return of 26.7% and a modified internal rate of return of 9.5%.

#### Background and rationale

The Queensland Seafood Marketers Association has a principal function of promoting the quality of Queensland seafood. In 2017, a marketing symposium was held in Queensland focusing on the postharvest sector and delivering quality products along the value chain. Presentations included examples from long-line harvesting, oyster growing, prawn promotion, product branding and retail strategies.

In 2018 a second symposium broadened the scope and attendance compared to the 2017 symposium.

It was contended that there was a continuing need for the seafood industry to better understand the market supply chain and keep up-to-date with new product development and marketing initiatives. The 2018 symposium was designed to address this industry need, and in particular:

- · how effective marketing can work at both an individual company and/or sector level,
- · showcase effective marketing to address both domestic and export demand,
- new marketing channels and opportunities,
- brand development
- the application of market segmentation.

#### Results/key findings

The symposium was considered successful by the Queensland Seafood Marketers Association and the symposium participants. It is likely that initiatives along the seafood marketing chains will evolve from ideas generated and discussed at the symposium.

The principal output from the project was a successful symposium held in Brisbane in 2018. One of the outcomes of the symposium was an increase by many of the participants in their understanding of the marketing opportunities and marketing enhancements that were available. Participant exit forms from those who attended indicated a general desire for an annual symposium to be held as opportunities to access and discuss such information by many attendees were infrequent.

Apart from supporting the symposium financially, the FRDC supported six young people in various positions in seafood marketing by way of scholarships to attend. Based on some limited feedback, the scholarship holders were unlikely to have attended the symposium without that support and those who provided information demonstrated that the symposium had assisted them with networking, updating software, hardware and social media.

Outcomes	<ul> <li>An intermediate outcome was an increased understanding by participants in the seafood industry of marketing opportunities available to them.</li> </ul>
	<ul> <li>However, details of any marketing changes made by participants as a result of attending the symposium are not available.</li> </ul>
	<ul> <li>The participant exit forms supported an annual symposium in the future: it was</li> </ul>
	suggested there were limited opportunities to access such information and current
	trends via other sources; however, it was considered necessary to avoid any clash
	with Seafood Directions as this would have a detrimental effect on both events.
	• The FRDC scholarship supported attendees were drawn from a wide range of
	geographic locations operating at different stages of the value chain. Scholarship
	holders, for example, included a:
	1. Western Australian marketing and communications company
	2. New South Wales trawler operator
	3. Torres Strait lobster fisher
	4. Tasmanian Seafood Industry Council project officer
	5. Seatood retailer from Victoria
	6. Northern Territory mud crab fisher.
	<ul> <li>A survey of the six scholarship holders resulted in four responses:</li> <li>All four respondents stated that the unsuld not have attended the sumposium.</li> </ul>
	<ul> <li>All four respondences stated that they would not have altended the symposium without the support of the scholarships</li> </ul>
	<ul> <li>One of the respondents (a retail business owner) stated she had benefited from a</li> </ul>
	reassessment of how to create connections and lasting impressions how to
	enquire those around her for their thoughts, and the importance of social media.
	– A second recipient responded "The program of speakers was inspiring, and the
	content was highly relevant to my role. Personally, it has improved my knowledge
	and capacity to serve the Tasmanian industry better. I have taken away several
	key messages in relation to optimising social media and how the consumer
	engages with 'seafood'. Meeting the representatives from other states was
	fantastic, and I learned that we have a lot in common in terms of projects and marketing ideas."
	• This respondent returned to her organisation and wrote a marketing and
	communication strategy for a brand new 'Eat More Seafood' campaign.
	- A third respondent said a feature for him was the quality of the presentations
	with implications for product promotion for large companies as well as for
	small-scale businesses; however, networking was the most useful personal
	benefit and he learnt ways on how best to talk to people and how to promote his product

Outcomes (continued)	<ul> <li>The fourth respondent attended the symposium with her husband (also a small business owner). The material presented and the networking discussions applied therefore to one or both of the businesses they operate. Valuable insights from the event are now included in the fishing operation business and also are applied through involvement in the fishing industry (Western Australian Fishing Industry Council) or just by general communication to friends, family and others. Some insights communicated include:</li> <li>&gt; Educate consumers, chefs, fish and chip shops and retailers.</li> <li>&gt; Don't assume they know or understand the process or the product.</li> <li>&gt; Build social licence to operate for access to the resource.</li> <li>Since the symposium, the fishing business has developed its own social media profile (rather than being promoted under a group association banner) and they have encouraged chefs to tag us into their posts to create interest in our products from both consumers and other chefs.</li> </ul>
Impacts	<ul> <li>In the short term, some increased and improved marketing and promotion activity along the seafood value chains potentially may have resulted in increased profitability across a range of seafood businesses.</li> <li>In the longer term, the innovative marketing capability and capacity of some personnel attending the symposium potentially will have been enhanced.</li> <li>Regional economies associated with seafood will indirectly benefit in the longer term from improved seafood supply chain profitability.</li> </ul>

#### Public versus private impacts

The impacts produced from the project investment were predominantly private in nature and shared between individuals, seafood businesses and by specific seafood industries. Some public benefits will have been delivered through improved capability and capacity.

TRIPLE BOTTOM LINE CATEGORIES OF PRINCIPAL IMPACTS FROM PROJECT 2017-196

Economic	<ul> <li>In the short term, some increased marketing and promotion activity along the seafood value chains potentially may have resulted in increased profitability across a range of seafood businesses; this is likely to have been driven by increased networking associated with cost reductions along the supply chain and increased product demand.</li> </ul>
Environmental	• Nil
Social	<ul> <li>In the longer term, the innovative marketing capability and capacity of some personnel attending the symposium potentially will have been enhanced.</li> <li>Regional economies associated with seafood will indirectly benefit in the longer term from improved seafood supply chain profitability.</li> </ul>

#### Conclusions

The investment in this project will likely be translated into improvements in profitability in some Australian seafood supply chains for both wild-catch fisheries and aquaculture.

Funding for the project over the two years totalled a modest \$0.06 million (present value terms) and produced estimated total expected benefits of \$0.20 million (present value terms). This gave a net present value of \$0.14 million, a benefit cost ratio of 3.3 to 1, an internal rate of return of 26.7 per cent and a modified internal rate of return of 9.5 per cent.

As only two relatively minor impacts of those delivered were not valued, the investment criteria as provided by the valued benefit are likely to cover the impacts delivered adequately. However, confidence in the assumptions made to value the impacts was considered to be only low.



# **OUTPUTS—ANALYSIS BY FRDC PROGRAM**

# **Program 5: Adoption**

Adoption is the use of knowledge arising from RD&E. A core activity in which the FRDC invests is extension (the E in RD&E)— and these activities assist, educate, make aware or facilitate end users taking the knowledge and utilising it. This ranges from undertaking communication activities such as direct communication (*FISH* magazine and websites), conferences and meetings, through to transforming R&D outputs into appropriate mediums to support stakeholder decision making, assist with achieving their objectives, and inform the broader community.

#### **Principal inputs**

During 2019–20, there was \$2.75 million or around 9.5 per cent of the total R&D investment for this program.

# Examples of project activity during the year

## Connecting health professionals with sustainable seafood

#### Project 2018-092

For further information: Nicole Senior, nicolesenior@ozemail.com.au

NATIONAL PRIORITY	INFRASTRUCTURE	PARTNER: Jurisdiction	PARTNER: Industry	COLLABORATION	
ENVIRONMENT	INDUSTRY	COMMUNITIES	PEOPLE	ADOPTION	

Combined information on the health benefits and sustainability of Australian fish stocks will help health professionals confidently recommend that clients eat more Australian seafood.

Want to protect your brain, heart, eyesight and bones? Evidence from a growing body of international research shows that eating fish and other seafood has a powerful role to play in doing just that. But confusion over which species are sustainable has often stymied Australian healthcare professionals who want to recommend that their clients eat fish.

To address this issue the FRDC has worked with dietitians to create new resources specifically for health professionals that combine information on both the health benefits and sustainable Australian species.

The SAFS reports already provide a publicly accessible and rigorously tested scientific benchmark for the sustainability of commercially wild-harvested fish species. The reports are updated every two years, and the latest release, in March 2019, includes 120 species that make up the bulk of available Australian seafood.

The FRDC identified healthcare professionals as a key influencer group to Australians selecting food and an excellent conduit for behaviour change in the broader community. Materials includes dietitians, nutritionists, primary healthcare nurses and public health practitioners. Secondary influencers who will also be included are home economists (such as food educators), food scientists and food technologists. All these groups share a commitment to scientific evidence that is also shared by the FRDC.

The evidence brought together international research findings about seafood and health, to underline the health benefits of seafood consumption. It addresses not just disease-related findings, but also the protective benefits of seafood that consumers can proactively take advantage of, to optimise their health throughout life.

Key findings include:

- Two serves of fish and other seafood a week is recommended as part of many national dietary guidelines, Fish may help reduce the risk of obesity and improve cognitive performance in children and adolescents.
- Fish in the diet of children may reduce their risk of asthma.
- Evidence supports fish and other seafood as a cardioprotective food.
- Omega-3 fatty acids in seafood are important for metabolic health.
- Fish consumption is associated with better bone health in older people.
- Fish and other seafood consumption is associated with reduced risk of depression.
- Fish consumption supports eye health.

#### Lessons from across the seas

#### Project 2017-132

For further information: Chris Calogeras, chris@c-aid.com.au, http://www.frdc.com.au/ Partners/National-Priorities-and-Subprograms/Indigenous-Reference-Group

NATIONAL PRIORITY	INFRASTRUCTURE	PARTNER: Jurisdiction	PARTNER: Industry	COLLABORATION	
ENVIRONMENT INDUSTRY		COMMUNITIES	PEOPLE	ADOPTION	

Cultural pride, leadership and collaboration were highlights of an Australian delegation's trip to learn more about Māori involvement in New Zealand fisheries.

Learning how to harness both economic benefits and cultural wellbeing for Indigenous Australians through involvement in seafood provided the drive for a trip to New Zealand by members of the FRDC's Indigenous Reference Group (IRG) and the Indigenous Land and Sea Corporation.

The Australians were guests at the 2019 Māori Fisheries Conference, where they presented and were later honoured to be the first ever non-members to attend the annual general meeting—a collective of Māori fishing groups.

The purpose of the trip was to develop stronger relationships between New Zealand and Australian First Nations peoples, in order to share knowledge and experience related to operating in fisheries and aquaculture. The Australian delegation returned home buoyed by the experience and confident about the promise for Indigenous Australians in Australia's seafood industry.

The trip provided insight into the strategies and policies that have either hindered or assisted the economic and cultural development of First Nations peoples in New Zealand, and how these learnings can assist in Australia.

#### United community

Now in its eighth consecutive year, the Māori Fisheries Conference was held in Auckland, with more than 300 people attending including the Australian contingent. The theme of the 2019 conference was '*Te hā o Tangaroa kia ora ai tā ua*'—'the breath of Tangaroa sustains us'. Tangaroa means 'God of the Sea', and the theme spoke to the interconnectedness of humanity with the environment, underpinning the purpose of the Māori Fisheries Trust, Te Ohu Kaimoana, and the work it undertakes to protect Māori fishing rights.

Members of the IRG delivered a presentation on Indigenous fisheries in Australia, with Matt Osborne presenting on the IRG's Indigenous fisheries research advisory role for the FRDC. Shane Holland gave an overview of native title and access to aquatic resources for Indigenous Australians and Chels Marshall spoke about some of the key research projects that have been funded, such as the identification of values placed on fishing by Indigenous Australians.

The conference really emphasised the strength of working together and that, although it can be slow, it is far more substantive than moving forward in isolation.

> The visit is part of the FRDC's longer-term investment in the Indigenous Fishing Subprogram, activities such as participation in the conference will continue to be undertaken as part of ensuring that fishing and seafood industry focused RD&E delivers improved economic, environmental and social benefits to Australia's Indigenous people. It also provides an opportunity to build a strong relationship with Māori fishery stakeholders to learn from them how they have got to where they are today.

Their combined presentations 'What's happening in Australian fisheries' can be viewed at https://youtu.be/ ID9YbxYdRCA.



#### An impact assessment of FRDC investment in Communicating the research management and performance of Tasmanian marine resource industries by video

# Project: 2017-106 Title: Communicating the research, management and performance of Tasmanian marine resource industries by video Research organisation: University of Tasmania Principal investigators: Caleb Gardner and Julian Harrington Period of funding: Year ending June 2018 FRDC program allocation: Adoption 100% Benefit: Funding for the small promotional video project totalled \$0.21 million (present value terms) and produced estimated total expected benefits of \$1.04 million (present value terms). This gave a net present value of \$0.83 million, a benefit cost ratio of 4.93 to 1, an internal rate of return of 21.0% and a modified internal rate of return of 11.2%.

#### What the report is about

This report presents the results of an impact assessment of FRDC investment in a project to communicate and promote Tasmanian commercial wild-catch and aquaculture industries. The investment was driven by a perceived need to better communicate to stakeholders, including the Tasmanian Government and the wider community. The ultimate aim was to showcase the marine resource industries in Tasmania, their research excellence, achievements and impacts, and attract future resources and community support. FRDC project 2017-106 addressed these objectives by producing a series of promotional videos for usage by the Institute for Marine and Antarctic Studies (IMAS) and the Tasmanian Seafood Industry Council (TSIC).

A need was identified by both IMAS at the University of Tasmania (UTAS) and the Tasmanian Seafood Industry Council (TSIC) to better communicate and promote fisheries and aquaculture research and industries in Tasmania. The production and use of short videos was selected as an effective means of meeting these needs, largely because they could be used in various situations.

Through the Sustainable Marine Research Collaboration Agreement with the Tasmanian Government, the UTAS and IMAS fund and undertake world-class research into temperate marine and coastal fisheries and aquaculture, support the effective and sustainable management of Tasmanian marine resources, and ensure maximum benefits accrue to the Tasmanian environment, economy and industries. Videos for IMAS were intended to explain the range and excellence of research investments associated with Tasmanian fisheries

The videos for TSIC were to showcase the seafood industries (both wild-catch and aquaculture). Economies were foreseen by both organisations in pooling resources to produce the videos for the two organisations. The research-oriented videos were part of the communication plans for both organisations. In addition, a longer video was planned to address environmental issues and research in Macquarie Harbour, where salmon aquaculture was expanding, and provide information that was balanced and educational for the general community.

IMAS videos can be found at: https://www.youtube.com/user/IMASTas/videos. The industry videos can be found at: https://www.youtube.com/channel/UCyy4OLlzz-YOJLCvdiETakg.

#### **Results/key findings**

The videos have contributed to increased awareness and understanding of the wild-catch and aquaculture industries in Tasmania among a wide group of stakeholders including the general community, future research funders, including UTAS, and environmental regulatory authorities.

The videos were partly responsible for increased funding for marine research at IMAS, as well as a potential contribution to maintenance of the social licence to fish in Tasmania (wild-catch and recreational) and/or to further develop aquaculture industries (e.g. salmon).

#### OUTCOME-IMPACT ASSESSMENT

Outcomes	<ul> <li>Both general community and internal support for IMAS activities have increased and has undoubtedly led to a much greater understanding that management of marine resources in Tasmania is backed by science.</li> <li>The social licence of the industries and scientists to conduct marine research has been strengthened by the videos as advanced by people who watch them, for example at public events like Agfest (Caleb Gardner, pers. comm., 2020).</li> <li>The Macquarie Harbour video has proved to be highly effective; this was achieved by taking a controversial topic and explaining the science. The video screenings have led to a more sensible debate within government and communities.</li> <li>Such success could be repeated with the expansion of salmon farming into Storm Bay by explaining issues such as whether the feed inputs used are sustainable and what happens to the salmon poo (Caleb Gardner, pers. comm., 2020).</li> <li>UTAS has recognised fisheries and aquaculture research more over the last two years and part of this may have been due to the video releases. Two years ago UTAS focused heavily on lobster aquaculture; as a result of the videos UTAS now have three high level priorities for research at the College levels (salmon centre, lobster enhancement and wild-fisheries education); this has brought in more resources (Caleb Gardner, pers. comm., 2020).</li> <li>Another example of a favourable outcome for the research videos follows. UTAS appointed a new vice-chancellor two years ago who attended the Australian Universities forum soon after he arrived—a national meeting of all the vice-chancellor's dinner; this showcased the UTAS research to every university leader in Australia and most importantly, showcased the IMAS</li> </ul>
	research to the new leader (Caleb Gardner, pers. comm., 2020).

Impacts	<ul> <li>The videos were partly responsible for increased funding for marine research at IMAS including several large infrastructure grants totalling \$10 million to date and, prospectively, another \$5 million in 2021.</li> <li>Contribution to information available to industry, government and the community regarding fisheries production and environmental interactions, in turn leading to more balanced environmental management policies.</li> </ul>
	<ul> <li>Some indirect contribution to maintenance of the social licence to fish in Tasmania (wild-catch and recreational) and/or to further develop aquaculture industries (e.g. salmon).</li> <li>Improved community capability and capacity for understanding the conduct, structure and performance (including environmental integrity) of fisheries in Tasmania.</li> </ul>

#### Public versus private impacts

Potential private impacts and their supply chains identified in this evaluation are related to Tasmanian wild-catch and aquaculture industries, through increased research funding with implications for future productivity and profitability. Other private impacts will be delivered via a contribution of the project to maintaining the social licence to fish.

Some public impacts may be delivered via an improved understanding by the wider community that, in turn, impacts on the Tasmanian government and its associated decision making on environmental management of fisheries.

Economic	<ul> <li>Potentially, contribution to increased research funding for IMAS from Tasmanian fishery industries and UTAS.</li> </ul>
Environmental	• Contribution to information available to industry, government and the community regarding fisheries production and environmental interactions, in turn leading to more balanced environmental management policies.
Social	<ul> <li>Contribution to maintaining the social licence to fish (including wild-catch, recreational and aquaculture).</li> <li>Improved community capability and capacity for understanding the conduct, structure, and performance (including environmental integrity) of fisheries in Tasmania.</li> </ul>

TRIPLE BOTTOM LINE CATEGORIES OF PRINCIPAL IMPACTS FROM PROJECT 2017-106

#### Conclusions

The investment in this project has driven increased research investment in Tasmanian fisheries; in turn this increased investment will provide benefits to Tasmanian industries as has been demonstrated in the past. Funding for the small promotional video project totalled \$0.21 million (present value terms) and produced estimated total expected benefits of \$1.04 million (present value terms). This gave a net present value of \$0.83 million, a benefit cost ratio of 4.93 to 1, an internal rate of return of 21.0 per cent and a modified internal rate of return of 11.2 per cent.

As two further potential impacts were identified but not valued in monetary terms, the investment criteria as provided by the valued benefit is likely to be an underestimate of the total value of the project investment.





# ASSESSMENT OF IMPACT AND OUTCOMES

#### **Evaluating the results of RD&E investment**

#### **Evaluating impact**

Evaluating the outcome of a research project in an annual report is difficult because many projects run over multiple years and there is a period of time between when R&D is undertaken, completed and then adopted by end users as to when the total value of the investment is realised.

The time scale can also vary depending on the activity undertaken. While there can be an instant impact from a project—resulting in change of practices or management arrangements for example — the total outcome may take time to accrue and that can only be measured when looking back.

The FRDC has in place metrics to anticipate potential value and a formal measurement process to evaluate benefit costs, which aligns with the Council of Rural Research and Development Corporations (CRRDC) evaluation framework.

#### RDC impact assessment and performance reporting

The evaluation program being undertaken by the FRDC is part of the CRRDC work to collaboratively implement a framework of benefit cost analysis to evaluate RD&E activities.

The FRDC assessment uses the methodology developed by the rural RDCs benefit cost framework which is based on the work of the Department of Finance in *Introduction to Cost-Benefit Analysis and Alternative Evaluation Methodologies*, and subsequent discussions with the department to refine the methodology.

Generating and documenting evidence of impact and demonstrating performance of the RDCs as a collective is also a key objective for the CRRDC.

The purpose of the cross-RDC impact assessment program is to:

- assess and report on the overall returns to rural industries from the portfolio of investments in RD&E by RDCs,
- assess and report on the non-market benefits (including public and spillover benefits) arising from the portfolio of investments in RD&E by RDCs,
- inform government and the public about the nature of those non-market (i.e. public and spillover) benefits from rural RD&E that are conditional on public contributions to the RDCs.

The cross-RDC impact assessment program provides for consistency in the evaluation of investments in rural RD&E made by the rural RDCs in their respective industries. The program involves aggregating the results of regular and rigorous assessment of completed RD&E investments by each RDC. These assessments provide accountability to RDC stakeholders, including government, levy payers, researchers and the community. The aggregation will generate estimates of the performance of the RDC portfolio as a whole and over time.

The 15 rural RDCs are: AgriFutures Australia, Australian Eggs Limited, Australian Meat Processor Corporation, Australian Pork Limited, Australian Wool Innovation, Cotton RDC, Dairy Australia, FRDC, Forest and Wood Products Australia, Grains RDC, Horticulture Innovation Australia, LiveCorp, Meat & Livestock Australia, Sugar Research Australia, and Wine Australia.

# Evaluation of R&D projects (completed 2015–20)

Benefit cost assessment program-Evaluations (Year 4)

In 2015–16 the FRDC started a five-year program of impact assessments that would be carried out annually on a number of investments across its RD&E portfolio.

Agtrans Research and Consulting was contracted to complete the assessments which were required to meet FRDC's evaluation reporting requirements. The following summary presents an overview and aggregate results for the fourth year (2018–19) of the evaluation program.

#### Brief description of the selection process

At the beginning of the program, the FRDC identified that the unit of investment to be evaluated would be an individual FRDC project and that a total of 20 randomly-selected projects would be evaluated each year. Five of the 20 projects for Year 4 of the assessment are on pages 63, 69, 75, 81 and 87.





# Summary and aggregate results for the years ended June 2016 to June 2018

#### Introduction

The FRDC's RD&E Plan 2015–20 ended on 30 June 2020 and a new R&D Plan 2020–25 took effect on 1 July 2020. Under FRDC's Evaluation Framework, FRDC required an aggregate summary of 60 completed ex-post RD&E evaluations for investments that were completed under the RD&E Plan 2015–20 and the FRDC's associated annual impact assessment program. This summary report presents the aggregate results for the 2015/16, 2016/17 and 2017/18 FRDC evaluation of randomly selected samples of individual projects along with a selection of other summary results demonstrating the performance of FRDC's investments under the RD&E Plan 2015–20.

#### Method

#### Individual impact assessments

The evaluations completed for each annual series of impact assessments followed general evaluation guidelines that are now well entrenched within the Australian primary industry research sector including RDCs, CRCs, state Departments of Agriculture, and some universities. The approach includes both qualitative and quantitative descriptions that are in accord with the impact assessment guidelines of the CRRDC (2018). The evaluation process involved identifying and briefly describing project objectives, activities and outputs, outcomes, and impacts. The principal economic, environmental and social impacts were then summarised in a triple bottom line framework.

Some, but not all, of the impacts identified were then valued in monetary terms. Where impact valuation was exercised, the impact assessment used benefit cost analysis as its principal tool. The decision not to value certain impacts was due either to a shortage of necessary evidence/data, a high degree of uncertainty surrounding the potential impact, or the likely low relative significance of the impact compared to those that were valued. The impacts valued are therefore deemed to represent the principal benefits delivered by the project. However, as not all impacts were valued, the investment criteria reported for some individual investments potentially represent an underestimate of the performance of that investment.

#### Aggregate analysis

The real, undiscounted, aggregate benefit and cost cash flows from each annual series of impact assessments for each FRDC program within each of the three evaluation samples (2015/16, 2016/17 and 2017/18) were extracted, integrated and updated such that all past and future cash flows were expressed in 2019/20 dollar terms using the implicit price deflator for gross domestic product (Australian Bureau of Statistics, 2020). Cash flows then were discounted to the year 2019/20 using a 5 per cent discount rate as required by the CRRDC impact assessment guidelines.

The aggregate present value of benefits (PVB) and present value of costs (PVC) then were used to estimated aggregate investment criteria for each evaluation sample (2015/16, 2016/17 and 2017/18), each FRDC program across all three evaluation samples (Environment, Industry, Communities, People and Adoption), and for all FRDC programs across all three evaluation samples in total. Further investment criteria were estimated for the total investment and for the FRDC investment alone and for different time periods up to 30 years from the last year of investment across all 60 FRDC RD&E investments included in the aggregate analysis (2018/19).

Investment criteria reported included the net present value (NPV), benefit cost ratio (BCR), internal rate of return (IRR) and the modified IRR (MIRR). The PVB for the FRDC investment was estimated by multiplying the total PVB for each program area by the FRDC proportion of real, undiscounted investment in each program and then aggregating by sample year. The FRDC proportion of real investment varied from 26.4 per cent in the Adoption Program in the 2017/18 sample to 100 per cent for both the People Program in the 2016/17 sample and the Communities Program in the 2015/16 sample.

#### **Results**

#### Aggregate investment criteria by program

Table 16 shows the aggregate investment criteria for the total investment for each of the five FRDC program areas addressed by the RD&E Plan 2015–20 across all three years of evaluations.

The Industry Program performed best with an estimated aggregate BCR of 8.32 to 1 and a NPV of approximately \$173.06 million. This was expected as the individual project analyses focused on the valuation of economic impacts and industry related RD&E investments tended to have a greater number of the more significant economic impacts (in terms of impact magnitude). The People Program had the second highest performance with an estimated BCR of 5.05 to 1.

Results for individual program areas should be interpreted with some caution because of small sample sizes. Based on the sample selection criteria in each of the annual series of impact assessments and FRDC's system of project program allocation 28 out of 60 projects contributed to the costs and benefits for the Environment Program, 31 projects contributed costs and benefits for the Industry Program, nine projects contributed costs and benefits for the Industry Program, nine projects contributed costs and benefits for the People Program, and 10 out of 60 projects contributed to the costs and benefits for the Adoption Program. This occurred because some projects were allocated across multiple FRDC program areas.

For example, a project may have been classified as 80 per cent Environment, 20 per cent Industry. In this case the project would be categorised as an 'Environment' project within the impact assessment sample, however 80 per cent of the projects estimated benefit and costs cash flows would be attributed to the Environment Program and the remaining 20 per cent would be attributed to the Industry Program. Thus, the one project from the evaluation sample would have contributed to the final investment criteria estimated for both the Environment and the Industry Program.

Total investment (30 years, 5 per cent discount rate) across all three samples								
FRDC program	PVB PVC		NPV	BCR	IRR	MIRR		
	\$m	\$m	\$m		%	%		
Environment	52.61	26.42	26.19	1.99	9.66	2.04		
Industry	196.69	23.63	173.06	8.32	16.78	4.69		
Communities	4.29	2.06	2.23	2.08	10.13	5.05		
People	17.71	3.52	14.25	5.05	nc	7.63		
Adoption	10.53	2.75	7.78	3.83	42.93	4.64		

# TABLE 16: AGGREGATE INVESTMENT CRITERIA BY FRDC PROGRAM AREA (TOTAL INVESTMENT, 30 YEARS, 5 PER CENT DISCOUNT RATE)

nc: not calculable.

An IRR may not be calculable where the relevant cash flows result in multiple possible solutions for the IRR.

Specifics of the assumptions underpinning the estimation of benefits for each program can be found in the individual project evaluation reports for each sample year available from FRDC.



#### Aggregate investment by sample year

Table 17 shows the aggregate investment criteria for the total investment for each of the three annual evaluation samples completed to date. The results show that, based on the representative random samples evaluated each year, FRDC has demonstrated positive and consistent performance with BCRs between 4.18 and 5.71 to 1. Further, these investment criteria are likely to represent a lower bound of the FRDC's RD&E performance as a number of impacts identified across the 60 individual project evaluations were not valued in monetary terms.

# TABLE 17: AGGREGATE INVESTMENT CRITERIA BY EVALUATION SAMPLE (TOTAL INVESTMENT, 30 YEARS, 5 PER CENT DISCOUNT RATE)

Evaluation sample	PVB	PVC	NPV	BCR	IRR	MIRR		
	\$m	\$m	\$m		%	%		
2015/16	109.84	26.31	83.53	4.18	22.58	8.31		
2016/17	106.75	18.69	88.06	5.71	21.72	8.49		
2017/18	65.30	13.38	51.92	4.88	10.76	1.46		

Total investment (30 years, 5 per cent discount rate)

#### Conclusion

Over the period 2017 to 2019, there were 60 randomly selected FRDC RD&E investments completed in the years ended June 2016 to 2018 (20 each year) have been subjected to impact assessment to meet the following FRDC evaluation reporting requirements:

- Reporting against the FRDC RD&E Plan 2015–20 and the Evaluation Framework associated with FRDC's Statutory Funding Agreement with the Commonwealth Government.
- Annual reporting to FRDC stakeholders.
- Reporting to the CRRDC.

The 60 individual RD&E projects evaluated had a total investment of \$58.38 million (present value terms) and generated estimated total benefits of \$281.89 million (present value terms). This gave a NPV of \$223.51 million, weighted average BCR of 4.83 to 1, an IRR of 15.64 per cent and a MIRR of 5.24 per cent over 30 years using a 5 per cent discount rate.

When aggregate results were estimated by FRDC program area across all three evaluation samples the analysis showed that all five FRDC program areas (Environment, Industry, Communities, People and Adoption) had positive investment criteria with BCRs ranging from 2.08 to 1 for the Communities Program to 8.32 to 1 for the Industry Program. Also, aggregate results estimated by evaluation sample (2015/16, 2016/17 and 2017/18) demonstrated that FRDC has had positive and consistent performance with BCRs between 4.18 and 5.71 to 1. Further, the investment criteria are likely to represent a lower bound of the FRDC's RD&E performance as a number of impacts identified across the 60 individual project evaluations were not valued in monetary terms.

Based on the random sample selection process these results are considered to be largely representative of the performance of the FRDC RD&E investment portfolio for investments completed in the years ended June 2016 to 2018 under the FRDC's RD&E Plan 2015–20. The results show that FRDC has consistently delivered benefits to fisheries and aquaculture industries and the broader Australian community. Further, the results are consistent with the average performance of the Australian RDCs with an estimated weighted average BCR of 4.5 to 1 (Agtrans Research, AgEconPlus and jav, 2016) and should be viewed positively by government, fisheries and aquaculture industries, other stakeholders, and FRDC management.


# REPORT OF OPERATIONS PART 3: SERVICES



# Marketing

During 2019–20, the FRDC did not undertake any marketing activities.

Priority area activities	PBS target 2019–20	Achievement
Commence collection of voluntary marketing funds pending legislative changes.	An amount of \$250,000 to be collected.	Not achieved.
Coordinate the delivery of the Love Australian Prawns campaign pending legislative changes.	Campaign activities delivered in line with marketing plan.	Not achieved. Australian Council of Prawn Fisheries and Australian Prawn Farmers Association manage the Love Australian Prawns funds via voluntary contribution.
Establish full statutory marketing levy collection with industry sectors for sectors, where requested and pending levy being established.	One marketing levy established.	Not achieved. Two marketing levies voted upon. One successful but not progressed, the other voted down by industry, details follow.

#### Marketing levies development

As part of developing the appropriate systems and knowledge, the FRDC has continued to meet with the levies area of DAWE as part of assisting Australian Prawn Farmers Association (APFA) and the Abalone Council of Australia move to implement a marketing levy. These meetings established a clear picture of the processes, steps and timeframes required to put in place a statutory levy, if industry decides to go down this path.

#### Prawn farmers to pave path to market

The marketing levy development activity for Australian prawn farmers continued through the year with further consultation completed in early 2019. Following this consultation, a formal vote was undertaken.

Although a majority supported the proposal there remained some who did not. The APFA Management Committee discussed at length the issue noting that writing to the Minister requesting the levy without the support of all farms was not the preferred option. After careful consideration, the APFA decided not to progress a compulsory marketing levy for the Australian prawn farm industry.

#### Australian Wild Abalone™

The Abalone Council Australia continued discussions with fishers early in the year regarding establishing an abalone marketing levy through the early part of the year. The formal abalone consumer education and promotion ballot closed on 15 December 2019.

Following final metrics of the ballot being collated and verified by CorpVote. The outcome was clear that the compulsory marketing levy was not supported by the industry (either by numbers of individuals or by ownership). Just under 70 per cent of quota holders participated, with a majority 76 per cent voting not to progress the levy.



# Trade

#### Trade statistics

International trade and exporting play an important role for many in the Australian seafood industry. The FRDC trade database is now gaining recognition and use by Australian exporters. It continues to provide access to the latest import and exports trade data from the Australian Bureau of Statistics. The database is updated monthly and can be filtered and will allow in-depth analysis of import and export trends based on key attributes—country, state, product type. Export codes have been grouped together in logical blocks for ease of use. Visit the portal at www.frdc.com.au/Services/Trade-data.

#### Trade Bursary Program

During the year COVID-19 caused the cancellation of the FRDC Trade Bursary Program due to rising health concerns and travel restrictions. This included the 2020 Seafood Trade Bursary to the Seafood Expo Global (in Brussels) and the World Recreational Fishing Conference to be held in Rotterdam.

#### Seafood Trade Advisory Group

The FRDC-funded Seafood Trade Advisory Group (STAG) project continued to provide advice and updates on market conditions in China. Following the outbreak of COVID-19 the STAG became a critical part of ensuring Australian exporters were kept across changes to markets. The STAG also provided information and data to assist industry participate in the International Freight Assistance Mechanism and continue to export.

## Seafood industry engagement in the Australia–European Union Free Trade Agreement

Australia progressed the European Union free trade agreement during the year. The FRDC assisted through the coordination of input from fishing and aquaculture industry members. The European Union remains a significant, if not under-accessed market for Australian seafood exporters. This is partly due to Australian exporters facing commercially onerous European Union import regulations and procedures as well as tariff barriers of between 12–26 per cent. The FRDC will continue to assist and coordinate input where requested until the negotiations are completed.

#### China seafood market development

The FRDC, the Sydney Fish Market and the Australia–China Agricultural Cooperation Agreement program agreed to fund the Professional Fishermen's Association (PFA) to conduct a trade mission to China to explore the concept of supplying mixed seafood between New South Wales commercial fishers and China using an e-commerce tool. The program was developed in consultation with the PFA, GFRESH, Sydney Fish Market, Austrade and DAWE.

The report from FRDC's project 2016-173 found at the time there was a significant opportunity and rationale to developing the market to China, with benefits to the Australian seafood industry. The creation of a more stable market that can handle the substantial fluctuations in the supply of specific Australian seafood species as well as the willingness of the Chinese market to pay for high-quality products linked strongly to providence marketing and tourism.



# Standards

# **Standards Organisation**

The FRDC is approved by the Accreditation Board for Standards Development Organisations as a Standards Development Organisation AS/NZS ISO 9001:2015 organisation for quality and undertakes internal and external audits annually with a recertification audit of its quality system each three years.

The FRDC carried out both an internal and an external three-year re-accreditation audit in October 2019. The Standards Development and Accreditation Committee approved the reaccreditation of the FRDC at their meeting on 6 February 2020.

The FRDC has continued to work with industry partners throughout the year looking at a number of potential options to create future fisheries-related standards. Over the coming year there will be more work to formalise and finalise groundwork already completed by a number of research projects. Standards being developed include responsible fishing, science, and fisheries management standards. Further information is available at www.seafoodstandards.com.au

## Australian Fish Names Standard

The Fish Names Committee met at the Melbourne Museum on 9 October 2019 and by videoconference on 22 April 2020.

Having a standard in place increases consumer confidence in the seafood they buy because no matter where they buy their seafood in Australia, they know it will be called by the same name. Standard names also allows for more efficient and effective management of food safety and reduces the potential for misleading and deceptive conduct as more accurate trade descriptors can be used. The Australian Fish Names Standard is a searchable online database—visit www.fishnames.com.au

Independent Chair	Gus Dannoun
Fisheries agencies appointee as nominated by Australian Fisheries Management Forum (AFMF)	Jason Gibson
Expert member (seafood marketing and fish and Invertebrates taxonomy)	Don Tuma
Expert member (hospitality)	Glenn Austin
Expert member (fish taxonomy)	Gordon Yearsley
Expert member (seafood processors)	Anthony Mercer
CSIRO fish taxonomy representative	Karen Gowlett-Holmes
Australian seafood industry appointee	Renee Pearce
Recreational fishing appointee	Russell Conway
Expert member (seafood imports)	Mark Boulter
Expert member (major supermarkets)	Hamish Allen
Expert member (seafood marketing)	Anni Conn
DAWE representative	Lisa McKenzie
Expert member (Master Fish Merchants' Association of Australia representative)	Kerry Strangas

FISH NAMES COMMITTEE MEMBERSHIP

#### OBSERVERS AND NON-VOTING MEMBERS

Standards Development Organisation representative	Dr Patrick Hone
Standards Development Organisation representative	Nicole Stubbing

#### PROJECT MANAGER AND ADMINISTRATION

Project manager	Alan Snow
Co-investigator	Meaghan Dodd

#### Development of Australian Standard for Aquatic Plant Names

Work on developing the first Australian Standard for Aquatic Plant Names (AS 5301) continued throughout the year. Plants from marine and freshwater environments are covered by this standard, irrespective of the country of origin. The final draft, which included the list of standard names to be used in Australia for edible and commercial aquatic plants was completed and put out for the required public consultation period.

AS 5301 the Australian Standard for Aquatic Plant Names will be published in November 2020.

MEMBERSHIP	OF THE		PI ANT	NAMES	COMMITTEE
INFERIDENSIIII		AQUAIIC		IN AIVIES	CONTINUE

Representation	Name
Independent Chair	Gus Yearsley
CSIRO and Codes for Australian Aquatic Biota (CAAB) database	Karen Gowlett-Holmes
Industry	James Ashmore
Industry	Pia Winberg
Industry	Russell Glover
Hospitality	Cassandra Austin
Academia	Alecia Bellgrove
Academia	John Huisman

#### OBSERVERS AND NON-VOTING MEMBERS

FRDC representative	Patrick Hone
FRDC representative	Nicole Stubing

#### PROJECT MANAGER AND ADMINISTRATION

Project manager	Meaghan Dodd
Co-investigator	Alan Snow





# Information and communications technology

# Aligning information management systems for the future

The FRDC continued to leverage the benefits of Microsoft 365 Cloud Services by implementing Microsoft Teams to enhance communication and collaboration, driving efficient and effective outcomes.

The FRDC had just finished the migration of its telephony system to Microsoft Teams and its on-premises document management system to SharePoint Online when it had to transition all staff to SharePoint so they could work from home during COVID-19 restrictions. As such, the transition has been seamless with negligible impact on information and communications technology (ICT) systems.

It allowed the ICT team to explore ways for the organisation to operate in this virtual environment, while striving to maintain a connected and cohesive work culture. In the first part of the financial year, the FRDC was increasing its cloud usage maturity by transitioning from Infrastructure as a Service to Platform as a Service and Software as a Service. This included migration of the on-premises document management system to SharePoint Online. The FRDC also took advantage of the telephony services that were introduced with the Office 365 offerings to migrate the PABX system to Microsoft Teams.

# COVID-19 'home enabled' work environment

The finalisation of the two activities were timely because the second half of the financial year was about transitioning to home-based work for all staff due to COVID-19. The new systems and hardware and the training that was conducted meant the transition was as seamless as can be expected. Cybersecurity vigilance was also heightened due to emerging threats and scams targeting home users.

# Future system development

The FRDC will utilise the opportunity offered by COVID-19 to continue to improve its system with further efforts put into:

- streamlining some of the manual steps in the project management life cycle;
- expanding capability to store project-related information;
- driving efficient business processes.





# **Corporate communications**

During the year the FRDC communications team has played a significant role in developing and engaging with stakeholders particularly during COVID-19. The mix of activities has remained largely the same—media releases, digital communications, *FISH* magazine, communications collateral and events. In addition, the FRDC staff attended and presented at stakeholder events (pre COVID) across the country to ensure ongoing conversation and engagement.

# **COVID-19 communications update**

The FRDC focused a lot of its communication activities in the second half of the year to assess and respond to the COVID-19 pandemic. A dedicated COVID-19 webpage was established to provide updates both from government agencies (health, agriculture and fisheries) and on what the FRDC was doing in response to the evolving global situation (research projects, meetings and assistance). The website has allowed stakeholders to provide comment and feedback on issues they have faced across various regions and fisheries. See http://frdc.com.au/media-publications/fish/FISH-COVID19.

In addition, the FRDC increased the frequency of its regular communication, modifying the schedule of *FISH* magazine from quarterly to two shorter, timelier COVID-19 relevant editions. The content of the magazine was also tweaked to provide relevant information to FRDC stakeholders in relation to the cascading impacts of this challenging period, as well as to track the impacts on FRDC stakeholders through coverage in the magazine. To ensure the content FRDC provides is timely and relevant to its audience, the FRDC has established a feedback page for stakeholders to use—https://www.frdc.com. au/media-publications/fish/Feedback.

## Message in a bottle

The FRDC's communications team started producing a weekly e-newsletter in May 2020 which is delivered to all stakeholders. Subscriptions are via FRDC's homepage at www.frdc.com.au. The newsletter mainly focuses on information that can assist with how stakeholders can adapt to COVID-19.

## Project communications and extension

The FRDC has reviewed its extension activities, examining ways to better deliver information to end users. A large part of this was undertaken by looking at FRDC's internal and external structures (RACs and IPAs) and how the system could be changed to improve extension and adoption.

In addition, the FRDC started to undertake a number of synthesis projects that will, when complete, combine the research and knowledge around a particular area or issue—for example bycatch.





## **FISH** magazine

*FISH* magazine is a major tool for the FRDC to communicate with industry and its broader stakeholders. The publication is widely recognised as the leading fisheries research magazine in Australia. *FISH* magazine provides the FRDC with a platform for extending knowledge generated from research as well as to discuss key policy, practice and management issues that are relevant to fishing and aquaculture stakeholders.

During the year the FRDC ran a select tender process for the production of the magazine. A number of media production companies were identified as producing similar science-based content and asked to participate in the process. The companies were assessed against the selection criteria and evaluated by a panel consisting of the FRDC and two external rural RDC communication managers. Coretext was selected as the service provider to produce *FISH* magazine.

# New issues and synthesis page

The FRDC undertakes research across a wide range of topic areas. Some of these become 'hot topics or issues' that garner a lot of industry and public interest. Where possible the FRDC will provide an easy-to-understand summary of the research undertaken on that issue.

The FRDC produces a range of digital-only communication materials including the quarterly stakeholder briefing (https://www.frdc.com.au/Media-Publications/Stakeholder-briefings), issues papers and e-mail updates. These publications are shared via e-mail to subscribers and key stakeholders on the FRDC's customer database.

# **National Carp Control Plan**

Communications activities in relation to the National Carp Control Plan (NCCP) have been a key focus for the FRDC over the past year. Activities included a regular progress report circulated via *FISH* magazine as well as to stakeholders at workshops and other events. In addition, the FRDC published regular media releases to inform the public of both the research as it is completed and of the more general activities being undertaken by the NCCP team. The NCCP exists in a contested space of complex and controversial research. For this reason, communications activities have been guided by an ethos of adherence to the research results and to maintain both transparency and an agnostic stance in relation to the outcome of the NCCP. For more on the NCCP see the section on page 59.



# Little fish films

The FRDC organised an international short film competition aimed at school children. The goal was to raise awareness in the younger generation of the aquatic environment and how humans interact with it. The FRDC had gained the support and collaboration of fisheries agencies in other regions and applications had started when COVID-19 hit.

The competition was to be run in coordination with the World Fisheries Congress due to take place in October 2020 in Adelaide. However, due to the pandemic, the Congress was postponed by 12 months and the competition was also put on hold.

## International collaboration

The FRDC is a member of the International Coalition of Fishing Associations Global Communication group. Throughout the year, the group meets four times to look at key issues to develop consistent information for industry and consumers. This year, the group also undertook an exercise to identify and map significant issues and areas of change in fishing and aquaculture across the world over the next five years (all prior to COVID). The key changes raised across all areas of the network are:

- efficiencies of different forms of seafood production,
- appropriate resource management,
- trade distortion, embargoes, agreements,
- available workforce,
- spatial management,
- fish production volume,
- microplastics,
- climate change,
- changing landscape for seafood sustainability,
- animal welfare.

## **Digital media**

The internet and associated enabling technologies will continue to be the central point from where the FRDC will deliver information. All finalised FRDC project reports are available from www.frdc.com.au

All the FRDC sites continue to be upgraded to provide better integration as part of FRDC's ICT strategy. The curation and collation of online content in relation to particular projects and issues has also continued to be a focus over the last year and work is ongoing. Project specific sites and pages have been developed during the year such as the SeSafe website—sesafe.com.au—focusing on safety training for the seafood sectors.

Social media provides the FRDC a platform to engage with stakeholders and consumers and address and respond to questions. As a whole, across all social media platforms, the FRDC has now almost 50,000 followers. A library of YouTube videos has also been created to cover topics from cooking seafood to fishing and aquaculture practices. The FRDC social media channels include:

- www.facebook.com/FRDCAustralia,
- twitter.com/FRDCAustralia,
- www.facebook.com/fishfiles,
- www.facebook.com/catchoftheyear,
- @frdc\_au.



REPORT OF OPERATIONS PART 4: MANAGEMENT AND ACCOUNTBILITY



# Management and accountability

Management and accountability activities focus on continually improving how the FRDC operates and manages its organisation. A large part of the activities undertaken align and respond to legislative and financial requirements. These also align with the corporate governance section starting on page 111.

The FRDC strategic planning and reporting documents (comprising RD&E plan, annual operational plan and annual report) were completed and presented within their legislated timeframes to the Minister for Agriculture and his department. These documents aim to identify the key issues that face the FRDC, and outline strategies to take advantage of opportunities, and to minimise or mitigate against negative threats.

#### **Principal inputs**

During 2019–20, there was \$5.5 million or around 16 per cent of total FRDC expenditure.

#### Performance indicators

Since the management and accountability outputs contribute to the planned outcome of the FRDC's RD&E programs, they are crucial to the FRDC's effectiveness and efficiency. These outputs are outlined below.

Performance indicators	Target	Achievement
Projects focus on the FRDC Board's assessment of priority research and development issues.	Ninety-five per cent are a priority.	Achieved. Projects align with strategic priorities set out in AOP and partner plans.
Projects are assessed as meeting high standards/ peer review requirements for improvements in performance and likely adoption.	Ninety-five per cent are a high priority.	Achieved.
Maintain ISO9001:2008 accreditation.	FRDC maintains certification.	Achieved. See page 100.
Submit planning and reporting documents in accordance with legislative and Australian Government requirements and timeframes.	One hundred per cent met Government requirements.	Achieved. All documents submitted in accordance with requirements.
Implement best practice governance arrangements to promote transparency, good business performance and unqualified audits.	Achieve unqualified audit result.	Achieved. See audit report pages 127–128.
Demonstrate the benefits of RD&E investments by positive benefit cost analysis results.	Benefit analysis undertaken on one investment area.	Achieved. Average benefit cost analysis results see pages 63, 69, 75, 81, 87, 92.

# Staffing

The FRDC is governed by a board of directors (see page 118) appointed for their expertise and is led by a Managing Director who manages the day-to-day operations of the organisation.

In 2019–20, the FRDC employed 20 people (four staff are part time) across its operations with an average staffing level of 19.3. FRDC's staff are one of its most important resource, and are key to the Corporation's ongoing success.

	Male			Female			Total
	Full time	Part time	Total male	Full time	Part time	Total female	
Australian Capital Territory	4	0	4	2	0	2	6
Total	4	0	4	2	0	2	6

ALL ONGOING EMPLOYEES CURRENT REPORT PERIOD (2019-20)

\* There were no ongoing employees in New South Wales, the Northern Territory, Queensland, South Australia, Tasmania, Victoria or Western Australia.

#### ALL NON-ONGOING EMPLOYEES CURRENT REPORT PERIOD (2019-20)

	Male			Female			Total
	Full time	Part time	Total male	Full time	Part time	Total female	
Australian Capital Territory	2	0	2	3	3	6	8
New South Wales	0	0	0	1	0	1	1
Northern Territory	1	0	1	0	0	0	0
South Australia	2	0	2	1	1	2	4
Total	5	0	5	5	4	9	14

\* There were no non-ongoing employees in Queensland, Tasmania, Victoria or Western Australia.

#### ALL ONGOING EMPLOYEES PREVIOUS REPORT PERIOD (2018-19)

	Male			Female			Total
	Full time	Part time	Total male	Full time	Part time	Total female	
Australian Capital Territory	4	0	4	3	0	3	7
Total	4	0	4	3	0	3	7

\* There were no ongoing employees in New South Wales, the Northern Territory, Queensland, South Australia, Tasmania, Victoria or Western Australia.

#### ALL NON-ONGOING EMPLOYEES PREVIOUS REPORT PERIOD (2018–19)

	Male				Female		
	Full time	Part time	Total male	Full time	Part time	Total female	
Australian Capital Territory	4	0	4	3	3	6	10
New South Wales	1	0	1	1	1	2	3
South Australia	2	0	2	3	1	4	6
Total	7	0	7	7	5	12	19

\* There were no non-ongoing employees in the Northern Territory, Queensland, Tasmania, Victoria or Western Australia.

# Equal employment opportunity

The FRDC promotes a work environment that is free from discrimination on the basis of race, colour, sex, sexual preference, age, physical or mental disability, marital status, family responsibilities, pregnancy, religion, political opinion, national extraction or social origin, or on the basis that an individual either is, or is not, a member of a union of employees, or of a particular union of employees.

The FRDC has a policy of equal employment opportunity. Merit-based principles are applied in recruitment and promotion to ensure discrimination does not occur.

## Industrial democracy

The FRDC's staff members work as a team in which all contribute freely. This process is strongly reinforced by the FRDC's total quality management philosophy and the attendant emphasis on continual improvement. Staff members are provided with the opportunity at regular meetings to raise issues and discuss options to resolve how they are handled.

## **Disability and accessibility**

The FRDC's employment policies and procedures align with the *Disability Discrimination Act 1992* in the broader context of the National Disability Strategy 2010–2020. The FRDC's recruitment and staff development practices seek to eliminate disadvantage that may be contributed to by disabilities. Consultation with people with a disability and when required, with appropriate specialist organisations, is a component of the FRDC's policies and practices, recognising the effect of a disability differs widely between individuals and that often a little thought makes a big difference in meeting a person's needs.

## **Final report requirements**

Under the *Disability Discrimination Act 1992*, Australian Government agencies are required to ensure information and services are provided in a non-discriminatory accessible manner—the FRDC aims to make all project reports meet these requirements. Where information is not accessible, the FRDC ensures that it is made available in a suitable format.

## **Behaviour**

Corporate governance practices are evolving rapidly, both in Australia and overseas. The FRDC is proactive in adopting better practices, including those governing ethical behaviour, into its own processes. The FRDC has a code of conduct that is appropriate to its structure and activities. New directors and staff are briefed and sign off agreeing to comply with the code during induction training.

## **Records management**

The National Archives of Australia undertakes an annual assessment (Check-up PLUS) looking at maturity and performance in information and data management. Check-up PLUS is structured to align with the National Archives' Information Management Standard. The survey assesses agencies maturity and performance in information and data management, in line with the Digital Continuity 2020 Policy.

A total of 166 agencies completed the 2019 Check-up PLUS survey. The FRDC scored an overall maturity score of 3.81 out of 5, an increase from 2019. This is 0.56 above the Australian Government average of 3.25.

		Rank (out of	-
	FRDC scores	166 agencies)	Position
Governance index	3.00	40 out of 166	Middle third of agencies
Information creation/generation index	5.00	1	Top third of agencies
Interoperability index	3.76	42	Top third of agencies
Storing information digitally index	4.50	21	Top third of agencies
Disposing index	3.29	60	Middle third of agencies
Digital operations index	5.00	1	Top third of agencies
Overall index	3.81	34	Top third of agencies

## **Risk management**

There was no incidence of fraud detected at the FRDC during the year.

Risk management is incorporated into FRDC's activities in accordance with its risk management policy, which is integrated into its quality management system and internal audit program. The risk policy also incorporates a fraud control framework in accordance with the Fraud Control Guidelines produced by the Attorney-General's Department which seeks to minimise the likelihood and impact of fraud.

All staff participate in regular internal risk reviews which are used to update the FRDC's risk register. Additionally, the Board reviews the highest-ranked strategic risks at every meeting.

# **COVID-19 risks**

Following the outbreak of COVID-19, the FRDC undertook a risk review looking at the impacts of the pandemic. A COVID-19 risks matrix was identified and is updated regularly. Key risks identified were to staff, delivery of R&D and financial impacts (both on stakeholders and corporation).

## Agreements and contracts

Each year the FRDC engages companies, research institutions and government agencies to undertake RD&E activities. The process for applying for funding is outlined on the FRDC's website. The FRDC engages each organisation using a contract or consultancy agreement that outlines the requirements and responsibilities associated with undertaking work for the FRDC. This includes obligations around government policy and standards such as privacy, fraud, and work health and safety. A list of all active projects, including projects approved is available on the website—www.frdc.com.au

# **Comcover Risk Management and Benchmarking Survey**

The FRDC completed the Comcover Risk Management and Benchmarking Survey, which is conducted every two years, and achieved a risk maturity of Optimal; noting that the average maturity level of all survey participants was integrated.



FIGURE 4: COMPARISON OF CURRENT AND TARGET MATURITY STATUS ACHIEVED ACROSS ELEMENTS 1–9 FOR YOUR ENTITY RELATIVE TO YOUR COMMUNITY OF PRACTICE

## **Industry contributions**

At the core of FRDC's finances is maintaining solid partnerships with those contributing stakeholders, namely the state and territory fisheries agencies and individual industry sectors. The FRDC currently has 12 IPAs.

These partnerships offer both parties a number of advantages. For industry, they provide more involvement in determining and undertaking RD&E. For the FRDC they provide a more certain flow of industry funds and ultimately a greater understanding of the fishing industry.

An overview of state and territory contributions against the maximum matchable contribution is shown in Table 8: Contributions, maximum matchable contributions by the Australian Government and returns on investment (page iii).

During the year, FRDC also held a share in Australian Seafood Co-products (ASCo) which is a company developed to look at alternate uses for fish processing waste. The company was closed on 30 June 2020 (see Note 2.1C in the financial statements, page 152).

## Consultancy services and selection of suppliers

During the year, the FRDC engaged 11 consultancies which were valued at \$10,000 or more (see tables below).

When selecting suppliers of goods and services, the FRDC follows its procurement policy procedure which seeks to achieve value for money and to deal fairly and impartially with its suppliers. Obtaining value for money does not necessarily require the cheapest supplier to be selected. Other factors considered are urgency, quality, ethical conduct of the supplier and whole-of-life costs.

The FRDC policies and procedures align with principles contained in the Commonwealth Procurement Rules and are available from the FRDC website.

#### CONSULTANCY SERVICES

Consultancy	Description	Amount GST inclusive
		\$
IT Payroll Solutions	Provision of contract staff	390,936.70
Hays Recruitment	Agency contracted staff	128,643.37
Mercer	Workforce plan	95,751.29
Yardstick Advisory	Internal auditors	78,541.60
Forest Hill Consulting	Performance and partner agreement review	41,527.28
Be Sustained Pty Ltd	Leadership development	38,721.47
Ashurst Lawyers	Legal advisory services	43,836.53
Dot Zone	Information technology provider	28,281.25
Versecorp Pty Ltd	Information technology provider	74,470.71

CONSULTANCY SERVICES AS REQUIRED UNDER SECTION 311A OF THE COMMONWEALTH ELECTORAL ACT 1918

Consultancy	Description	Amount GST inclusive
		\$
Making Data Easy	Stakeholder data analytics and e-mail services	126,169.82
Intuitive Solutions	Market research	58,000.00

## Legal Services Directions Expenditure Report

On 9 August 2019, the FRDC submitted its signed Annual Compliance Certificate and Legal Services Directions Expenditure report to the Attorney-Generals Department.

## **Ministerial directions**

During the year the FRDC received no ministerial directions or notifications.

The PIRD Act provides that the portfolio Minister may give direction to the Corporation with respect to the performance of its functions and the exercise of its powers. In addition, the Finance Minister, under the PGPA Act, may notify the Board of any general Australian Government policies that apply to the FRDC.

# **Government policy**

The FRDC complied with all relevant Australian Government policy requirements:

- Australian Government Cost Recovery Policy,
- Australian Government Commonwealth Procurement Rules,
- Australian Government Commonwealth Property Management Framework,
- Australian Government Public Sector Workplace Bargaining Policy,
- Commonwealth Fraud Control Guidelines 2011,
- Foreign Exchange (Forex) Risk Management,
- National Code of Practice for the Construction Industry and the Commonwealth's Implementation Guidelines.

See the compliance index starting on page 182.

## **Protective Security Policy Framework**

The FRDC continues to align FRDC practices with the Protective Security Policy Framework. This year, a number of physical and system changes were implemented to not only meet the requirements of the framework but assist with staff safety during COVID. This included reducing access to external visitors and higher levels of access and entry. The FRDC continues to work on improving its security policies and procedures with regards to security risk management.

## Judicial reviews and administrative tribunals

There were no judicial or administrative tribunal decisions during the year.

## **Freedom of information**

During 2019–20, the FRDC received no requests pursuant to the *Freedom of Information Act 1982* (FOI Act). The FRDC is required to comply with the FOI Act.

In many cases it may not be necessary to request the information under the FOI Act—the FRDC may simply provide it when asked. At all times, however, individuals have the option of applying under the FOI Act.

More information on freedom of information see Appendix E (pages 175–176) or the FRDC website to view the FOI Disclosure Log https://www.frdc.com.au/About/Freedom-of-information/Disclosure-Log.

# **Energy efficiency**

The Commonwealth Government has established energy efficiency targets in its document *Energy Efficiency in Government Operations Policy* which seek to improve energy efficiency in relation to vehicles, equipment and building design.

The FRDC adheres to this policy. It is a minority tenant occupying part of an office building and does not own motor vehicles or large equipment. Prudent management of power consumption is followed within the FRDC's premises. For example, energy efficient lighting has been installed and timer switches have been placed in offices to reduce the time lights are left on.



# Work health and safety

The FRDC is committed to providing a safe and healthy environment for all staff, contractors and visitors to its workplace. The Corporation recognises that its people are its greatest asset and its most valuable resource. The FRDC's ultimate goal is that its workplace is free of injury, illness and disease (including COVID-19). The FRDC complies with its legislative obligations under the *Work Health and Safety Act 2011* (WHS Act) and takes all reasonably practicable steps to ensure a safe working environment. Regular maintenance of equipment and testing of electrical cables is also undertaken.

The FRDC's Workplace Health and Safety Policy and procedure has been developed in accordance with the requirements under the WHS Act in consultation with FRDC's employees. The FRDC also recognises that continued reviewing and improvement of its health and safety management system makes good sense legally, morally and from a business perspective.

PART 4 OF THE WORK HEALTH AND SAFETY ACT 2011

Statistics of any notifiable incidents of which the entity becomes aware during the year that arose out of the conduct of businesses or undertakings by the entity.	<ul> <li>No injuries occurred on FRDC premises during 2019–20.</li> </ul>
Initiatives taken during the year to ensure the health, safety and welfare of workers who carry out work for the entity.	<ul> <li>Consultation of WHS issues includes all staff.</li> <li>Agreed health and safety management arrangements policy and procedures.</li> </ul>
Health and safety outcomes (including the impact on injury rates of workers) achieved as a result of initiatives mentioned under paragraph (a) or previous initiatives.	<ul> <li>Health and safety awareness and incidents are a standing item for all staff meetings.</li> <li>Occupational rehabilitation physiotherapist provides ergonomic assessments to all new staff in their immediate working environment, and when requested.</li> <li>Staff provided with access to influenza vaccinations.</li> <li>Workplace safety training.</li> <li>Annual fire safety and warden training, and six-monthly checks of fire safety equipment.</li> <li>Annual testing and tagging of electrical appliances.</li> <li>Qualified first aid officer and fire warden.</li> <li>Assessment of risks in line with the risk framework annual review.</li> </ul>
Investigations conducted during the year that relate to businesses or undertakings conducted by the entity, including details of notices given to the entity during the year under part 10 of the Act.	<ul> <li>Increased awareness of roles and responsibilities in WHS including responsibilities of managers.</li> <li>No requests were received from staff and no undertakings were given by the FRDC.</li> <li>No directions or notices were given to the FRDC.</li> </ul>

Notifiable incidents	2015–16	2016–17	2017–18	2018–19	2019–20
Deaths	0	0	0	0	0
Dangerous occurrences	0	0	0	0	0
Serious personal injury	0	0	0	0	0
Incapacity	0	0	0	0	0
Total	0	0	0	0	0

Comcare Australia is responsible for worker's compensation insurance coverage within the FRDC. The insurance premiums are levied each year based on the level of salaries and wages costs and experience in claims made by employees.



REPORT OF OPERATIONS PART 5: CORPORATE GOVERNANCE

# Corporate governance

Governance refers to processes by which organisations are directed and controlled—including, characteristics such as authority, accountability, stewardship and leadership. Corporate governance is concerned with structures and processes for decision making, and with controls and behaviour within organisations that support effective accountability for performance outcomes.

The FRDC's general governance arrangements are established by legislation and government policies and reporting requirements. In addition to the requirements of the PIRD Act, which includes an annual operational plan, a research and development plan and an annual report, the Corporation also operates under the provisions of the PGPA Act which applies high standards of accountability for statutory authorities.

The Board and staff are strongly committed to ensuring good corporate governance. In doing so, the focus is on policies, structures, processes, controls, behaviours and transparency. To support the FRDC's high level of commitment to these principles, a full list of FRDC policies and copies of the financial statements are available from the FRDC website—www.frdc.com.au

# The Board

The FRDC board sets the overarching direction and strategy for the organisation. It has ensured that the necessary governance (policies), systems and procedures are in place to enable the organisation to invest in priority areas and specific RD&E activities.

The Board comprises eight directors who are appointed in accordance with sections 17 and 77 of the PIRD Act. Directors are selected on the basis of their expertise in a variety of fields including commodity production and processing, conservation, science, economics, and business and financial management. All directors, except the Managing Director, are appointed for three years on a part-time basis.

At the commencement of a term all directors undergo a formal induction including a workshop run by the Australian Institute of Company Directors. In addition, to ensure the Board has a strong understanding and connection to the fishing industry and its stakeholders, it meets outside Canberra wherever possible (ideally at least three times a year in regions key to the fishing industry. This provides directors with the opportunity to discuss relevant issues with industry stakeholders, as well as see firsthand, the fishing industry in action.

The Board plays a fundamental role in guiding the organisation and providing the FRDC management with strong leadership. It oversees corporate governance, ensuring the FRDC has a good framework of policies and procedures, playing a strong role in the approval and oversight of financial matters including approval of any high-risk projects.

A key update during the year was revising the delegation policy by which the Board entrusts specific powers to either FRDC directors and employees, pursuant to section 90 of the PIRD Act. It also reinforced the organisational focus to ensure that FRDC management are focused on those matters it is best suited to manage.

In addition, this year the Board approved the AOP and funds for current commitments (existing contracted projects), and for new commitments delegating FRDC management to oversee that these investments are in line with stakeholder priorities, the AOP and the new R&D Plan 2020–25—with the Board providing the necessary governance, oversight and approval for projects that are high risk. The objective is to provide a more flexible and nimble approach to investment, so the FRDC can assess applications at any time throughout the year.

Details of the directors who held office during the year are shown on the following pages.



# **Directors' biographies**

## Mr John Williams: Chair

#### Appointed Chair from 10 March 2020

John Williams was elected to Federal Parliament in 2007 as Senator for New South Wales and was sworn in on 26 August 2008. John was born in Jamestown South Australia but has lived most of his life in the Inverell district in the New England region of New South Wales. Prior to entering politics, he had been a truck driver, shearer, farmer and a small business owner.

With this background, John understands regional Australia and the issues small business operators deal with every day. John is a strong advocate for the reduction of red tape in small business to allow businesses to not only survive and compete but to grow and prosper. His vision is for regional Australia to obtain adequate funding to maintain rural communities and facilities and maintain the way of life so many people enjoy.

#### The Hon. Ron Boswell: Chair

#### Appointed as Chair 1 September 2016, reappointed August 2019 and resigned 10 January 2020.

Ron Boswell represented the National Party in the Australian Senate for Queensland from 1983 to 2014 and led the party in the Senate from 1990 to 2007. In 2008 he became Father of the Senate.

Over the course of his political career Ron was the leader of the Nationals in the Senate from 10 April 1990 to 3 December 2007, holding many positions in the Coalition shadow ministry including Shadow Minister for Regional Development and External Territories (from September 1988 to April 1990), Shadow Minister for Northern Australia and External Territories (April 1993 to May 1994) and Shadow Minister for Consumer Affairs (May 1994 to December 1994). Boswell was appointed Parliamentary Secretary to the Minister for Transport and Regional Services in July 1999 but left the position in October 2003.

Ron is a strong advocate for Australia's primary producers and improving their productivity and profitability based on the best knowledge available.

## Professor Colin Buxton: Director (Deputy Chair)

#### Director from 1 September 2015 to 31 August 2018, reappointed 10 October 2018.

Colin Buxton is an independent director and principal consultant at Colin Buxton & Associates. In 2014 he retired as Director of the Fisheries, Aquaculture and Coasts Centre at the Institute for Marine and Antarctic Studies at the University of Tasmania (UTAS), where he is now an Emeritus Professor. Colin has held senior management positions at the Port Elizabeth Museum, Rhodes University and the Australian Maritime College, as well as being the inaugural director of the Tasmanian Aquaculture and Fisheries Institute at UTAS. A fellow of the Australian Institute of Company Directors, he has served on the board of several organisations including the Aquaculture, Finfish and Seafood CRCs, Southern Rock Lobster Ltd (Chair) and the Tasmanian Environment Protection Authority. He is also Chair of the National Fisheries Advisory Council and serves on the Tasmanian Marine Farming Review Panel. Colin has a broad knowledge and experience in coastal marine environments, fisheries and aquaculture and is a frequent consultant and advisor to government and industry in Australia, Africa and the United States. A graduate of the University of Cape Town (Masters) and Rhodes University (PhD), he is internationally recognised and has published widely on his work on the life histories and effects of exploitation on reef fishes. Much of his research has been focused on understanding the role of Marine Protected Areas as a conservation and fisheries management tool.

#### Dr Kate Brooks: Director

#### Appointed Director from 10 October 2018.

Kate Brooks is an experienced non-executive director and panel advisory member in the coastal, marine and fisheries management sectors. This is augmented by an established career as a consulting sociologist, working almost exclusively in the fishing and seafood industry and related areas, since 2007. She is an internationally recognised social researcher in the area of marine and natural resource management and reputational risk for over 20 years, and has collaborated with clients across Australia, New Zealand, Canada, Dubai, Europe and the United Kingdom. Her application of intellectual rigor and curiosity to strategic planning, implementation and extension is focused on delivering strategically sustainable development and growth for industry in the context of also creating supportive community environments.

Kate has worked with the seafood industry since 2000. She holds a master's degree in social impact assessment, and a PhD in social capital, both with the focus on supporting and developing industry and community benefit. In that time, she has played a key role in bringing the social dimension to triple bottom line approaches in the management of fisheries and the seafood industry as a whole. Kate is also a graduate and member of the Australian Institute of Company Directors.

#### Dr Saranne Cooke: Director

#### Appointed Director from 10 October 2018.

Dr Saranne Cooke is a professional director and chair with experience on a variety of boards across the education, health, sport, financial and not-for-profit sectors. Saranne is Deputy Chancellor of Charles Sturt University, Racing NSW Board Member, HESTA Trustee Board member, Director of the Western NSW Primary Health Network, Director of Leading Age Services Australia, and Chair of the Western Region NSW Committee of the Australian Institute of Company Directors.

Prior to her career as a professional director, Saranne held a number of senior roles within the energy, financial, education and manufacturing industries. She completed her doctorate researching board governance across the ASX 200 companies in 2018. Saranne also holds a Bachelor of Commerce, Master of Business (Marketing), and a Master of Commercial Law. She is a Fellow of the Australian Institute of Company Directors, a Fellow Certified Practising Accountant, a Fellow of the Australian Marketing Institute, a Certified Practising Marketer and a member of the Golden Key International Honour Society.

#### Ms Katie Hodson-Thomas: Director

#### Appointed Director from 10 October 2018.

Katie Hodson-Thomas represented the Western Australian metropolitan electorate of Carine from 1996–2008. During her time in parliament she served as a Parliamentary Secretary to the Minister for Health; held shadow portfolio responsibilities for transport, tourism, small business, environment, and road safety; and was Deputy Chair of the Community Development and Justice Standing Committee. After retiring from parliament, she joined several membership-based industry associations holding senior positions. Prior to joining FTI Consulting in 2012 she ran her own consultancy practice specialising in government relations. Katie was elected as the first female independent Chair of Western Australian Fishing Industry Council at the 2017 Annual General Meeting; is a Member of the Western Australian Gaming and Wagering Commission and the Gaming Community Trust; and has served as a Justice of the Peace since 1997.

#### Mr Mark King: Director

#### Appointed Director from 10 October 2018.

Mark King is a third-generation dried fruit grower and has a 100-hectare family farm growing sultanas and currants at Pomona, which is irrigated from the Darling River. Pomona is located in the far south west corner of New South Wales, and is 50 kilometres from South Australia and close to the Victorian border. Mark grew up on the Darling River and has witnessed the many changes to river health and irrigation demands. He is a former councillor and Deputy Mayor of the Wentworth Shire Council and was a former Chair of the Lower Murray Darling Catchment Management Authority (NSW) from 2000 to 2012. During this time, he had undertaken many projects that explored river and fish health in the Darling and Murray Rivers. Mark is now the current Chair of Dried Fruits Australia, which is the peak industry body, and has held this position for nine years. He is also a current board member of the National Farmers' Federation. Mark has had experience with industry and a range of government boards and authorities. Mark ventured into aquaculture in 2012 growing Murray Cod, Silver Perch and Golden Perch within a dam system. With aquaculture growing in the surrounding area (Sunraysia), Mark sees this as a sustainable way to meet the growing demand for fish, without affecting wild fish numbers.

#### Mr John Lloyd: Director

#### Appointed Director from 10 October 2018.

John Lloyd is the former CEO of Horticulture Innovation Australia/HAL leading both organisations over a nine-year period of significant growth, change and transition. He is a current director of Agribusiness Australia and Menari Business Solutions Pty Ltd. Recently relocating to Orange New South Wales, he and his family run a small agricultural enterprise at Borenore. John is a director on boards of both Charles Sturt University and Meat & Livestock Australia.

John's career has spanned most parts of the Australian agribusiness sector with senior leadership positions including Managing Director Case IH/New Holland ANZ; General Manager Commercial Incitec Pivot; and General Manager Merchandise Wesfarmers Dalgety. More recently John has led a significant restructure of the research corporation for the \$10 billion horticulture sector, creating new funding models that have catered for its longer-term strategic issues as well as accessing broader and non-traditional sources of investment. These issues include Asian export markets, biosecurity, health and nutrition, pollination, major pests, intensive farming systems and urban greening. John has a Bachelor of Applied Science from the University of NSW as well as an MBA from Macquarie University.

#### Dr Lesley MacLeod: Director

#### Director from 1 September 2015 to 31 August 2018, reappointed 10 October 2018.

Lesley MacLeod is the former CEO of Dairy Innovation Australia and a former board member of Murray Dairy, Barley Australia and MBQIP Ltd. Lesley is currently a director on the Agriculture Victoria Services board. Educated in Edinburgh, Scotland she has a first-class honours degree in marine biology and PhD from Heriot-Watt University. Following a 12-year research career in Edinburgh and Adelaide focusing on grains research Lesley moved into industry in Victoria where she gained over 20 years' experience in senior agribusiness management for Australian and multinational companies. Lesley has a focus on research management, innovation and commercialisation and has established of a number of national R&D programs and not-for-profit companies. She has a Diploma in Business Management and is a graduate of the Australian Institute of Company Directors.

#### Dr Patrick Hone: Managing Director

#### Appointed Managing Director from 21 April 2005.

Patrick Hone is Managing Director of the FRDC and a member of the National Marine Science Committee. Patrick has extensive knowledge of all sectors of the fishing and aquaculture industries. He has more than 20 years working for the FRDC and has played a key role in the planning, management and funding of fishing and aquaculture related research, development and extension in Australia. In recent years Patrick has become one of Australia's leading spokespeople on the role of marine science.

Patrick has a PhD from Adelaide University, and previously worked for the South Australian Research and Development Institute (SARDI) on a wide range of aquaculture research for Southern Bluefin Tuna, Pacific Oysters, mussels, Yellowtail Kingfish and abalone.

## Attendance at Board meetings held during the year

The tables below and on the following page show attendance at Board and committee meetings held during the year. The Chair approved all absences from Board meetings in accordance with section 71(2) of the PIRD Act.

Date	16/08/ 2019	28/11– 29/11/ 2019	26/02/ 2020	22/04/ 2020 v/c	28/05/ 2020 v/c	17/06/ 2020 v/c	25/06/ 2020 v/c
The Hon. Ron Boswell (Chair). Retired 10/01/2020	Yes*	n/a	n/a	n/a	n/a	n/a	n/a
Mr John Williams (Chair). Appointed 10/03/2020	n/a	n/a	n/a	Yes	Yes	Yes	Yes
Dr Patrick Hone (Managing Director)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Professor Colin Buxton (acting Chair from 01/11/2019 to 09/03/2020)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dr Kate Brooks	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dr Saranne Cooke	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ms Katina (Katie) Hodson-Thomas	Yes	Yes	Yes via t/c	Yes	Yes	Yes	Yes
Mr Mark King	Yes*	Yes**	Yes	Yes	Yes	Yes	n/a
Mr John Lloyd	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dr Lesley MacLeod	Yes*	Yes	Yes	Yes	Yes	Yes	Yes
Mr John Wilson (Company Secretary)	Yes	n/a	n/a	n/a	n/a	n/a	n/a
Cheryl Cole (Acting General Manager Business)	Yes	Yes	Yes	Yes	Yes	Yes	Yes

TADIE 10-	ATTENDANCE BY	DIRECTORS AN		DEDDECENITATIV/EC		MEETINICS
TABLE 10.	ATTENDANCE BY	DIRECTORS AN	VD FRDC	REPRESENTATIVES	AI BUARD	IVIEE HINGS

\* Early departure\*\* Early departure 29/11/2020

t/c: Teleconference.

v/c: Videoconference.

n/a: Signifies the Committee member or FRDC representative was not eligible to attend the meeting (either they had not yet been appointed or their tenure had ended).

## **Board committees**

The Board had two committees operating during the year. The Finance, Audit and Risk Management (FARM) committee and People and Culture committee. Each committee comprises at least two nonexecutive directors. The FARM committee provides financial oversight for the FRDC reporting back to the Board, as well ensures effective communication to the external and internal auditors. The committee also oversees the FRDC Risk Management Framework. The People and Culture committee has oversight and responsibility relating to the people, remuneration and culture.

**TABLE 19**: ATTENDANCE BY DIRECTORS, AND ACTING GENERAL MANAGER BUSINESS AT FINANCE, AUDIT AND RISK

 MANAGEMENT COMMITTEE MEETINGS

Date	14/08/ 2019	27/11/ 2019	24/02/ 2020	28/05/ 2020
Dr Saranne Cooke (Member)	Yes	Yes	Yes	Yes
Mr John Lloyd (Member)	Yes	Yes	Yes	Yes
Dr Lesley MacLeod (Committee Chair)	Yes	Yes	Yes	Yes
Dr Patrick Hone (Member)	Yes	Yes	Yes	Yes
Cheryl Cole (Acting General Manager Business)	Yes	Yes	Yes	Yes

TABLE 20: ATTENDANCE BY DIRECTORS AT THE PEOPLE AND CULTURE COMMITTEE

Date	27/11/ 2019	24/02/ 2020
Mr Mark King (Committee Chair)	Yes	Yes
Ms Katina (Katie) Hodson-Thomas (Member)	Yes	Yes*
The Hon. Ron Boswell (Member) Retired 01 January 2020	Yes	n/a
Dr Patrick Hone (Member)	Yes	Yes
Professor Colin Buxton (Member)	Yes	Yes
Dr Kate Brooks (Member)	Yes	Yes

t/c: Via teleconference.

#### TABLE 21: ATTENDANCE BY DIRECTORS AT THE INVESTMENT MECHANISM WORKING GROUP

Date	22/07/ 2019	11/11/ 2019	28/01 /2020	17/03/ 2020	29/05/ 2020 t/c
John Lloyd (Chair)	Yes	Yes	Yes	Yes	Yes
Dr Kate Brooks (Member)	Yes	Yes	Yes	Yes	Yes
Professor Colin Buxton (Member)	Yes	Yes	Yes	Yes	Yes
Dr Patrick Hone (Member)	Yes	Yes	Yes	Yes	Yes

t/c: Teleconference.

# **Record of meetings**

Minutes of each meeting are kept and agreed to by the Board. The Managing Director prepares a letter to the Minister on behalf of the Chair after Board meetings, highlighting significant events and items. The same occurs if a significant event occurs between Board meetings.

# Directors' interests and related entity transactions

The FRDC's policy on directors' interests, complies with section 27 and 29 and Rule 13–16B of the PGPA Act. The policy centres on the principle that a director must disclose an interest whenever he/she considers there is a potential conflict of interests.

A standing notice (register) about directors' interests is updated at each Board meeting. All declarations of interests, and their consideration by the Board, are recorded in the minutes.

Importantly, where the director has declared a 'material personal interest' in a matter that relates to the affairs of the FRDC, in addition to the duty of disclosing that interest, the director must not be present while the Board is discussing that matter and, importantly, must not vote on the matter unless one of a number of specific exceptions applies.

## Indemnities and insurance premiums for officers

The Corporation holds directors' and officers' liability insurance cover through Comcover. During the year, no indemnity-related claims were made.

When appropriate, the FRDC may take out insurance policies to mitigate insurable risk.

# **Remuneration policy**

Remuneration of non-executive directors is determined by the Remuneration Tribunal.

Remuneration of the Managing Director and staff is determined by an FRDC policy set by the Board. The amount of individual remuneration of the Executive Director and staff is based on advice by Mercer Human Resources Consulting Pty Ltd. The amount is also influenced by performance measured against individual performance agreements and by the size of the program support component within the total FRDC budget, from which salaries are paid.

PIRD ACT REQUIREMENTS

Year	2017–18	2018–19	2019–20
	\$	\$	\$
Remuneration and allowances to non-executive directors			
and independent committee member*	344,341	351,039	365,758
Selection committee expenses and liabilities	37,488	10,000	-

\* The independent committee member resigned on 21 November 2018.

## **Liabilities to staff**

The FRDC provides for liabilities to its staff by ensuring its financial assets (cash, receivables and investments) are always greater than its employee provisions. Compliance with this policy is evidenced in the Statement of Financial Position in the Corporation's monthly financial statements.





# 2019–20 AUDITOR-GENERAL'S REPORT





#### INDEPENDENT AUDITOR'S REPORT

#### To the Minister for Agriculture, Draught and Emergency Management

#### Opinion

In my optimize, the Resectual statements of the Parlament Research and Development Comptension ("the Institu") for the year-meters 30 June 2000

- (a) compay with Australian Associating Standards Reduced Disclosure Requirements' and Him Public Soversbace, Performance and Accountability (Vinance) Reporting/ Rule 2025; and
- (In: your-end tably the financial polition of the Entry us at 30 and 2000 and its financial performance and same fibres for the year then ended.

The Financial statements of the Entry, which I free outside, compliantitle following statements as at 30 June (2013 and for the year their orded)

- Statement by the Accountable Authority, Managing Director and Arg Class Financial Efficacy
- + Statement of Comprehenset Incenter
- Material Postsian;
- · Gamment of Diarges in Southy,
- Cath films Statement; and
- Novem do that Reserval statisments.

#### Basis for opinion

I conducted my autor in accordance with the Australian Netronal Austr Office Australia Standards, which Incorporate the Australian Austring Standards, My expenditions under those clandards are further described in the Austrol's Report State and the Australian Statement's section of my report. I an indexember of the Entity is accordance with the relevant ethnical repairments for Rescala Istationate austra conducted by the Austrol-Service and the relevant ethnical repairments for Rescala Istation to equivalence of the Austrol-Service and the relevant ethnical repairments for Rescala Istationate austra conducted by the Austrol-Service and the relevant ethnical repairment in dependence requirements of the Austrol-Service Istation and the Code Standards APCS 110 Code of Ethnics for Professional Accounting (including independence Standards) (the Code) to the excent that they are not in codifict allth the Austro-General Act 2007. I have also fulfilled my other responsibilities in accounting that the Seatabadiment Act 2007. I have also fulfilled my other responsibilities in accounting the provide a basis for my option.

#### Accountable Authority's responsibility for the financial statements

As the Accountilitie Authority of the Entity, the Directury are responsible under the Public Government Performance and Accountilating Act 2012 (the Act) for the propertation and fair presentation of annual Insecuti Statements that country with Automatian Accounting Standards – Automat Disclosure Acquirements and the rules made ender the Act. The Directury are also responsible for such internal control as the Directory determine are internative to evalue the projectation of ferror all Statements that are free from internal ministatement, whethau its to trad or error:

In preparing the financial statements, the Semicars are responsible for assessing the statility of the Entry to continue us a going concern, taking into account effective the Entry's operations will class as a result of an administrative notinucture of foil any other reason. The Directors are also responsible for disclosing, an applicable, institute related to going concern and using the going concern basis of accounting unline. The minimum indicates that this too asymptote.

#### Autitor's responsibilities for line audit of the financial statements

My objective is to obtain reasonable assurance about whether the feature i platerimist as a whole are free from the matched misoteterement, whether due to feature are end, and to take are auditors integer that includes my ourmain neutronacial activities is a high level of assurance, but is not a guarantee that are audit conducted in accordance with the Australian Audit Office Auditing Scalard will always better a more instrument intercomment almost a exist. Miscatherements can area from those that or error and are considered miscane if , individually or in the signing fit. They could reasonably be expected to influence the economic decision of users leave to the basis of the fragmatic statements.

As part of an audit in auxintence with the Australian National Aust Office Auditing Standards, Lenercise professional judgement and maintain professional sceptician throughout the audit. Letic:

- Identify and asiets the roles of material histotenient of the finitestal statements, whither during through the error, design and perform audit procedures inscensive to those role, and obtain sudst evidence that is sufficient and appropriate to provide a basis for my opnice. The risk of not detecting a material mestalement resulting from fraud is higher than for one resulting from error, as fraud role provide policies, for perv, intercond omnions, many provide site of the override of internal control.
- obtain an understanding of interval control netwark to the audit in order to design audit procedures that are appropriate in the circumstances, but not far the purpose of expressing an option on the effectivement of this Entity's interval control;
- Provate file appropriatement of accounting policies used and the maschablement of accounting estimates and related doclosures made by the Accountable Authority;
- reinclude on the appropriateness of the Accountiable Authority's use of the going concern basis of accounting and, based on the audit evidence roltained, whether a material uncertainty entry entry induced to events an condition that may age significant doubt on the Entry's ability to continue as a going concern. If i conclude that a material uncertainty smith, I am regulared to draw attention in my auditor's report, to the relation to induce the financial comments or, if such disclosures are insident attention to the relation conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future meets or conditions may based on the audit evidence obtained up to the date of my auditor's report. However, future meets or conditions may cause the financial comments and continue and
- evaluate the overall presentation, must are add content of the initial transmitting the discontrol, and whether the Mancai italiaments represent the underlying transactions and events in a memory that achieves for presentation.

I communicate with the Accountable Authority regarding, among other matters, the planned scope and timing of the webs and significant webb findings, including any significant definencies to aternal montrel than laterning during my sode.

Assertation National Audit Office

Lorena Skipper Brecultive Hitrotter Delegath of the Austron-Constiti

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# FINANCIAL STATEMENTS FOR THE YEAR ENDED 30 JUNE 2020

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# STATEMENT BY THE ACCOUNTABLE AUTHORITY (CHAIR AND CHAIR FINANCE, AUDIT AND RISK MANAGEMENT COMMITTEE), MANAGING DIRECTOR AND A/G CHIEF FINANCIAL OFFICER

In our opinion, the attached financial statements for the period ended 30 June 2020 comply with subsection 42(2) of the Public Governance, Performance and Accountability Act 2013 (PGPA Act), and are based on properly maintained financial records as per subsection 41(2) of the PGPA Act.

In our opinion, at the date of this statement, there are reasonable grounds to believe that the FRDC will be able to pay its debts as and when they fall due.

This statement is made in accordance with a resolution of the directors.

R William Signed ..

Mr John Williams Chair Accountable Authority

Signed .....

Dr Lesley MacLeod Chair Finance, Audit and Risk Management Committee

trick W. Home

Signed ..... Dr Patrick Hone Managing Director

Signed .....

Cheryl Cole A/g Chief Financial Officer

19-August-2020 Date

19-August-2020 Date

19-August-2020 Date

19-August-2020 Date

# Statement of Comprehensive Income

FOR THE PERIOD ENDED 30 JUNE 2020

				Original
		2019–20	2018–19	budget
	Notes	\$	\$	\$
NET COST OF SERVICES				
Expenses				
Employee benefits	1.1A	3,036,925	3,605,110	4,021,000
Suppliers	1.1B	1,512,070	1,542,554	2,097,000
Projects	1.1C	28,937,131	29,803,871	34,000,000
Depreciation and amortisation	2.2A	364,297	183,464	200,000
Finance costs	1.1D	10,018	_	-
Write-down and impairment of assets	1.1E	5,001	12,073	-
Other expenses	1.1F	575,246	70,130	1,120,000
Total expenses		34,440,688	35,217,202	41,438,000
Own-source income				
Own-source revenue				
Revenue from contracts with customers	1.2A	817,717	_	-
Interest	1.2B	302,329	544,651	410,000
Grants	1.2C	-	3,418,716	-
Contributions	1.2D	8,424,865	10,181,347	8,584,000
Other revenue	1.2E	1,403,353	1,931,438	2,600,000
Total own-source revenue		10,948,264	16,076,152	11,594,000
Total own-source income		10,948,264	16,076,152	11,594,000
Net cost of services		23,492,424	19,141,050	29,844,000
Revenue from the Australian Government	1.2F	22,083,577	23,478,957	23,407,000
(Deficit)/surplus on continuing operations		(1,408,847)	4,337,907	(6,437,000)
OTHER COMPREHENSIVE INCOME				
Items not subject to subsequent reclassification to net cost of services				
Changes in asset revaluation reserves	2.2A	115.315	(1 664)	_
Total other comprehensive income/(loss)		115,315	(1,664)	
Total comprehensive income (loss)/income		(1,293,532)	4,336,243	(6,437,000)

# **Statement of Financial Position**

AS AT 30 JUNE 2020

				Original
		2019–20	2018–19	budget
	Notes	\$	\$	\$
ASSETS				
Financial assets				
Cash and cash equivalents	2.1A	26,411,348	24,553,443	15,657,000
Trade and other receivables	2.1B	2,306,370	4,826,305	3,493,000
Other investments	2.1C	-	5,001	5,001
Total financial assets		28,717,718	29,384,749	19,155,001
Non-financial assets <sup>1</sup>				
Buildings	2.2A	834,433	-	-
Plant and equipment	2.2A	129,400	74,450	122,000
Computer software	2.2A	601,095	686,425	1,100,000
Other non-financial assets	2.2B	14,070	11,258	10,000
Total non-financial assets		1,578,998	772,133	1,232,000
Total assets		30,296,716	30,156,882	20,387,001
LIABILITIES				
Payables				
Suppliers	2.3A	193,836	255,499	190,000
Projects	2.3B	1,414,377	210,786	250,000
Total payables		1,608,213	466,285	440,000
Interest bearing liabilities				
Leases	2.4A	847,595	-	-
Total interest bearing liabilities		847,595	-	-
Provisions				
Employee provisions	3.1A	695,438	1,019,845	797,000
Total provisions		695,438	1,019,845	797,000
Total liabilities		3,151,246	1,486,130	1,237,000
Net assets		27,145,470	28,670,752	19,150,001
EQUITY				
Asset revaluation reserves		526,551	411,236	413,000
Retained earnings		26,618,919	28,259,516	18,737,001
Total equity		27,145,470	28,670,752	19,150,001

1. Right-of-use assets are included in the following line item—Buildings..

# Statement of Changes in Equity

FOR THE PERIOD ENDED 30 JUNE 2020

Orig				Original
		2019–20	2018–19	budget
		\$	\$	\$
RETAINED EARNINGS				
Opening balance				
Balance carried forward from previous period		28,259,516	23,921,609	25,174,001
Adjustment on initial application of				
AASB 15/AASB 1058/AASB 16		(231,750)	-	-
Opening balance		28,027,766	23,921,609	25,174,001
Comprehensive income				
(Deficit)/surplus for the period		(1,408,847)	4,337,907	(6,437,000)
Total comprehensive (loss)/income		(1,408,847)	4,337,907	(6,437,000)
Closing balance as at 30 June 2020		26,618,919	28,259,516	18,737,001
ASSET REVALUATION RESERVE				
Opening balance				
Balance carried forward from previous period		411,236	412,900	413,000
Opening balance		411,236	412,900	413,000
Comprehensive income				
Other comprehensive income/(loss)		115,315	(1,664)	-
Total comprehensive income/(loss)		115,315	(1,664)	-
Closing balance as at 30 June 2020		526,551	411,236	413,000
TOTAL EQUITY				
Opening balance				
Balance carried forward from previous period		28,670,752	24,334,509	25,587,001
Adjustment on initial application of				
AASB 15/AASB 1058/AASB 16		(231,750)	-	-
Opening balance		28,439,002	24,334,509	25,587,001
Comprehensive income				
(Deficit)/surplus for the period		(1,408,847)	4,337,907	(6,437,000)
Other comprehensive income/(loss)		115,315	(1,664)	-
Total comprehensive (loss)/income		(1,293,532)	4,336,243	(6,437,000)
Closing balance as at 30 June 2020		27,145,470	28,670,752	19,150,001

# **Cash Flow Statement**

FOR THE PERIOD ENDED 30 JUNE 2020

				Original
		2019–20	2018–19	budget
	Notes	\$	\$	\$
OPERATING ACTIVITIES				
Cash received				
Receipts from the Australian Government		24,215,784	22,248,062	24,607,000
Contributions		10,563,053	10,604,532	9,959,000
Grants		59,798	3,418,716	-
Interest		322,680	519,160	410,000
Net GST received		2,524,007	1,646,468	-
Other		1,543,688	2,124,582	_
Total cash received		39,229,010	40,561,520	34,976,000
Cash used				
Employees		(3,361,332)	(3,597,929)	(4,181,000)
Suppliers		(2,534,291)	(1,760,515)	(3,199,000)
Projects expenditure		(30,627,253)	(32,881,918)	(34,000,000)
Interest payments on lease liabilities		(10,018)	-	-
Other		(632,771)	-	_
Total cash used		(37,165,665)	(38,240,362)	(41,380,000)
Net cash from operating activities		2,063,345	2,321,158	(6,404,000)
INVESTING ACTIVITIES				
Cash used				
Purchase of property, plant and equipment		-	(16,799)	(50,000)
Purchase of intangibles		(43,556)	(44,738)	(300,000)
Total cash used		(43,556)	(61,537)	(350,000)
Net cash used by investing activities		(43,556)	(61,537)	(350,000)
FINANCING ACTIVITIES				
Cash used				
Principal payments of lease liabilities		(161,884)	-	-
Total cash used		(161,884)	-	-
Net cash used by financing activities		(161,884)	-	_
Net increase in cash held		1,857,905	2,259,621	(6,754,000)
Cash and cash equivalents at the				
beginning of the reporting period		24,553,443	22,293,822	22,411,000
Cash and cash equivalents at the	214	26 444 246		15 653 000
end of the reporting period	Z.TA	26,411,348	24,553,443	15,657,000

### **OVERVIEW**

# **Objectives of the FRDC**

The FRDC is an Australian Government controlled entity. It is a not-for-profit entity established as a statutory corporation on 2 July 1991 under the provisions of the *Primary Industries Research and Development Act 1989* (PIRD Act). The FRDC's mission is to act as a national thought leader, facilitating knowledge creation, collaboration and innovation to shape the future of fishing and aquaculture in Australia for the benefit of the Australian people. To achieve this, the FRDC plans, invests in and manages research and development for fishing and aquaculture, and the wider community, and ensures that the resulting knowledge and innovation is adopted for impact. The FRDC also undertakes monitoring of key indicators of change across fishing and aquaculture. This helps in the evaluation of impact that results from the FRDC's investments. Information collected is also of use to decision makers, to understand and respond to emerging issues.

The FRDC's strong relationships with sectors, managers and researchers are fundamental to enable the needs of key stakeholders to be identified and addressed.

The FRDC is structured to meet the following outcome:

Increased economic, social and environmental benefits for Australian fishing and aquaculture, and the wider community, by investing in knowledge, innovation and marketing.

The continued existence of the FRDC in its present form, and with its present outcome, is dependent on Australian Government policy, and on continuing funding from the Australian Government for the FRDC's outcome.

### The basis of preparation

The financial statements are general purpose financial statements, and are required by section 42 of the *Public Governance, Performance and Accountability Act 2013*.

The financial statements have been prepared in accordance with:

- a) Public Governance, Performance and Accountability (Financial Reporting) Rule 2015 (FRR), and
- b) Australian Accounting Standards and Interpretations—Reduced Disclosure Requirements issued by the Australian Accounting Standards Board (AASB) that apply for the reporting period.

The financial statements have been prepared on an accrual basis, and in accordance with the historical cost convention, except for certain assets and liabilities at fair value. Except where stated, no allowance is made for the effect of changing prices on the results or the financial position. The financial statements are presented in Australian dollars.

### New Australian Accounting Standards

### Adoption of new and future Australian Accounting Standard requirements

The new standards, revised standards, interpretations and amending standards that were issued prior to the signing of the statements by the: Board Chair; Finance, Audit and Risk Management Committee Chair; Managing Director; and A/g Chief Financial Officer; and are applicable to the current reporting period. The impact of the standards is considered further in Note 2.3B: Project payables and Note 2.4A: Leases.

Standard/Interpretation	Nature of change in accounting policy, transitional provisions, and adjustment to financial statements
AASB 15 Revenue from	AASB 15, AASB 2016-8 and AASB 1058 became effective 1 July 2019.
Contracts with Customers / AASB 2016-8 Amendments to Australian Accounting Standards— Australian Implementation Guidance for Not-for-Profit Entities and AASB 1058 Income of Not-For-Profit Entities	AASB 15 establishes a comprehensive framework for determining whether, how much and when revenue is recognised. It replaces existing revenue recognition guidance, including AASB 118 <i>Revenue</i> , AASB 111 <i>Construction Contracts</i> and Interpretation 13 <i>Customer Loyalty</i> <i>Programmes.</i> The core principle of AASB 15 is that an entity recognises revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services.
	AASB 1058 is relevant in circumstances where AASB 15 does not apply. AASB 1058 replaces most of the not-for-profit (NFP) provisions of AASB 1004 <i>Contributions</i> and applies to transactions where the consideration to acquire an asset is significantly less than fair value principally to enable the entity to further its objectives, and where volunteer services are received.
	The details of the changes in accounting policies, transitional provisions and adjustments are disclosed below and in the relevant notes to the financial statements.
AASB 16 Leases	AASB 16 became effective on 1 July 2019.
	This new standard has replaced AASB 117 Leases, Interpretation 4 Determining whether an Arrangement contains a Lease, Interpretation 115 Operating Leases—Incentives and Interpretation 127 Evaluating the Substance of Transactions Involving the Legal Form of a Lease.
	AASB 16 provides a single lessee accounting model, requiring the recognition of assets and liabilities for all leases, together with options to exclude leases where the lease term is 12 months or less, or where the underlying asset is of low value. AASB 16 substantially carries forward the lessor accounting in AASB 117, with the distinction between operating leases and finance leases being retained.
	The details of the changes in accounting policies, transitional provisions and adjustments are disclosed below and in the relevant notes to the financial statements.

# Application of AASB 15 Revenue from Contracts with Customers / AASB 1058 Income of Not-For-Profit Entities

The FRDC adopted AASB 15 and AASB 1058 using the modified retrospective approach, under which the cumulative effect of initial application is recognised in retained earnings at 1 July 2019. Accordingly, the comparative information presented for 2018–19 is not restated, that is, it is presented as previously reported under the various applicable AASBs and related interpretations.

Under the new income recognition model the FRDC shall first determine whether an enforceable agreement exists and whether the promises to transfer goods or services to the customer are 'sufficiently specific'. If an enforceable agreement exists and the promises are 'sufficiently specific' (to a transaction or part of a transaction), the FRDC applies the general AASB 15 principles to determine the appropriate revenue recognition. If these criteria are not met, the FRDC shall consider whether AASB 1058 applies.

In relation to AASB 15, the FRDC elected to apply the new standard to all new and uncompleted contracts from the date of initial application. The FRDC is required to aggregate the effect of all of the contract modifications that occur before the date of initial application.

In terms of AASB 1058, the FRDC is required to recognise volunteer services at fair value if those services would have been purchased if not provided voluntarily, and the fair value of those services can be measured reliably.

The first column shows amounts prepared under AASB 15 and AASB 1058 and the second column shows what the amounts would have been had AASB 15 and AASB 1058 not been adopted:

	1 July 2019
Impact on transition	
The impact on transition is summarised below:	
Departmental	
Liabilities	
Contract liabilities	231,750
Total liabilities	231,750
Total adjustment recognised in retained earnings	231,750

Set out below are the amounts by which each financial statement line item is affected as at and for the year ended 30 June 2020 as a result of the adoption of AASB 15 and AASB 1058. The first column shows amounts prepared under AASB 15 and AASB 1058 and the second column shows what the amounts would have been had AASB 15 and AASB 1058 not been adopted:

Transitional disclosure	AASB 15 / AASB 1058	Previous AAS	Increase / (decrease)
	\$'000	\$'000	\$'000
Revenue			
Revenue from contracts with customers	817,717	-	817,717
Grants	-	877,515	(877,515)
Contributions	8,424,865	8,950,865	(526,000)
Total revenue	9,242,582	9,828,380	(585,798)
Net (cost of)/contribution by services	9,242,582	9,828,380	(585,798)
Departmental			
Liabilities			
Contract liabilities	817,548	_	817,548
Total liabilities	817,548	-	817,548
Total adjustment recognised in retained earnings	817,548	-	817,548

### Application of AASB 16 Leases

The FRDC adopted AASB 16 using the modified retrospective approach, under which the cumulative effect of initial application is recognised in retained earnings at 1 July 2019. Accordingly, the comparative information presented for 2019 is not restated, that is, it is presented as previously reported under AASB 117 and related interpretations.

The FRDC elected to apply the practical expedient to not reassess whether a contract is, or contains a lease at the date of initial application. Contracts entered into before the transition date that were not identified as leases under AASB 117 were not reassessed. The definition of a lease under AASB 16 was applied only to contracts entered into or changed on or after 1 July 2019.

AASB 16 provides for certain optional practical expedients, including those related to the initial adoption of the standard. The FRDC applied the following practical expedients when applying AASB 16 to leases previously classified as operating leases under AASB 117:

- Apply a single discount rate to a portfolio of leases with reasonably similar characteristics,
- Exclude initial direct costs from the measurement of right-of-use assets at the date of initial application for leases where the right-of-use asset was determined as if AASB 16 had been applied since the commencement date,
- Reliance on previous assessments on whether leases are onerous as opposed to preparing an impairment review under AASB 136 impairment of assets as at the date of initial application, and
- Applied the exemption not to recognise right-of-use assets and liabilities for leases with less than 12 months of lease term remaining as of the date of initial application.

As a lessee, the FRDC previously classified leases as operating or finance leases based on its assessment of whether the lease transferred substantially all of the risks and rewards of ownership. Under AASB 16, the FRDC recognises right-of-use assets and lease liabilities for most leases. However, the FRDC has elected not to recognise right-of-use assets and lease liabilities for some leases of low value assets based on the value of the underlying asset when new or for short-term leases with a lease term of 12 months or less.

On adoption of AASB 16, the FRDC recognised right-of-use assets and lease liabilities in relation to leases of office space, which had previously been classified as operating leases.

The lease liabilities were measured at the present value of the remaining lease payments, discounted using the FRDC's incremental borrowing rate as at 1 July 2019. The FRDC's incremental borrowing rate is the rate at which a similar borrowing could be obtained from an independent creditor under comparable terms and conditions. The annual weighted-average rate applied was 1.0896%.

The right-of-use assets were measured as follows:

- a) Office space: measured at an amount equal to the lease liability, adjusted by the amount of any prepaid or accrued lease payments.
- b) All other leases: the carrying value that would have resulted from AASB 16 being applied from the commencement date of the leases, subject to the practical expedients noted above.



### Impact on transition

On transition to AASB 16, the FRDC recognised additional right-of-use assets and additional lease liabilities, recognising the difference in retained earnings. The impact on transition is summarised below:

	1 July 2019
Departmental	
Right-of-use assets—Buildings	612,889
Lease liabilities	(612,889)
Retained earnings	-

The following table reconciles the Departmental minimum lease commitments disclosed in the FRDC's 30 June 2019 annual financial statements to the amount of lease liabilities recognised on 1 July 2019:

	1 July 2019
Minimum operating lease commitments at 30 June 2019	617,566
Less: low value leases not recognised	(4,677)
Undiscounted lease payments	612,889
Less: effect of discounting using the incremental borrowing rate as at the date of initial application	-
Lease liabilities recognised at 1 July 2019	612,889

### **Taxation**

The FRDC is exempt from all forms of taxation except Fringe Benefits Tax (FBT) and the Goods and Services Tax (GST).

### Comparative

Comparative figures have been adjusted so they conform with changes in the presentation of these financial statements at Note 1.1F: Other expenses.

## Events after the reporting period

The FRDC recognises ongoing uncertainties due to the widespread impact of COVID-19, and in particular the second wave post 30 June 2020. At this stage the financial impact on FRDC has not been material. The FRDC has taken a number of measures to continually monitor and mitigate the financial and operational effects of COVID-19 within our industry.

In addition, we have developed strategies to mitigate the effects within the workplace to protect the safety and wellbeing of our staff.

# FRDC budgetary explanation of major variances

The following information provides a comparison of the original budget as presented in the 2019–20 Portfolio Budget Statements (PBS) to the 2019–20 final outcome as presented in accordance with Australian Accounting Standards for the FRDC. The budget is not audited. Explanations of major variances are provided below.

# Major variance and explanations from original budget to actual result for 2019–20

### Statement of Comprehensive Income

Employee expenses decreased due to unanticipated staff exits and delays in recruitment commencing the new workforce plan.

Supplier expenses decreased due to reduced travel arrangements and ICT costs.

Project contractual commitments originally forecast can vary due to the timing of completion of project deliverables. Project deliverables are subject to significant variation due to research delays and in 2019–20 project expenses decreased largely driven by impacts of COVID-19.

Depreciation increased due to the adoption of the new Accounting Standard AASB 16.

Other expenses allowed for marketing expenses for marketing levy arrangements that were not established.

Grants increased due to additional Research & Development (R&D) funding received from Department of Agriculture, Water and the Environment (DAWE) under the Research & Development deed with DAWE.

The original budget has been reclassified under AASB 1055 (6 and 12) to represent the actual result with the following line items:

- Contributions were increased \$1.2 million to include the industry levy contributions for the Australian Fisheries Management Authority R&D levies and the Australian Prawn Farmers Association levies.
- Revenue from Australian Government has been reduced \$1.2 million to remove the industry levy contributions for the Australian Fisheries Management Authority R&D levies, and the Australian Prawn Farmers Association prawn levies.

Other revenue originally forecast allowed for additional increased project contributions that did not eventuate.

Changes in asset revaluation reserves increased due to the revaluation of fixed assets under a new leasing term of 3 years.

### **Statement of Financial Position**

Cash and cash equivalents were higher due to contractual project commitments expenditure delays, that were originally forecast to be spent in 2019–20. This resulted in a higher than anticipated cash balance at year end and these commitments will now be paid in 2020–21.

Trade and other receivables may vary due to the timing of the Department of Agriculture, Water and the Environment, Australian Gross Value Production Determination which can result in increases to aged debtors at year end. The decrease is due to revenue from Australian Government that was received earlier than originally forecast in the 2019–20 PBS.

Project payables increased due to adoption of the new Accounting Standard AASB 15 resulting in an increase to contract liabilities.

Building and interest bearing liabilities increased as a result of adoption of the new Accounting Standard AASB 16.

Intangibles varied due to the intangible costs and extent of works were lower than budget.

Retained earnings increased due to the increase in net income as a result from lower than anticipated project expenses.

### **Statement of Cash Flows**

The variance between actual and forecast cash and cash equivalents for the period is explained in the Statement of Comprehensive Income and Statement of Financial Position.

# **Financial performance**

### Note 1.1: Expenses

### Note 1.1A: Employee benefits

	•••••••••••••••••••••••••••••••••••••••	
	2019–20	2018–19
	\$	\$
Wages and salaries	2,174,828	2,665,931
Superannuation		
Defined contribution plans	186,191	207,562
Defined benefit plans	364,549	382,025
Leave and other entitlements	311,357	349,592
Total employee benefits	3,036,925	3,605,110

### Accounting policy

Accounting policies for employee related expenses are contained at Note 3.1A.



### Note 1.1B: Suppliers

	2019–20	2018–19
	\$	\$
Goods and services supplied or rendered		
Agency staff	-	31,786
Asset purchases less than \$5,000	20,589	52,196
Audit fees	36,000	36,000
External service providers	483,853	333,826
Insurance	32,640	37,149
Information technology	503,612	317,607
Joint research and development corporation (RDC) activities	72,390	56,347
Legal	27,247	11,381
Office supplies	14,292	19,192
Postage and couriers	1,883	2,769
Property	22,424	44,421
Recruitment/director selection costs	-	4,527
Representation	31,728	69,085
Representative organisations consultation	46,699	5,926
Telecommunications	34,882	34,662
Training	79,031	116,370
Travel	70,178	155,730
Other	17,814	27,655
Total goods and services supplied or rendered	1,495,262	1,356,629
Other suppliers		
Operating lease rental in connection with external parties		
Workers compensation expenses	11,236	13,903
Operating lease rentals <sup>1</sup>	5,572	172,022
Total other suppliers	16,808	185,925
Total suppliers	1,512,070	1,542,554

Supplier expenses in relation to communication activities were reclassified in the comparative year, due to the implementation of a new communications budget activity as per the FRDC 2019–20 approved Annual Operational Plan. As a result, \$70,130 has been transferred to Note 1.1F.

1. Operating lease

The FRDC has applied AASB 16 using the modified retrospective approach and therefore the comparative information has not been restated and continues to be reported under AASB 117.

The FRDC has no short-term lease commitments as at 30 June 2020.

The above lease disclosures should be read in conjunction with the accompanying Notes 1.1B, 1.1D, 2.2A and 2.4A.

#### Canberra office

The lease for the office accommodation at 25 Geils Court, Deakin, Australian Capital Territory has been renegotiated for a further three years and expires 31 July 2023. Lease payments are subject to a 3 percent annual increase in accordance with the lease agreement.

#### Adelaide office

The lease for the office accommodation at Wine Australia, corner Botanic and Hackney Roads, Adelaide, South Australia commenced 31 March 2016 with an annual right of renewal until 30 March 2021. The current lease term expires 30 March 2021. Lease payments are subject to the annual increase in accordance with movements in the consumer price index.

### Accounting policy

### Short-term leases

The FRDC has no right-of-use assets and lease liabilities for short-term leases of assets that have a lease term of 12 months or less.

### Note 1.1C: Projects

	2019–20	2018–19
	\$	\$
Australian Government entities (related parties)	2,979,893	3,188,851
State and territory governments	5,227,433	7,050,061
Universities and educational bodies	8,546,062	7,851,284
Research and development corporations	175,622	15,804
Industry (commercial, recreational and Indigenous)	8,185,701	6,908,786
Overseas research entities	27,106	139,365
Private providers	3,795,314	4,649,720
Total projects	28,937,131	29,803,871

### Accounting policy

The FRDC recognises project liabilities through project agreements that require research partners to perform services or provide facilities, or to meet eligibility criteria. In these cases, liabilities are recognised only to the extent that the services required have been performed, an invoice issued consistent with the contractual requirements, and the eligibility criteria have been satisfied by the research partner to the FRDC's satisfaction and approved invoice payment by the relevant delegate.

### **Project commitments**

Project commitments comprise the future funding of approved projects that are contingent on the achievement of agreed deliverables over the life of those projects (project agreements are exchanged prior to release of the first payment on a project). Projects, where amounts were payable but were unpaid at the end of the period, have been brought to account as project payables. The FRDC contracts to fund projects in future years in advance of receipt of the income needed to fund them. FRDC manages this risk by having the project agreement allow for termination at its sole discretion for any reason. If the FRDC were to terminate a project of unavoidable loss incurred by the research provider and directly attributable to the termination of the agreement, provided that the costs are fully substantiated to the FRDC.

	2019–20	2018–19
	\$	\$
Project commitments are payable as follows:		
Within 1 year (unpaid deliverables up to 30 June 2020)	36,613,413	35,014,593
Between 1 to 5 years (1 July 2020 to 30 June 2024)	22,234,485	16,352,491
Over 5 years (from 1 July 2024)	55,000	-
Total project commitments	58,902,897	51,367,084

Note: Project commitments are GST inclusive.

### Note 1.1D: Finance costs

	2019–20	2018–19
	\$	\$
Finance leases <sup>1</sup>	10,018	-
Total finance costs	10,018	-

1. The FRDC has applied AASB 16 using the modified retrospective approach and therefore the comparative information has not been restated and continues to be reported under AASB 117.

The above lease disclosures should be read in conjunction with the accompanying Notes 1.1B, 2.2A and 2.4A.

### Note 1.1E: Write down and impairment of assets

	2019–20	2018–19
	\$	\$
Write down of ASCo shareholding investment <sup>1</sup>	5,001	—
Write down of intangible assets <sup>2</sup>	-	12,073
Total write down and impairment of assets	5,001	12,073

1. FRDC's one-eighteenth share in Australian Seafood Co-Products Pty Ltd (ASCo) was written down to zero at 30 June 2020, due to the closure of the company (refer Note 2.1C: Other investments).

2. FRDC's business process software was written down at 31 October 2018.

### Note 1.1F: Other expenses

2019–20		2018–19
	\$	\$
Communications		
Annual report	25,321	23,765
Factsheets	11,922	-
Communications external provider	159,682	-
Media monitoring and releases	33,600	43,780
Other stakeholder consultation	25,500	-
FISH magazine	277,510	-
Sponsorship	8,446	_
Corporate merchandise	2,300	_
Photos and videos	368	2,585
Education materials and events	30,597	_
Total other expenses	575,246	70,130

In 2019–20 communications expenses were disclosed as a separate activity and consisted of new and existing communication activities. The comparative year includes existing expenses of \$70,130, previously classified in Note 1.1B: Supplier expenses. The *FISH* magazine was previously expensed as a project ceasing in January 2020, and the expenses up to January 2020 were \$233,230 (2018–19 \$491,121). All other communication expenses with no comparatives listed are newly created communication activities with no previous comparative amounts.

## Note 1.2: Own-source income and revenue from the Australian Government

### **Own-source revenue**

Note 1.2A: Revenue from contracts with customers

	2019–20	2018–19
	\$	\$
Australian Government entities (related parties)—over time	817,717	-
Total revenue from contracts with customers	817,717	-

The FRDC has applied AASB 15 and AASB 1058 and has not applied retrospectively for comparatives, and therefore it has not been restated.

### Accounting policy

The FRDC receives revenue from the Australian Government under which it manages a suite of research activities. These activities are listed at Note 3.4B, page 162. FRDC has specific funding agreements with the Australian Government that include enforceable rights and performance obligations. The FRDC initially recognises the funding received as a credit liability entry to recognise the contracted liability (refer Note 2.3B). Once the performance obligations have been satisfied as per the funding agreement milestones over time, it is then recognised as revenue from contracts with customers, unwinding the liability.

### Note 1.2B: Interest

	2019–20	2018–19
	\$	\$
Deposits	302,329	544,651
Total interest	302,329	544,651

### Accounting policy

Interest revenue is recognised using the effective interest method.



### Note 1.2C: Grants

	2019–20	2018–19
	\$	\$
Australian Government		
Department of Agriculture, Water and the Environment <sup>1</sup>	_	3,418,716
Total grants	-	3,418,716

1. Research & Development funding from Department of Agriculture, Water and the Environment (DAWE).

The FRDC has a Research & Development Funding Head Agreement with the DAWE under which it manages a suite of research activities. The activities are listed at Note 3.4B, page 162.

The FRDC has applied AASB 15 and AASB 1058 and has not applied retrospectively for comparatives, and therefore it has not been restated.

### Accounting policy

Australian Government grants income is revenue paid to FRDC for the purpose of funding specific research and development projects, and is recognised when:

- a) the FRDC obtains control of the grant or the right to receive the grant,
- b) it is probable that the economic benefits comprising the grant will flow to the FRDC, and
- c) the amount of the grant can be reliably measured.

### Note 1.2D: Contributions

2019–20		2018–19
	\$	\$
Fisheries		
Australian Prawn Farmers Association	161,555	130,666
Australian Fisheries Management Authority	826,902	1,359,182
New South Wales	584,581	778,953
Northern Territory	217,807	183,439
Queensland	683,776	891,953
South Australia	1,148,332	1,500,969
Tasmania	2,728,387	3,166,903
Victoria	281,108	239,562
Western Australia	1,792,417	1,929,720
Total contributions 8,424,86		10,181,347

### Accounting policy

Contributions are recognised when:

- a) the FRDC obtains control of the contribution or the right to receive the contribution,
- b) it is probable that the economic benefits comprising the contribution will flow to the FRDC, and
- c) the amount of the contribution can be reliably measured.

### Note 1.2E: Other revenue

	2019–20	2018–19
	\$	\$
Project funds received	1,213,991	1,808,250
Project refunds of prior years expenditure	189,072	123,188
Other	290	_
Total other revenue	1,403,353	1,931,438

### Accounting policy

Project funds received are recognised when they are entitled to be received by the FRDC.

Project refunds from research partners are brought to account when received.

### Note 1.2F: Revenue from the Australian Government

	2019–20	2018–19
	\$	\$
Department of Agriculture, Water and the Environment		
Corporate Commonwealth entity payment item of 0.50% of AGVP <sup>1</sup>	14,893,460	15,698,265
Matching of industry contributions <sup>2</sup>	7,190,117	7,780,692
Total revenue from the Australian Government	22,083,577	23,478,957

1. AGVP is the average gross value of fisheries production for the current year and the two preceding financial years. The Australian Government's contribution of 0.50% of AGVP is made on the grounds that the FRDC exercises a stewardship role in relation to fisheries resources on behalf of the Australian community.

2. Matching of industry contributions (up to 0.25% of AGVP) by the Australian Government.

### Accounting policy

### Revenue from the Australian Government

Revenues from the Australian Government are recognised when they are entitled to be received by the FRDC.

Funding received or receivable from non-corporate Commonwealth entities (appropriated to the noncorporate Commonwealth entity as a corporate Commonwealth entity payment item for payment to this entity) is recognised as revenue from Government by the corporate Commonwealth entity unless the funding is in the nature of an equity injection or a loan.



# **Financial position**

# Note 2.1: Financial assets

### Note 2.1A: Cash and cash equivalents

	2018–19	
	\$	\$
Cash on hand or at call	6,411,348	3,553,443
Cash on deposit:		
Fixed term deposit—original term 3 months	-	15,000,000
Fixed term deposit—original term 2 months	15,000,000	-
Fixed term deposit—original term 1 month	5,000,000	6,000,000
Total cash and cash equivalents26,411,348		24,553,443

### Accounting policy

Cash is recognised at its nominal amount. Cash and cash equivalents includes:

- a) cash on hand, and
- b) demand deposits in bank accounts with an original maturity of three months or less that are readily convertible to known amounts of cash and subject to insignificant risk of changes in value.



Note	2.1B:	Trade	and	other	receiva	bles
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	2019–20	2018–19
	\$	\$
Goods and services receivables		
Goods and services	720,256	1,561,369
Total goods and services receivables	720,256	1,561,369
Department of Agriculture, Water and the Environment		
Receivables	1,429,630	2,744,120
Total receivables from Department of Agriculture, Water and the Environment	1,429,630	2,744,120
Other receivables		
GST receivable from the Australian Taxation Office	156,484	520,816
Total other receivables	156,484	520,816
Total trade and other receivables	2,306,370	4,826,305
Trade and other receivables are expected to be recovered		
No more than 12 months	2,306,370	4,826,305
Total trade and other receivables	2,306,370	4,826,305
Trade and other receivables aged as follows		
Not overdue <sup>1</sup>	2,239,601	4,677,805
Overdue by		
0 to 30 days	-	148,500
31 to 60 days	66,769	
Total trade and other receivables	2,306,370	4,826,305

1. Credit terms for goods and services are within 30 days (2018–19: 30 days).

### Accounting policy

### Financial assets

Trade receivables, loans and other receivables that are held for the purpose of collecting the contractual cash flows where the cash flows are solely payments of principal and interest, that are not provided at below-market interest rates, are subsequently measured at amortised cost using the effective interest method adjusted for any loss allowance.

### Note 2.1C: Other investments

	2019–20	2018–19
	\$	\$
One-eighteenth share in Australian Seafood Co-Products Pty Ltd		
(ASCo), an unlisted company converting fish waste and fish nutrient		
into agriculture fertiliser products	-	5,001
Total other investments	-	5,001

Australian Seafood Co-Products Pty Ltd (ASCo) company closed effective 30 June 2020. The FRDC's share was written down to zero at 30 June 2020, as no funds will be paid out to shareholders (refer Note 1.1E: Write down and impairment of assets).

### Note 2.2: Non-financial assets

Note 2.2A: Reconciliation of the opening and closing balances of property, plant and equipment and intangibles

Reconciliation of the opening and closing balances of property, plant and equipment and intangibles				
		Property,	Intangibles	
		plant and	(computer	
	Buildings	equipment	software)	Total
	\$	\$	\$	\$
As at 1 July 2019				
Gross book value	-	74,450	1,272,074	1,346,524
Accumulated depreciation				
and amortisation	-	-	(585,649)	(585,649)
Total as at 1 July 2019	-	74,450	686,425	760,875
Recognition of right of use asset				
on initial application of AASB 16	612,889	-	-	612,889
Adjusted total as at 1 July 2019	612,889	74,450	686,425	1,373,764
Additions				
Internally developed	-	_	43,556	43,556
Right-of-use assets <sup>1</sup>	396,590	-	-	396,590
Revaluations recognised in				
other comprehensive income <sup>2</sup>	_	115,315	-	115,315
Depreciation and amortisation		(60,365)	(128,886)	(189,251)
Depreciation on right-of-use assets	(175,046)	-	-	(175,046)
Total as at 30 June 2020	834,433	129,400	601,095	1,564,928
Total as at 30 June 2020				
represented by				
Gross book value	1,009,479	129,400	1,315,630	2,454,509
Accumulated depreciation				
and amortisation	(175,046)	-	(714,535)	(889,581)
Total as at 30 June 2020	834,433	129,400	601,095	1,564,928
Carrying amount of right-of-use assets	834,433	_	-	834,433

1. Right-of-use assets (Building leases)

#### Canberra office

The lease for the office accommodation at 25 Geils Court, Deakin, Australian Capital Territory has been renegotiated for a further three years and expires 31 July 2023, with a 3 year right of renewal until 31 July 2026.

#### Adelaide office

The lease for the office accommodation at Wine Australia, corner Botanic and Hackney Roads, Adelaide, South Australia commenced 31 March 2016 with an annual right of renewal until 30 March 2021. The current lease term expires 30 March 2021.

#### 2. Revaluations of non-financial assets

As at 30 June 2020, Jones Lang LaSalle Public Sector Valuations conducted a revaluation of plant and equipment. A revaluation increment of \$115,315 for 2019–20 (2018–19: decrement of \$1,664) was applied to the asset revaluation reserve by asset class and included in the equity section of the Statement of Financial Position.

No indicators of impairment were found for plant and equipment and intangibles.

No plant and equipment is expected to be sold or disposed of within the next 12 months.

### Accounting policy

Assets are recorded at cost on acquisition except as stated below. The cost of acquisition includes the fair value of assets transferred in exchange and liabilities undertaken. Financial assets are initially measured at their fair value plus transaction costs where appropriate.

Assets acquired at no cost, or for nominal consideration, are initially recognised as assets and income at their fair value at the date of acquisition, unless acquired as a consequence of restructuring of administrative arrangements. In the latter case, assets are initially recognised as contributions by owners at the amounts at which they were recognised in the transferor's accounts immediately prior to the restructuring.

### Asset recognition threshold

Purchases of property, plant and equipment are recognised initially at cost in the Statement of Financial Position, except for purchases costing less than \$5,000 that are expensed in the year of acquisition (other than where they form part of a group of similar items where the value is greater than \$5,000).

### Lease right-of-use (ROU) assets

Leased ROU assets are capitalised at the commencement date of the lease and comprise of the initial lease liability amount, initial direct costs incurred when entering into the lease less any lease incentives received. These assets are accounted for by Commonwealth lessees as separate asset classes to corresponding assets owned outright, but included in the same column as where the corresponding underlying assets would be presented if they were owned.

On initial adoption of AASB 16 the FRDC has adjusted the ROU assets at the date of initial application by the amount of any provision for onerous leases recognised immediately before the date of initial application. Following initial application, an impairment review is undertaken for any right-of-use lease asset that shows indicators of impairment and an impairment loss is recognised against any right-of-use lease asset that is impaired. Lease ROU assets continue to be measured at cost after initial recognition in Commonwealth agency, GGS and Whole of Government financial statements.

### Revaluations

Following initial recognition at cost, property, plant and equipment (excluding ROU assets) are carried at fair value less subsequent accumulated depreciation and accumulated impairment losses. Valuations are conducted with sufficient frequency to ensure that the carrying amounts of assets do not differ materially from the assets' fair values as at the reporting date. The regularity of independent valuations depend on the volatility of movements in market values for the relevant assets.

Revaluation adjustments are made on a class basis. Any revaluation increment is credited to equity under the heading of asset revaluation reserve except to the extent that it reverses a previous revaluation decrement of the same asset class that was previously recognised in the surplus/deficit. Revaluation decrements for a class of assets are recognised directly in the surplus/deficit except to the extent that they reversed a previous revaluation increment for that class.

Any accumulated depreciation as at the revaluation date is eliminated against the gross carrying amount of the asset, and the asset restated to the revalued amount.

### Depreciation

Depreciable property, plant and equipment assets are written off to their estimated residual values over their estimated useful lives to the FRDC using, in all cases, the straight-line method of depreciation.

Depreciation rates (useful lives), residual values and methods are reviewed at each reporting date and necessary adjustments are recognised in the current, or current and future reporting periods, as appropriate.

Depreciation rates applying to each class of depreciable asset are based on the following useful lives:

	2019–20	2018–19
Buildings	Lease term	-
Leasehold improvements	Lease term	Lease term
Plant and equipment	up to 5 years	up to 5 years

### Impairment

All assets were assessed for impairment at 30 June 2020. Where indications of impairment exist, the asset's recoverable amount is estimated and an impairment adjustment made if the asset's recoverable amount is less than its carrying amount.

The recoverable amount of an asset is the higher of its fair value less costs of disposal and its value in use. Value in use is the present value of the future cash flows expected to be derived from the asset. Where the future economic benefit of an asset is not primarily dependent on the asset's ability to generate future cash flows, and the asset would be replaced if the entity were deprived of the asset, its value in use is taken to be its depreciated replacement cost.

### Derecognition

An item of property, plant and equipment is derecognised upon disposal, or when no further future economic benefits are expected from its use or disposal.

### Intangibles

The FRDC's intangibles comprise internally developed software and purchased software for internal use. These assets are carried at cost less accumulated amortisation and accumulated impairment losses.

Software is amortised on a straight-line basis over its anticipated useful life. The useful lives of the FRDC's software is 10 years (2018–19: 10 years).

All software assets were assessed for indications of impairment as at 30 June 2020.

### Note 2.2B: Other non-financial assets

	2019–20	2018–19
	\$	\$
Prepayments	14,070	11,258
Total other non-financial assets	14,070	11,258

No indicators of impairment were found for other non-financial assets.

## Note 2.3: Payables

### Note 2.3A: Suppliers and other payables

	2019–20	2018–19
	\$	\$
Trade creditors and accruals	122,158	102,138
FBT payable	1,866	1,582
PAYG payable	69,812	151,779
Total suppliers and other payables	193,836	255,499

Settlement is usually made within 30 days.

### Note 2.3B: Projects

	2019–20	2018–19
	\$	\$
State and territory government expense	535,609	33,000
Contract liability <sup>1</sup>	817,548	-
Other	61,220	177,786
Total projects	1,414,377	210,786

1. The FRDC has applied AASB 15 using the modified retrospective approach and therefore the comparative information has not been restated.

The contract liability is associated with funding provided for Research & Development activities under Funding Agreements with the Department of Agriculture, Water and the Environment and Department of Primary Industries NSW as detailed below.

Department of Agriculture, Water and the Environment:

- Assist with data generation to support APVMA application—erythroymycin in finfish,
- Assist with data generation to support APVMA application—Praziquantel—Skin and gill flukes (Monogenea)—Non-seriola finfish,
- Development of on-farm biosecurity plan implementation support programs for aquaculture industry.

The FRDC recognised a contract liability in 2019–20 totalling: \$291,548.

Department of Primary Industries NSW:

• NSW seafood product development program

The FRDC recognised a contract liability in 2019–20 totalling: \$526,000.

### Accounting policy

Project payables are recognised at their nominal amounts, being the amounts at which the liabilities will be settled. They relate to payments approved on achievement of agreed deliverables, but which were unpaid at the end of the reporting period. Settlement is usually made within 30 days.

As per AASB 15 *Revenue from Contracts with Customers*, contract liabilities are recognised at their nominal amounts, being the amounts at which the liabilities are not yet settled. They relate to payments received for funding provided for research and development activities, of which specific performance obligations were not met at the end of the reporting period.

# Note 2.4: Interest bearing liabilities

### Note 2.4A: Leases

	2019–20	2018–19
	\$	\$
Lease liabilities <sup>1</sup>	847,595	-
Total leases	847,595	-

1. The FRDC has applied AASB 16 using the modified retrospective approach and therefore the comparative information has not been restated and continues to be reported under AASB 117.

Total cash outflow for leases for the year ended 30 June 2020 was \$161,884 plus finance costs of \$10,018.

### Accounting policy

Refer Overview section for accounting policy on leases.



# People and relationships

# Note 3.1: Employee provisions

Note 3.1A: Employee provisions

	2019–20	2018–19
	\$	\$
Leave	695,438	1,019,845
Total employee provisions	695,438	1,019,845
Employee provisions that could be settled		
No more than 12 months	615,674	949,696
More than 12 months	79,764	70,149
Total employee provisions	695,438	1,019,845

### Accounting policy

Liabilities for short-term employee benefits and termination benefits expected within 12 months of the end of reporting period are measured at their nominal amounts. Other long-term employee benefits are measured as net total of the present value of the defined benefit obligation at the end of the reporting period minus the fair value at the end of the reporting period of plan assets (if any) out of which the obligations are to be settled directly.

### Leave

The liability for employee benefits includes provision for annual leave and long service leave. The leave liabilities are calculated on the basis of employees' remuneration at the estimated salary rates that will be applied at the time the leave is taken, including the entity's employer superannuation contribution rates to the extent that the leave is likely to be taken during service rather than paid out on termination. The estimate of the present value of the liability takes into account attrition rates and pay increases through promotion and inflation.

### Superannuation

The FRDC's staff are members of the Public Sector Superannuation Scheme (PSS), or the PSS accumulation plan (PSSap), or other superannuation funds held outside the Australian Government.

The PSS is a defined benefit scheme for the Australian Government. The PSSap and any other superannuation funds are defined contribution schemes.

The liability for defined benefits is recognised in the financial statements of the Australian Government and is settled by the Australian Government in due course. This liability is reported in the Department of Finance's administered schedules and notes.

The FRDC makes employer contributions to the employee's defined benefit superannuation scheme at rates determined by an actuary to be sufficient to meet the current cost to the Australian Government. The entity accounts for the contributions as if they were contributions to defined contribution plans.

### Note 3.2: Key management personnel remuneration

Key management personnel are those persons having authority and responsibility for planning, directing and controlling the activities of the FRDC, directly or indirectly, including any director of the board (whether executive or otherwise) of the FRDC. The FRDC has determined the key management personnel to be the non-executive directors, the Managing Director and senior general managers. Key management personnel remuneration is reported in the table below:

	2019–20	2018–19
	\$	\$
Short-term employee benefits (salary and accrued annual leave)	1,518,401	1,268,027
Post-employment benefits (superannuation)	243,247	214,199
Other long-term employee benefits (accrued long service leave)	44,265	38,600
Total key management personnel remuneration expenses	1,805,913	1,520,826

The total number of key management personnel that are included in the above table is 14 (2017–18:16). They are made up of:

- seven non-executive directors
- one non-executive director (Chair)
- one Managing Director
- three senior general managers
- one acting senior general manager
- one non-executive director (Chair) (retired 1 January 2020).

Key management personnel remuneration figures have been restated for 2018–19. Accrued annual leave totalling \$85,779 has been reclassified from other long-term benefits, to short-term benefits to better align to the 2019–20 Annual Report Executive Remuneration Note.

In 2018–19 an independent member of the Finance, Audit and Risk Management Committee was included in Note 3.3: Annual remuneration ranges, for the purposes of recognising the services that were paid during 2018–19. They were not included in Note 3.2: Key management personnel remuneration, as they were paid under a consultancy agreement and not paid as key management personnel.



# Note 3.3: Annual total remuneration ranges (including superannuation) paid to key management personnel

	2019–20	2018–19
Nil to \$39,999	2	12
\$40,000 to \$69,999	7	1
\$180,000 to \$239,999	3	2
\$280,000 to \$309,999	1	1
\$360,000 to \$389,999	1	1
Total number of key management personnel	14	17

# Note 3.4: Related party disclosures

### Related party relationships

The FRDC is an Australian Government controlled entity. Related parties to this entity are non-executive directors, the Managing Director, and senior general managers and other Australian Government entities.

The non-executive directors and the Man	The non-executive directors and the Managing Director of the FRDC during the year were:		
Mr John Williams	Chair (Appointed 10 March 2020)		
Dr Kathryn Brooks	Director (Member Investment Mechanisms Working Group)		
Professor Colin D. Buxton	Director (Deputy Chair) (A/g Chair from 1 November 2019 to 9 March 2020) (Member Investment Mechanisms Working Group)		
Dr Saranne Cooke	Director (Member Finance, Audit and Risk Management Committee)		
Ms Katina Hodson-Thomas	Director (Member People and Culture Committee)		
Dr Patrick Hone	Managing Director (Member Investment Mechanisms Working Group)		
Mr Mark King	Director (Chair People and Culture Committee)		
Mr John Lloyd	Director (Chair Investment Mechanisms Working Group) (Member Finance, Audit and Risk Management Committee)		
Dr Lesley MacLeod	Director (Chair Finance, Audit and Risk Management Committee)		
The Hon. Ronald Boswell	Chair (Retired 1 January 2020)		

### Note 3.4A: Transactions with director-related entities

The FRDC's practice is to disclose all transactions with an entity with whom a director has an association. This means that directors who have disclosed a material personal interest that all the transactions of that entity will be listed. Typically, the FRDC will not transact with all the entities for which a director has made such a declaration. The transactions that are not with related parties as defined by AASB 124 *Related Party Disclosures*, are identified below with an asterisk (\*).

The FRDC's 'Board governance policy' provides guidance to directors on how the FRDC deals with material personal interests. Where a director has an association with an entity where a conflict has the potential to arise, in addition to the duty to disclose that association, the director absents him/herself from both the discussion and the decision-making process.

Given the breadth of Australian Government activities, related parties may transact with the government sector in the same capacity as ordinary citizens. Such transactions include the payment or refund of taxes, receipt of a Medicare rebate or higher education loans. These transactions have not been separately disclosed in this note.

Director	Organisation and position held	Nature of interest
Dr K. Brooks	OzFish Unlimited <i>Non-executive Director</i> 1 July 2019 to 30 June 2020	Research projects or work undertaken by the organisation
	Kal Analysis Pty Ltd <i>Director</i> 1 July 2019 to 30 June 2020	Research projects or work undertaken by the organisation
	School of Humanities and Social Sciences, Faculty of Arts and Education Deakin University <i>Adjunct Associate Professor</i> 8 October 2019 to 30 June 2020	Research projects or work undertaken by the organisation
Professor C. D. Buxton	Southern Rock Lobster Ltd <i>Chair</i> 1 July 2019 to 30 June 2020	Research projects or work undertaken by the organisation
	Institute from Marine and Antarctic Studies University of Tasmania * <i>Adjunct Professor</i> 1 July 2019 to 30 June 2020	Research projects or work undertaken by the organisation
Dr P. Hone	Council of Rural Research and Development Corporations <i>Member of the Executive</i> <i>and CEO's Committee</i> 1 July 2019 to 30 June 2020	Research projects or work undertaken by the organisation

The directors disclosed material personal interests during the directors' related period.

The following transactions occurred during the directors' related period with these entities.

Director	2019–20		2018–19	
	Expenditure	Income	Expenditure	Income
OzFish Unlimited	2,454	_	71,895	_
Kal Analysis Pty Ltd	38,566	_	143,726	_
School of Humanities and Social Sciences, Faculty of Arts and Education				
Deakin University	345,652	_	_	
Southern Rock Lobster Ltd	191,290	852	810,590	-
Institute from Marine and Antarctic Studies University of Tasmania	3,840,665	_	3,561,224	3,250
Council of Rural Research and Development Corporations	51,940	_	33,093	_

All transactions were conducted under normal terms and conditions and include GST.

### Note 3.4B: Other related party disclosures

### Department of Agriculture, Water and the Environment

The FRDC has a Research & Development Funding Head Agreement with the Department of Agriculture, Water and the Environment under which it manages the suite of activities detailed below:

- AQUAPLAN Development Workshop Publication
- Aquatic Animal Health Training Scheme 2019–2022
- Data generation to support APVMA application
- Development of on-farm biosecurity plan implementation support programs for aquaculture industry
- National Carp Control Plan
- Rural R&D for Profit: Growing a profitable, innovative and collaborative Australian Yellowtail Kingfish aquaculture industry: bringing 'white' fish to the market
- The role of the recreational fisher in the stewardship of the Southern Bluefin Tuna fishery.

The FRDC has received funding from the Department of Agriculture, Water and the Environment in 2019–20 totalling: \$877,515 (2018–19: \$3,418,716).



# Financial instruments and fair value measurement

### Note 4.1: Financial instruments

Note 4.1A: Categories of financial instruments

	2019–20	2018–19
	\$	\$
Financial assets at amortised cost		
Cash and cash equivalents	26,411,348	24,553,443
Trade and other receivables	720,256	1,561,369
Other investments	-	5,001
Total financial assets at amortised cost	27,131,604	26,119,813
Total financial assets	27,131,604	26,119,813
Financial liabilities		
Financial liabilities measured at amortised cost		
Suppliers and other payables	122,158	102,138
Projects	1,414,377	210,786
Total financial liabilities measured at amortised cost	1,536,535	312,924
Total financial liabilities	1,536,535	312,924

### Accounting policy

### Financial assets

With the implementation of AASB 9 *Financial Instruments* for the first time in 2018–19, the entity classifies its financial assets in the following categories:

- a) financial assets at fair value through profit or loss,
- b) financial assets at fair value through other comprehensive income, and
- c) financial assets measured at amortised cost.

The classification depends on both the entity's business model for managing the financial assets and contractual cash flow characteristics at the time of initial recognition. Financial assets are recognised when the entity becomes a party to the contract and, as a consequence, has a legal right to receive or a legal obligation to pay cash and derecognised when the contractual rights to the cash flows from the financial asset expire or are transferred upon trade date.

Comparatives have not been restated on initial application.

### Financial assets at amortised cost

Financial assets included in this category need to meet two criteria:

- 1. the financial asset is held in order to collect the contractual cash flows, and
- 2. the cash flows are solely payments of principal and interest (SPPI) on the principal outstanding amount.

Amortised cost is determined using the effective interest method.

### Effective interest method

Income is recognised on an effective interest rate basis for financial assets that are recognised at amortised cost.

### Impairment of financial assets

Financial assets are assessed for impairment at the end of each reporting period based on expected credit losses, using the general approach which measures the loss allowance based on an amount equal to lifetime expected credit losses where risk has significantly increased, or an amount equal to 12-month expected credit losses if risk has not increased.

The simplified approach for trade, contract and lease receivables is used. This approach always measures the loss allowance as the amount equal to the lifetime expected credit losses.

A write-off constitutes a derecognition event where the write-off directly reduces the gross carrying amount of the financial asset.

### Financial liabilities

Financial liabilities are classified as either financial liabilities 'at fair value through profit or loss' or other financial liabilities.

Financial liabilities are recognised and derecognised upon 'trade date'.

### Financial liabilities at amortised cost

Financial liabilities, including borrowings, are initially measured at fair value, net of transaction costs. These liabilities are subsequently measured at amortised cost using the effective interest method, with interest expense recognised on an effective interest basis.

Supplier and other payables are recognised at amortised cost. Liabilities are recognised to the extent that the goods or services have been received (and irrespective of having been invoiced).

### Note 4.1B: Net gain or loss from financial assets

	2019–20	2018–19
	\$	\$
Financial assets at amortised cost		
Interest revenue (Note 1.2A)	302,329	544,651
Net gains on financial assets at amortised cost	302,329	544,651

There are no gains or losses on financial liabilities.

### Note 4.2: Fair value measurement

### Accounting policy

FRDC engaged Jones Lang LaSalle Public Sector Valuations (JLL) to conduct an asset revaluation of all non-financial assets as at 30 June 2020. An annual assessment is undertaken to determine whether the carrying amount of the assets is materially different from the fair value. Comprehensive valuations are carried out at least once every three years. JLL has provided written assurance to the FRDC that the models developed are in compliance with AASB 13.

The methods utilised to determine and substantiate the unobservable inputs are derived and evaluated as follows.

Physical depreciation and obsolescence—assets that do not transact with enough frequency or transparency to develop objective opinions of value from observable market evidence that have been measured using the depreciated replacement cost approach. Under the depreciated replacement cost approach, the estimated cost to replace the asset is calculated and then adjusted to take into account physical depreciation and obsolescence. Physical depreciation and obsolescence has been determined based on professional judgement regarding physical, economic and external obsolescence factors relevant to the asset under consideration. For all leasehold improvement assets, the consumed economic benefit/asset obsolescence deduction is determined based on the term of the associated lease.

FRDC's policy is to recognise transfers into, and transfers out of, fair value hierarchy levels as at the end of the reporting period.

### Note 4.2A: Fair value measurement

	Fair value measurements at the end of the reporting period	
	2019–20	2018–19
	\$	\$
Non-financial assets		
Leasehold improvements	111,450	47,060
Plant and equipment	17,950	27,390
Total non-financial assets	129,400	74,450

The FRDC did not measure any non-financial assets at fair value on a non-recurring basis as at 30 June 2020.

As at 30 June 2020, Jones Lang LaSalle Public Sector Valuations conducted a revaluation of plant and equipment. The table above summarises the results of the valuation at fair value. A revaluation increment was applied to the asset revaluation reserve by asset class and included in the equity section of the Statement of Financial Position. Refer Note 2.2A.

# Other information

### Note 5.1: Aggregate assets and liabilities

Note 5.1A: Aggregate assets and liabilities

	2019–20	2018–19
	\$	\$
Assets expected to be recovered in:		
No more than 12 months	28,731,788	29,391,006
More than 12 months	1,564,928	765,876
Total assets	30,296,716	30,156,882
Liabilities expected to be settled in:		
No more than 12 months	2,385,205	1,415,981
More than 12 months	766,041	70,149
Total liabilities	3,151,246	1,486,130



# **APPENDICES**





# Appendix A: The FRDC's principal revenue base

As stipulated in the PIRD Act, and shown in Figure 5, the FRDC's primary revenue source is based on:

- A. Australian Government providing unmatched funds equivalent to 0.50 per cent of the average gross value of Australian fisheries production (AGVP) for the current year plus the two preceding years.
- B. Fishers and aquaculturists providing contributions via government.
- C. Australian Government matching this amount up to a maximum of 0.25 per cent of AGVP.
- D. Funds received from RD&E providers, both as cash and in-kind contributions through projects that have been successful for funding.
- E. Marketing funds collected from the sectors through a statutory levy (or if approved voluntary contributions). Marketing funds are not eligible to be matched by the Commonwealth.

There is no legislative impediment to fishers and aquaculturists contributing to the FRDC above the maximum level at which the Australian Government will provide a matching contribution. Industry contributions for the past financial year and trends for the past five years are shown on page iii.

Details of all FRDC revenue (including investments, royalties, and sales of products, information and services) are in the financial statements starting on page 131.

FIGURE 5: PROPORTIONS OF THE FRDC'S PRINCIPAL REVENUE BASE

A: PUBLIC-GOOD FUNDING BY AUSTRALIAN GOVERNMENT Australian Government pays 0.50 per cent of AGVP of the commercial sector

B: CONTRIBUTION BY THE COMMERCIAL SECTOR Commercial fishers and aquaculturists contribute at least 0.25 per cent of AGVP C: AUSTRALIAN GOVERNMENT MATCHING OF CONTRIBUTION BY COMMERCIAL SECTOR Same amount as B, up to a maximum of 0.25 per cent of AGVP

### D: ADDITIONAL INVESTMENTS

By post-harvest, retail, recreational and import sectors and government agencies

#### E: MARKETING INVESTMENT

These funds are invested separately from RD&E investments and are to be used for marketing only

### Rationale for the FRDC's revenue base

The high component of public good in the operating environment of the fishing industry, has significance for the FRDC's revenue base. The Australian Government's contribution of 0.50 per cent of AGVP is made on the grounds that the Australian Government exercises a stewardship role in relation to fisheries resources on behalf of the Australian community.

Fishing and aquaculture contributes to the FRDC on the basis that RD&E will be targeted to its needs and will deliver economic and social benefits. The Australian Government matches industry contributions on the basis that the beneficiaries of research should pay approximately in proportion to the benefits received, but the government should contribute to spill over benefits to the wider community.


# Appendix B: The FRDC's legislative foundation and the exercise of ministerial powers

The FRDC was formed as a statutory corporation on 2 July 1991 under the provisions of the PIRD Act. It also operates under the provisions of the PGPA Act, which applies high standards of accountability while providing for the independence required by the Corporation's role as a statutory authority.

The FRDC's objects, deriving from section 3 of the PIRD Act and shown in Appendix C, are incorporated in the FRDC's vision and planned outcomes. As reflected in Figure 2 on pages 24–25, the FRDC's five RD&E programs mirror the industry development, natural resources sustainability and people development themes of, respectively, sub-sections 3(a), (b) and (c) of the Act. This alignment has brought simplicity and robustness to the FRDC's RD&E planning, implementation and reporting, and to many of the organisations with which it does business. Importantly, the alignment ensures the RD&E outputs resulting from the FRDC's investments fully address the legislative objects.

More information about the FRDC's legislative foundations can be found in Appendix C.

# **Enabling legislation**

The FRDC's enabling legislation is the Primary Industries Research and Development Act 1989 (PIRD Act).

The FRDC Board is responsible to the Minister for Agriculture and, through him, to the Parliament of Australia.

The objects, functions and statutory powers of R&D corporations are specified in the PIRD Act, the text of which is available via the FRDC website.

In the interests of clarity, the following statements of the FRDC's objects, functions and statutory powers mirror the wording of the PIRD Act but are specific to the FRDC and its business environment. Similarly, the statements of the FRDC's functions and statutory powers have been made shorter and simpler than the wording of the Act.



# **Objects**

The objects of the FRDC, deriving from section 3 of the PIRD Act, are to:

- (a) make provision for the funding and administration of research and development relating to primary industries with a view to:
  - (i) increasing the economic, environmental and social benefits to members of primary industries and to the community in general by improving the production, processing, storage, transport or marketing of the products of primary industries, and
  - (ii) achieving the sustainable use and sustainable management of natural resources, and
  - (iii) making more effective use of the resources and skills of the community in general and the scientific community in particular, and
  - (iv) supporting the development of scientific and technical capacity, and
  - (v) developing the adoptive capacity of primary producers, and
  - (vi) improving accountability for expenditure on research and development activities in relation to primary industries, and
- (b) make provision for the funding and administration of marketing relating to products of primary industries.

# **Functions**

The functions of the FRDC, deriving from section 11 of the PIRD Act, are to:

- investigate and evaluate the requirements for fisheries research and development and, on that basis, prepare a five-year R&D plan, review it annually and revise it if required,
- prepare an annual operational plan for each financial year,
- coordinate or fund the carrying out of R&D activities that are consistent with the annual operational plan,
- monitor and evaluate fisheries RD&E activities that are funded and report on them to the Parliament; the Minister for Agriculture, statutory levy payers and the FRDC representative organisations, and
- facilitate the dissemination, adoption and commercialisation of the results of fisheries R&D.

### **Statutory powers**

Subject to the PIRD Act, the FRDC is empowered under section 12 of the Act to do all things necessary or convenient to be done for, or in connection with, the performance of its functions, which may include:

- entering into agreements for the carrying out of R&D activities by other persons,
- entering into agreements for the carrying out of R&D activities by the FRDC and other persons,
- making applications, including joint applications for patents,
- dealing with patents vested in the FRDC and other persons,
- making charges for work done, services rendered, and goods and information supplied by it,
- accepting gifts, grants, bequests and devices made to it, and acting as trustee of money and other property vested in it on trust,
- acquiring, holding and disposing of real and personal property,
- joining in the formation of a company, and
- doing anything incidental to any of its powers.

The description of ministerial powers that follows has been drawn from several sections of the PIRD Act and has been condensed from the original in the interests of clarity.

## **Ministerial powers**

Ministerial powers under the enabling legislation may be exercised by the Minister for Agriculture. They relate to:

- directing the FRDC in writing as to the performance of its functions and the exercise of its powers,
- approving the RD&E plan and the annual operational plan,
- requesting and approving variation to the RD&E plan and the annual operational plan,
- requesting the establishment of a selection committee and determining certain conditions relating to the selection committee,
- appointing the presiding member and members of a committee for the selection of directors,
- determining the number of directors,
- determining the terms and conditions of appointment of directors (other than the Managing Director) in relation to matters not provided for by the PIRD Act,
- appointing the Chairperson,
- appointing directors, other than the Chairperson and Managing Director, from persons nominated by a selection committee,
- declaring one or more specified organisations to be representative organisations in relation to the FRDC,
- determining the gross value of production of the fishing industry for the purposes of establishing the maximum payments by the Australian Government to the FRDC,
- establishing written guidelines covering the payment by the FRDC to an eligible industry body, or member of an eligible industry body, for expenses reasonably incurred in connection with consultation with the FRDC,
- causing, at least once in each financial year, a coordination meeting to be held of all R&D corporations,
- granting leave of absence to the Chairperson, and
- terminating the appointment of the Chairperson or a director other than the Managing Director.

Additional powers under the PGPA Act relating to corporate governance and reporting are available from the Minister for Agriculture.

Exercise of ministerial powers are described on page 113.





# Appendix C: Principal legislative requirements for reporting

This annual report complies with the requirements of Commonwealth legislation. The principal reporting requirements, and some of their consequences for the FRDC, are outlined in this appendix. The Acts are:

- Primary Industries Research and Development Act 1989 (PIRD Act),
- Public Governance, Performance and Accountability Act 2013 (PGPA Act),
- Environment Protection and Biodiversity Conservation Act 1999 (Section 16A).

## **PGPA Act requirements**

The PGPA Act is one of the principal pieces of legislation that specifies the content and standards of presentation of statutory authorities' annual reports for parliamentary scrutiny.

Part 2–3: Planning, Performance and Accountability consolidates government policy for planning and performance reporting with budgets and actuals for both financial and non-financial measures. Section 46 of the PGPA Act requires the FRDC's directors to prepare an annual report in accordance with PGPA Rules, and to give it to the responsible Minister by 15 October.

## **PIRD Act requirements**

The PIRD Act also specifies matters that must be reported. In particular, section 28 states:

- (1) The annual report prepared by the directors of an R&D Corporation and given to the Minister under section 46 of the PGPA Act for a period must include:
- (a) particulars of:
  - (i) the R&D activities that it coordinated or funded, wholly or partly, during the period, and
  - (ia) if a levy attached to the Corporation had a marketing component during the period—the marketing activities that it coordinated or funded, wholly or partly, during the period, and
  - (ii) the amount that it spent during the period in relation to each of those activities, and
  - (iib) the impact of those activities on the primary industry or class of primary industries in respect of which the Corporation was established, and
  - (iii) revisions of its R&D plan approved by the Minister during the period, and
  - (iv) the entering into of agreements under sections 13 and 14 during the period and its activities during the period in relation to agreements entered into under that section during or prior to the period, and
  - (v) its activities during the period in relation to applying for patents for inventions, commercially exploiting patented inventions and granting licences under patented inventions, and
  - (vi) the activities of any companies in which the Corporation has an interest, and
  - (vii) any activities relating to the formation of a company, and
  - (viii) significant acquisitions and dispositions of real property by it during the period, and

- (b) an assessment of the extent to which its operations during the period have:
  - (i) achieved its objectives as stated in its R&D plan, and
  - (ii) implemented the annual operational plan applicable to the period, and
- (c) an assessment of the extent to which the Corporation has, during the period, contributed to the attainment of the objects of this Act as set out in section 3, and
- (d) in respect of the grain industry or such other primary industry or class of primary industries as is prescribed in the regulations, particulars of sources and expenditure of funds, including:
  - (i) commodity, cross commodity and regional classifications, and
  - (ii) funds derived from transfer of assets, debts, liabilities and obligations under section 144.

#### **EPBC Act requirements**

Section 516A requires annual reports for Commonwealth entities to report against the criteria set out in that section of the Act.

#### Part 21 — Reporting — Division 1 — Annual reports

Section 516A: Annual reports to deal with environmental matters

- (6) A report described in subsection (1), (4) or (5) relating to a body or person (the reporter) for a period must:
  - (a) include a report on how the activities of, and the administration (if any) of legislation by, the reporter during the period accorded with the principles of ecologically sustainable development, and
  - (b) identify how the outcomes (if any) specified for the reporter in an Appropriations Act relating to the period contribute to ecologically sustainable development, and
  - (c) document the effect of the reporter's activities on the environment, and
  - (d) identify any measures the reporter is taking to minimise the impact of activities by the reporter on the environment, and
  - (e) identify the mechanisms (if any) for reviewing and increasing the effectiveness of those measures.





# Appendix D: Government priorities

The FRDC works closely with the Minister for Agriculture and, Assistant Minister and DAWE to ensure it delivers results that in line with the Australian Government's Science and Rural RD&E priorities—see Australian Government Science and Research Priorities section at Attachment 1. The FRDC invests in targeted projects that will assist in the delivery of Australian Government priorities. Government priorities are consistent with the FRDC's four legislated objects (section 3 of the PIRD Act) as shown in Figure 2: FRDC's framework for integrating legislative, government and industry priorities (pages 24–25).

The following tables summarise the total expenditure allocated against each set of priorities within the 2019–20 financial year. The allocation of funds is shown in both dollar and percentage terms for each investment theme—noting that totals may not equal 100 per cent as not all projects fit the Government priorities.

# Government research priorities attributed to each RD&E program (\$ and %)

RURAL RESEARCH PRIORITIES

	\$	%
Adoption of R&D	6,988,383	26.0
Advanced technology	5,053,558	18.8
Biosecurity	3,171,335	11.8
Soil, water and managing natural resources	11,648,288	43.4
Total	26,861,564	100.0

#### STRATEGIC RESEARCH PRIORITIES

	\$	%
Advanced manufacturing	799,386	2.9
Cybersecurity	144,538	0.5
Energy	40,207	0.1
Environmental change	4,584,230	16.9
Food	12,651,810	46.6
Health	901,395	3.3
Resources	3,421,737	12.6
Soil and water	4,588,909	16.9
Transport	42,671	0.2
Total	27,174,884	100.0

Not all projects align to the priorities. Figures in these tables have been rounded, hence totals may not agree with component total RD&E financial figures.



# Appendix E: Freedom of information statement

Australian Government agencies subject to the *Freedom of Information Act 1982* (FOI Act) are required to publish information to the public as part of the Information Publication Scheme (IPS). This requirement is in Part II of the FOI Act and each agency must display on its website a plan showing what information it publishes in accordance with the IPS requirements.

Further information on the FRDC's agency plan is available from the FRDC website—www.frdc.com. au/About-us/Freedom-of-information.

## **Role, structure and functions**

The FRDC's role is described on page 13 of this annual report; its structure and functions and legislation under which it is established are described in Appendices A to C.

RD&E plan (the FRDC's strategic plan)	File, publication and website*
FRDC policies	Unpublished documents, list on website*
Annual operational plan	File, publication and website*
Project details	Database, files and website*
Project agreements	Files and generic copy on website*
Final reports and non-technical summaries	Publications and website*
RD&E funding applications	Files
Annual report	File, publications and FRDC website*
FISH magazine	File, publications, iPad and FRDC website*
Administration	Files, unpublished documents
Mailing lists	Database

DOCUMENTS AVAILABLE FOR INSPECTION

\* The FRDC's website address is www.frdc.com.au

Some other information may be subject to assessment of access for such matters as commercial confidentiality or personal privacy in accordance with the FOI Act.

## Access to documents

To seek access to FRDC documents, please contact the FRDC's FOI Officer: address, telephone and e-mail details are shown inside the back cover of this report. It may not be necessary to request the information under the FOI Act—the FRDC may simply provide it to you when you ask for it. At all times, however, you have the option of applying under the FOI Act.

# Fees and charges for FOI

Request	Charge
Application	No fee
Search and retrieval	\$15 per hour (GST inclusive)
Decision making and consultation	First five hours free, after that \$20 per hour (GST inclusive)
When a FOI request is not responded to within the statutory time limit	No fee
Internal review	No fee
Request for personal information	No fee

The standard FOI application fee is nil when making your application, however processing charges will apply.

Documents are usually made available for direct access at the FRDC's office in Canberra. They may also be provided, depending on your preference:

- by post (photocopies) to an address specified in your request, or
- at the Information Access Office (established by the Attorney-General) nearest where you live.





# Appendix F: Information about remuneration for key management personnel and senior executives

Information about	remuneration tor key ma	anagement	personne			
				Post- employment benefits	Other long-term benefits	
Name	Position title	Base salary	Annual leave accrued (4 weeks)	Super- annuation contri- butions	Long service leave accrued	Total
		\$	\$	\$	\$	\$
Mr John Williams	Chair (appointed 9 March 2020)	18,919	I	1,797	I	20,716
Professor Colin Buxton	Deputy Chair	45,283	I	4,302	I	49,585
Dr Kathryn Brooks	Non-executive director	36,590	I	3,476	I	40,066
Dr Saranne Cooke	Non-executive director	36,590	I	3,476	I	40,066
Ms Katina Hodson-Thomas	Non-executive director	36,590	I	3,476	I	40,066
Mr Mark King	Non-executive director	36,590	I	3,476	I	40,066
Mr John Lloyd	Non-executive director	36,590	I	3,476	I	40,066
Dr Lesley MacLeod	Non-executive director	36,590	I	3,476	I	40,066
The Hon. Ronald Boswell	Chair (retired 1 January 2020)	30,725	I	2,919	I	33,644
Dr Patrick Hone	Managing Director	313,853	28,681	59,004	12,906	414,444
Mr John Wilson	General Manager Business	249,520	23,789	59,731	10,705	343,745
Mr Crispian Ashby	General Manager Research and Investment	200,800	17,655	36,142	7,945	262,543
Mr Peter Horvat	General Manager Communications, Trade and Marketing	171,666	15,654	31,836	7,044	226,200
Ms Cheryl Cole	Acting General Manager Business	169,726	12,589	26,660	5,665	214,640
Total		1,420,033	98,368	243,247	44,265	1,805,913

# Information about remuneration for senior executives

Total remuneration bands				Post- employment benefits	Other long-term benefits	
	Number of senior executives	Average base salary	Annual leave accrued (4 weeks)	Average super- annuation contri- butions	Average long service leave	Average total remun- eration
		\$	\$	\$	\$	\$
\$0- \$220,000	2	170,696	14,122	29,248	6,355	220,421
\$220,001– \$245,000	1	200,800	17,655	36,142	7,945	262,542
\$295,001– \$320,000	1	249,520	23,789	59,731	10,705	343,745
\$370,001– \$395,000	1	313,853	28,681	59,004	12,906	414,444



# **ABBREVIATIONS AND ACRONYMS**

AASB	Australian Accounting Standards Board
ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
A/g	Acting
AGVP	average gross value of production
ANAO	
AUP	annual operational plan
	Australian Pesticides and Veterinary Medicines Authority
	Cotten Research and Development Corporation
	Council of Purel Research and Development Corporation
	Commonwealth Scientific and Industrial Research Organisation
	Australian Covernment Department of Agriculture, Water and the Environment
	Australian Government Department of Agriculture, water and the Environment
EPBC ACI	Environment Protection and Biodiversity Conservation Act 1999
FAU FOL A at	Food and Agriculture Organization of the United Nations
	Freedom of Information Act 1982
CCS	
	General Government Sector
	grass value of production
GVP	gross value of production
	goods and services lax
	Institute for Marine and Antarctic Studies
IKG	Indigenous Reference Group
ISU	international Organization for Standardisation
	Information and communications technology
K4P	
m	million
MP	member of parliament
NCCP	National Carp Control Plan
NSW	New South Wales
NSW DPI	NSW Department of Primary Industries
PAYG	pay as you go
PGPA Act	Public Governance, Performance and Accountability Act 2013
PhD	Doctor of Philosophy
PIRD Act	Primary Industries Research and Development Act 1989
PBS	Portfolio Budget Statements
POMS	Pacific Oyster Mortality Syndrome
R&D	research and development
RAC	Research Advisory Committee
RD&E	research, development and extension
RDC	research and development corporation
SAFS	Status of Australian Fish Stocks reports
SARDI	South Australian Research and Development Institute
SBL	Southern Bluefin Tuna
Tas DPIPWE	Iasmanian Department of Primary Industries, Parks, Water and Environment
WHS Act	Work Health and Safety Act 2011
YTK	Yellowtail Kingfish



# INDICES COMPLIANCE ~ ALPHABETICAL



# **Compliance index**

This index shows the page numbers on which the FRDC has reported on matters specified in Australian Government legislation and policies. Where an entry is not applicable (n/a) the page reference will be indicated by a —.

The requirements for annual reports acknowledges that agencies vary in role and size and there is discretion as to the extent of information to include in annual reports and the sequence in which it is presented. The Joint Committee on Publications has also observed that a departmental report will necessarily be different from that of a statutory authority; and a statutory authority, while accountable for its activities, has a degree of independence not shared by departments and its annual reports will thus have a greater freedom of expression and comment. The FRDC's reporting is, accordingly, appropriate to its legislative basis, functions and size.

Section	Title	Comply	Page
Section 10	R&D corporation is a body corporate etc.	Yes	169–171
Section 11	Functions	Yes	170
Section 12	Powers	Yes	170–171
Section 19	R&D plans	Yes	7, 16
Section 20	Approval of R&D plans	Yes	7, 16
Section 21	Variation of R&D plans	Yes	7
Section 24	Consultation	Yes	7, 8, 18–20
Section 25	Annual operational plans	Yes	16
Section 27	Compliance with R&D plans and annual operational plans	Yes	16, 108
Section 28	Annual report	Yes	108, 172
Section 29	Accountability to representative organisations	Yes	viii, 14, 145
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	Spending must be in accordance with funding agreement	Yes	8, 14
Section 33A	R&D money must not be spent on marketing	Yes	98, 127–165
Section 34	Commonwealth to be paid levy expenses from R&D corporation	Yes	12
Section 35	Commonwealth to be reimbursed for refunds of levy	Yes	12
Section 40	Separate accounting records	Yes	127–165
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Section 53	Minutes	Yes	123–124
Section 76	Duties	Yes	118
Section 87	Employees	Yes	109, 177
Section 143	Minister may give directions	Yes	113

TABLE 22: PRIMARY INDUSTRIES RESEARCH AND DEVELOPMENT ACT 1989 (PIRD ACT)

#### TABLE 23: SECTION 17BE: CONTENTS OF ANNUAL REPORT

The annual report for a corporate Commonwealth entity for a reporting period must include the following.

		Comply	Page
(a)	details of the legislation establishing the body,	Yes	169
(b)	both of the following:		
	<ul> <li>a summary of the objects and functions of the entity as set out in the legislation,</li> </ul>	Yes	16–171
	(ii) the purposes of the entity as included in the entity's corporate plan for the period,	Yes	13
(c)	the names of the persons holding the position of responsible Minister or responsible Ministers during the period, and the titles of those responsible Ministers,	Yes	14
(d)	any directions given to the entity by a Minister under an Act or instrument during the period,	Yes	113
(e)	any government policy orders that applied in relation to the entity during the period under section 22 of the Act,	Yes	114
(f)	if, during the period, the entity has not complied with a direction or order referred to in paragraph (d) or (e)—particulars of the noncompliance,	n/a	—
(g)	the annual performance statements for the entity for the period in accordance with paragraph 39(1)(b) of the Act and section 16F of this rule,	Yes	v–ix, 127–165
(h)	a statement of any significant issue reported to the responsible Minister under paragraph 19(1)(e) of the Act that relates to noncompliance with the finance law in relation to the entity,	n/a	—
(i)	if a statement is included under paragraph (h) of this section—an outline of the action that has been taken to remedy the noncompliance,	n/a	—
(j)	information on the accountable authority, or each member of the accountable authority, of the entity during the period, including:	Yes	15, 133
	(i) the name of the accountable authority or member, and	Yes	133
	(ii) the qualifications of the accountable authority or member, and	Yes	120–122
	(iii) the experience of the accountable authority or member, and	Yes	123–124
	(iv) for a member—the number of meetings of the accountable authority attended by the member during the period, and	Yes	120–122
	<ul> <li>(v) for a member — whether the member is an executive member or non-executive member,</li> </ul>	Yes	120–122
(k)	an outline of the organisational structure of the entity (including any subsidiaries of the entity),	Yes	190
(l)	an outline of the location (whether or not in Australia) of major activities or facilities of the entity,	Yes	190
(m)	information in relation to the main corporate governance practices used by the entity during the period,	Yes	118

n/a: Not applicable.

		Comply	Page
(n)	the decision-making process undertaken by the accountable authority for making a decision if:		
	<ul> <li>the decision is to approve the FRDC paying for a good or service from another Commonwealth entity or a company, or providing a grant to another Commonwealth entity or a company, and</li> </ul>	Yes	111, 170, 172
	(ii) the entity, and the other Commonwealth entity or the company, are related entities, and	Yes	111, 170, 172
	<ul> <li>(iii) the value of the transaction, or if there is more than one transaction, the aggregate value of those transactions, is more than \$10,000 (inclusive of GST),</li> </ul>	Yes	113
(o)	if the annual report includes information under paragraph (n):		
	(i) if there is only one transaction—the value of the transaction, and	Yes	113
	<ul> <li>(ii) if there is more than one transaction—the number of transactions and the aggregate of value of the transactions,</li> </ul>	Yes	113
(p)	any significant activities and changes that affected the operations or structure of the entity during the period,	Yes	v–ix, 6–10
(q)	particulars of judicial decisions or decisions of administrative tribunals made during the period that have had, or may have, a significant effect on the operations of the entity,	Yes	114,
(r)	particulars of any report on the entity given during the period by:		
	<ul> <li>the Auditor-General, other than a report under section 43 of the Act (which deals with the Auditor-General's audit of the annual financial statements for Commonwealth entities), or</li> </ul>	Yes	128–128
	(ii) a Committee of either House, or of both Houses, of the Parliament, or	n/a	—
	(iii) the Commonwealth Ombudsman, or	n/a	
	(iv) the Office of the Australian Information Commissioner,	n/a	
(s)	if the accountable authority has been unable to obtain information from a subsidiary of the entity that is required to be included in the annual report—an explanation of the information that was not obtained and the effect of not having the information on the annual report,	n/a	—
(t)	details of any indemnity that applied during the period to the accountable authority, any member of the accountable authority or officer of the entity against a liability (including premiums paid, or agreed to be paid, for insurance against the authority, member or officer's liability for legal costs),	Yes	125
(u)	an index identifying where the requirements of this section and section 17BF (if applicable) are to be found.	Yes	182–184

n/a: Not applicable.

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Australian Government priorities • Rural Research Priorities • Strategic Research Priorities	Yes	174
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Australian Government Commonwealth Property Management Framework	Yes	114
Australian Government Protective Security Policy Framework (PSPF)	Yes	114
Australian Government Public Sector Workplace Bargaining Policy	Yes	114
Comcover Risk Benchmarking Survey	Yes	112
Commonwealth Disability Discrimination Act 1992 (National Disability Strategy 2010–2020)	Yes	110
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# Publications and other information

The following information is available from the FRDC	Printed	Website
The RD&E plan (Knowledge for fishing and aquaculture into the future: The FRDC's research, development and extension plan 2015–20), which provides comprehensive information on the FRDC; its business environment; the outlook for the fishing industry and the natural resources on which it depends; and the way in which the FRDC plans, invests in and manages fisheries R&D.	Yes	Yes
This and the previous annual report.	Yes	Yes
R&D plans for Commonwealth, states, Northern Territory, regions and industry sectors.	Yes	Yes
<i>FISH</i> (published in March, June, September and December, and on other occasions for special themes), which provides information on FRDC activities, summarises final reports on completed R&D projects released during the previous quarter, and lists projects that have been newly funded.	Yes	Yes
Information on completed projects (final reports and other related products).	—	Yes
Hyperlinks to other websites containing full final reports and fisheries R&D strategies, and to other important websites.	—	Yes
R&D funding application details.	—	Yes
Coming events of significance for the industry.	—	Yes
Research databases.	_	Yes

# frdc.com.au

The FRDC's website (www.frdc.com.au) provides easy access to information and publications, including the items on this page.

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# About this report

This report describes the extent to which the FRDC implemented its approved annual operational plan during the previous financial year. It meets the requirements for reporting legislated by the Australian Government and informs the FRDC's other stakeholders—especially those in the commercial, recreational and Indigenous sectors of the fishing industry and in the research and development community.

Fisheries Research and Development Corporation Annual Report, 2019–20

An electronic version is at the FRDC website-www.frdc.com.au and

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The FRDC is co-funded by our stakeholders, the Australian Government, and the commercial fishing and aquaculture industries.

The FRDC invests strategically across all of Australia in research, development and extension activities that benefit all sectors of the fishing industry. Our goal is for Australia's fisheries to be sustainably managed.