



FRDC

ANNUAL REPORT 2016–17



Key events in 2016–17

- ▶ Australia's seafood gross value of production exceeds \$3.0 billion.
- ▶ Third edition of the Status of Australian Fish Stocks published.
- ▶ Perception of Australia's fishing industry improves.
- ▶ Yellowtail Kingfish production expands into New South Wales and Western Australia.
- ▶ Australia has new fisheries certified by the Marine Stewardship Council including two world firsts — pearl and joint recreational-commercial.
- ▶ White Spot Disease found in farmed prawns in south-east Queensland.
- ▶ Value of the seafood industry shown to be more than 'just about value' in two reports.
- ▶ Seismic research documents impacts on marine species for the first time.
- ▶ First seafood marketing symposium held in Queensland.
- ▶ Shark-tagging research shows movement patterns across south-east Australia.



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 118.
- ▶ For an overview of operations during the past year, read 'The directors' review of operations and future prospects' starting on page 4.

More detailed coverage is in these sections:

- ▶ The FRDC's national priorities are shown on pages 33, 38 and 40.
- ▶ Outcomes by recent and current projects are in the research and development (R&D) programs reporting starting on page 58 (Environment), page 64 (Industry), page 69 (Communities), page 74 (People) and page 81 (Adoption).
- ▶ Performance reporting for the Management and accountability program starts on page 100.
- ▶ Financial contributions by industry and governments are listed on pages i–ii and 130–132.
- ▶ Coverage of corporate governance information is in the section starting on page 106.
- ▶ The financial statements start on page 118.

2016–17 INVESTMENT OVERVIEW

Five years at a glance

TABLE 1: FINANCIAL INDICATORS OF R&D INVESTMENT

Expenditure	2012–13	2013–14	2014–15	2015–16	2016–17	AOP ¹ spending target %	Variance %
	\$m	\$m	\$m	\$m	\$m		
TOTAL EXPENDITURE	25.69	27.56	28.16	28.34	29.26		
Total of R&D projects	22.14	22.87	24.85	24.58	24.41		
R&D Program 1 (Environment)	8.25	10.20	10.44	8.68	7.46	40	–9
R&D Program 2 (Industry)	9.57	8.33	10.09	11.54	12.31	40	10
R&D Program 3 (Communities)	0.74	0.75	0.83	0.86	0.98	2	2
R&D Program 4 (People)	1.80	1.94	1.49	1.55	1.34	10	–5
R&D Program 5 (Adoption)	1.78	1.65 ²	2.00	1.95	2.32	8	2
Management and accountability	3.55	4.69 ²	3.31	3.76	4.85		

¹ Annual operational plan.

² In 2013–14, FRDC had a \$1.2 million write down of assets, which increased the cost of Management and accountability.

TABLE 2: INCOME

	2012–13	2013–14	2014–15	2015–16	2016–17
	\$m	\$m	\$m	\$m	\$m
TOTAL INCOME	25.98	26.89	31.75	30.12	37.32
Industry contributions	7.98	8.46	8.57	8.29	8.18
Total government contributions	17.23	17.93	18.71	20.05	21.76
Project funds from other parties	0.48	0.17	4.27	1.48	5.63
Other revenue	0.29	0.33	0.20	0.30	1.75

TABLE 3: MATCHABLE INCOME

	2012–13	2013–14	2014–15	2015–16	2016–17
	\$m	\$m	\$m	\$m	\$m
Maximum matchable (government) contribution ¹	5.83	5.99	6.25	6.78	7.25
Actual government matching	5.57	5.96	6.22	6.48	7.25

¹ Government funding and maximum matchable contribution (the maximum amount to which the Australian Government will match industry contributions) are detailed on page 153.

TABLE 4: NEW, ACTIVE AND COMPLETED PROJECTS IN 2016–17

	2012–13	2013–14	2014–15	2015–16	2016–17
Number of approved new projects	123	94	105	116	122
Total number of active projects under management	476	428	394	415	402
Number of final reports completed	109	128	155	133	86

Summary of contributions

TABLE 5: CONTRIBUTIONS, MAXIMUM MATCHABLE CONTRIBUTIONS BY THE AUSTRALIAN GOVERNMENT AND RETURN ON INVESTMENT, 2016–17

	A	B	C	D	E	F
Jurisdiction — by year	Maximum matchable contribution (\$) [note 1]	Actual contribution amounts (\$) [note 2, 3]	Per cent of matchable (%)	Distribution of FRDC spend by state (\$) [note 4]	Return on contribution (D /B) [note 5]	
					2016–17	5 years
Australian farmed prawns	193,345	177,197	92	383,588	2.16	1.43
Commonwealth	979,008	1,020,510	104	2,347,631	2.30	3.03
New South Wales	364,210	587,307	161	3,096,914	5.27	3.66
Northern Territory	143,543	178,541	124	1,190,993	6.67	4.05
Queensland	535,520	648,682	121	2,347,684	3.62	4.08
South Australia	1,145,460	1,359,263	119	5,022,770	3.70	3.20
Tasmania	2,232,333	2,420,251	108	4,920,085	2.03	2.35
Victoria	220,613	333,727	151	1,634,703	4.90	4.08
Western Australia	1,437,763	1,441,901	100	3,384,606	2.35	2.55
Total	7,251,795	8,167,379		24,328,974		

- 1 Maximum matchable contribution is the maximum amount that the Australian Government will match industry contributions in accordance with the criteria detailed on page 151.
- 2 Actual amounts contributed from the commercial and recreational sectors, research partners, government. It is important to 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 flow of 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 2016–17 and the previous four years.

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 fishing and aquaculture, and for the benefit of both Indigenous and recreational fishers. The FRDC balanced investment 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.

Strategic National Priorities

TABLE 6: EXPENDITURE BY INVESTMENT AREA

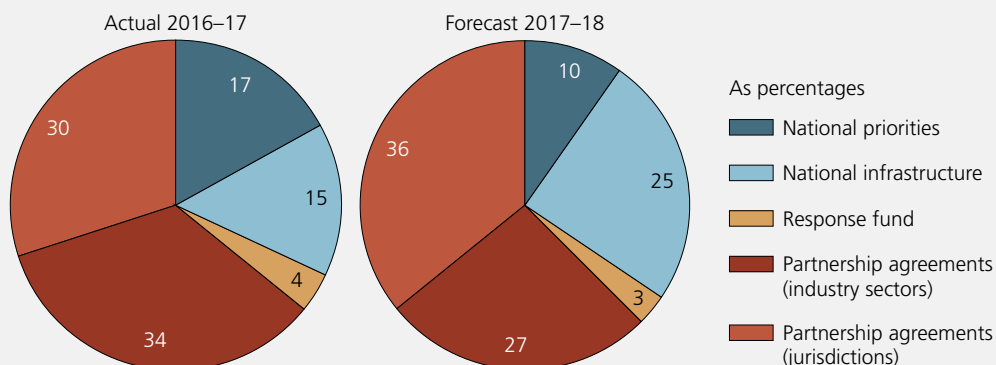
	2016–17	Actual	AOP ¹ budget 2016–17	Variance
	\$m	as %	as %	%
National priorities	4.24	17	18	–1
Priority 1: Ensuring that Australian fishing and aquaculture products are sustainable and acknowledged to be so	1.89			
Priority 2: Improving productivity and profitability of fishing and aquaculture	0.81			
Priority 3: Developing new and emerging aquaculture growth opportunities	1.54			
National infrastructure	3.54	15	12	3
Partnership agreements (industry sectors) ²	8.37	34	37	–3
Partnership agreements (jurisdictions) ³	7.18	30	27	3
Response fund	1.05	4	6	–2
Incentive fund	0.03	0	0	0
Total activities expenditure	24.41	100	100	0

1 Annual operational plan.

2 Industry Partnership Agreements (IPAs) see page 50.

3 Research Advisory Committees (RACs) see page 53.

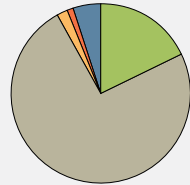
FIGURE 1: RD&E BUDGET ACTUAL EXPENDITURE 2016–17 VERSUS FORECAST EXPENDITURE 2017–18



Investment by Industry Partnership Agreements (IPAs) are driven by the needs of individual sectors. As a result, there will be a higher investment in projects focused around the Industry program. However, the FRDC requires IPAs to aim for a holistic approach to their investment.

TABLE 7: INDUSTRY PARTNERSHIP AGREEMENT INVESTMENT BY PROGRAM 2016–17

Program	\$	%
Environment	1,527,868	18
Industry	6,223,958	74
Communities	140,426	2
People	97,244	1
Adoption	380,527	5
Industry Partnership Agreements total	8,370,022	100



Investment made through Research Advisory Committees (RACs) are driven by the needs of the various jurisdictions. It is expected there will be a higher investment in projects focused on public good and, generally, based around the Environment program. However, as with IPAs the FRDC requires RACs to aim for a holistic approach to their investment.

TABLE 8: RESEARCH ADVISORY COMMITTEE INVESTMENT BY PROGRAM 2016–17

Program	\$	%
Environment	3,426,887	48
Industry	2,684,426	37
Communities	430,866	6
People	272,163	4
Adoption	363,620	5
Research Advisory Committees total	7,177,961	100

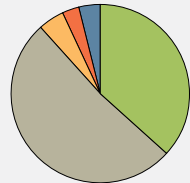


TABLE 9: PROJECT LENGTH ANALYSIS—AVERAGE COST PER PROJECT 2016/17

Duration	Number of projects	Total value project contracts (\$)	Average project contract value (\$)
Long	84	32,072,822	395,960
Medium	153	55,358,713	364,202
Short	165	18,940,407	116,198
Total	402	106,371,944	





Australian Government

Fisheries Research and Development Corporation

10 October 2017

The Hon. Barnaby Joyce

Deputy Prime Minister and Minister for Agriculture and Water Resources

Parliament House

CANBERRA ACT 2600

Dear Minister,

On behalf of the directors of the Fisheries Research and Development Corporation (FRDC), I have pleasure in presenting the Corporation's annual report for the year ended 30 June 2017.

The report has been prepared and approved by the Board in accordance with our legislative obligations under section 28 of the Primary Industries Research and Development Act 1989; 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 set priorities and performance indicators in achieving the FRDC outcome (page 17) for you, the Minister for Finance, members of parliament, FRDC stakeholders and the Australian community.

FRDC's Annual Performance Statements are produced in accordance with s39(1)(a) of the PGPA Act for the 2016–17 financial year. The opinion of the Board of FRDC is that the statements accurately presents FRDC's performance in the reporting period and comply with s39(2) of the PGPA Act.

This report documents inputs (income and expenditure on pages i, 121, 131–132), outputs from research and development against the performance measures published on page 127–130 of the *Portfolio Budget Statements 2016–17, Budget Related Paper No. 1.1, Agriculture and Water Resources Portfolio* and the FRDC Annual Operational Plan (pages 13–18). 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 benefit cost framework which is based on work undertaken by the Department of Finance in *Introduction to Cost-Benefit Analysis and Alternative Evaluation Methodologies*; and subsequent discussions with the department to refine the methodology (pages 85–91). Future priorities and planned budgets against the key activities are covered on pages 13–14.

continued overleaf



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Analysis of key factors affecting performance during the year

FRDC remains highly regarded by its stakeholders with strong partnerships with Indigenous groups, seafood industry councils, recreational fishing bodies, peak bodies, fisheries managers, science providers and the Australian Government Department of Agriculture and Water Resources.

At the macro level, Australia's economic forecast remains positive. The Australian fishing industry continues to see strong financial growth with the gross value of production rising to \$2.9 billion at the end of 2016–17. The seafood industry will continue to see growth in the coming financial year, driven primarily by aquaculture. A number of sectors—Atlantic Salmon, Yellowtail Kingfish and Barramundi—are set to increase production volumes starting in 2017–18.

The stable Australian dollar has helped seafood exporters remain competitive in most markets. As recent free trade agreements with South Korea and China enter their final phase of implementation and final round of tariff reductions, sectors looking to those markets are likely to benefit further.

The outbreak of White Spot Disease in South Queensland means biosecurity will continue to be a major focus. Other outbreaks, including Pacific Oyster Mortality Syndrome and the discovery of the invasive Asian green mussel detected near Weipa will see biosecurity controls under review.

There will also be increased focus on marine noise following a number of Australian research findings demonstrating impacts from seismic testing. Further research scheduled for the coming year will extend this knowledge. The seafood, oil and gas sectors will continue to negotiate a path to work together into the future.

A broader environmental debate on the management of non-seafood specific resources will continue. This is being driven not only by the management of marine areas including marine parks but also by the increasing numbers of some previously protected species (which include sharks, whales, seabirds and fur seals)—with some populations almost recovering to pre-settlement levels. The question of changing their status and how they are managed will need to be addressed.

In a similar vein, both inland and marine habitats across the country are recovering; or are being improved through investment led primarily by the recreational sector who are putting in artificial reefs, re-snagging rivers or restocking native species. These improvements show ways forward for other sectors, to improve the health of fisheries elsewhere.

The Commonwealth will release its new harvest strategy and bycatch policy. This will provide greater consistency for management across the country. State and territory management agencies are increasingly basing their management on harvest strategies.

A number of sectors and companies are starting to focus on marketing and promotion and several will start delivery during the year. For example, the large number of industry participants at the inaugural Queensland Seafood Marketing Symposium is a clear indication of this new direction.

A new national peak body—Seafood Industry Australia (SIA)—has been launched to represent the seafood sector as a whole. SIA will enhance the sector's ability to develop national policy and programs, address collective risks and seize opportunities.

Portfolio Budget Statement measures	Targets 2016–17	Results
Projects focus on the FRDC Board's assessment of priority research and development issues.	Ninety-five per cent are a priority.	Achieved. All projects assessed were identified as a priority via funding process.
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. All projects assessed were identified as a priority via funding process therefore likelihood of adoption is high.
Maintain ISO 9001:2008 accreditation.	FRDC maintains certification.	Accreditation achieved, see page 95.
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 on time.
Implement best practice governance arrangements to promote transparency, good business performance and unqualified audits.	Achieve unqualified audit result.	Achieved. FRDC audit received unqualified result, see pages 115–117.
Demonstrate the benefits of RD&E investments by positive benefit cost analysis results.	Benefit analysis undertaken on one investment area.	Achieved. FRDC undertook benefit cost analysis against each program area, see pages 62–63, 67–68, 72–73, 79–80, 83–84 and 85–91.
Perception of the commercial fishing industry increased from 30 per cent to 36 per cent by 2020.	Perception of industry increases to 31 per cent.	Achieved. The community perception of the Australian seafood industry (all sectors) was 41 per cent. The community perception of the commercial wild-catch sector rose 8 per cent up to 32 per cent. See page 36 for more information.
Volume of aquaculture rises to above 100,000 tonnes.	Annual aquaculture production exceeds 85,000 tonnes.	Forecast figures from ABARES Statistics Reports is 97,000 tonnes.
The value of Australia's fishing and aquaculture increases by 20 per cent (\$2.4 billion to \$2.8 billion).	Value increases to \$2.4 billion.	Value in 2016–17 was \$2.9 billion.
There are two to three new aquaculture species experiencing productivity and profitability growth as measured by an increase in tonnage.	Production of new aquaculture species increases to 2000 tonnes.	Forecast figures from ABARES Statistics Reports was for 2000 tonnes.

The directors' review of operations (pages 4–11) provides further detail on events and activities that impacted the FRDC during the year.

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, and the Australian community.

Yours faithfully,



The Hon. Ron Boswell
Chair



This annual report not only outlines the achievements over the 2016–17 financial year but also how they have contributed to the second year of FRDC's strategic plan 2015–20.



FRDC

ANNUAL REPORT 2016-17



CONTENTS

Key events in 2016–17	inside front cover
2016–17 investment overview	i
Five years at a glance	i
The FRDC's balanced research investment approach	iii
Letter of transmittal	v
Report of Operations Part 1: The directors' review of operations and future prospects	4
The year in review	5
Twenty-five years of evolution, quality and collaboration	12
Priorities for 2017–18: Delivering on the RD&E Plan	13
Forecast annual operational plan budget 2017–18	15
The Corporation	17
Vision	17
Planned outcome	17
Role	17
Portfolio minister	17
Stakeholders	18
Representative organisations	18
Investment strategy—a balanced research investment approach	18
Staffing	19
Australian fishing industry statistics	20
Relationships with stakeholders	21
Aligning RD&E priorities	25
National Primary Industries Research, Development and Extension Framework	27
Report of Operations Part 2: The FRDC's operational results	30
Inputs to output	31
FRDC national priorities	33
1. Ensuring that Australian fishing and aquaculture are sustainable and acknowledged to be so	33
2. Improving productivity and profitability of fishing and aquaculture	38
3. Developing new and emerging aquaculture growth opportunities	40
National RD&E infrastructure	44
Collaborate	48
Partner	50
RAC partnership agreements	53
Outputs—analysis by FRDC program	57
Program 1: Environment	58
Program 2: Industry	64
Program 3: Communities	69
Program 4: People	74
Program 5: Adoption	81

Impact and outcomes	85
Evaluating the results of RD&E investment	85
Evaluation of R&D projects (completed 2015–20)	87
Report of Operations Part 3: Services	92
Marketing	93
Trade	94
Standards	95
Information and communications technology	97
Corporate communications	98
Report of Operations Part 4: Management and accountability	100
Report of Operations Part 5: Corporate governance	106
Corporate governance	107
The Board	107
Directors' biographies	109
Independent committee member	111
Attendance at Board meetings held during 2015–16	112
Board committee	112
Record of meetings	113
Directors' interests and related entity transactions	113
Indemnities and insurance premiums for officers	113
Remuneration policy	113
Liabilities to staff	113
2016–17 Auditor-General's report	114
Financial statements for the year ended 30 June 2017	118
Appendices	150
Appendix A: The FRDC's principal revenue base	151
Appendix B: The FRDC's legislative foundation and the exercise of ministerial powers	152
Appendix C: Principal legislative requirements for reporting	155
Appendix D: Government priorities	157
Appendix E: Freedom of information statement	158
Abbreviations and acronyms	160
Indices	162
Compliance index	163
Alphabetical index	167
Publications and other information	172
About this report	inside back cover

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





THE YEAR IN REVIEW

External environment

White Spot Syndrome Virus

White Spot Disease (WSD) is an internationally notifiable disease of crustaceans caused by White Spot Syndrome Virus (WSSV). On 22 November 2016, a WSSV incursion was reported in Black Tiger Prawns (*Penaeus monodon*) grown on a prawn farm taking water from the Logan River in south-east Queensland.

In response to the WSD outbreak, FRDC quickly funded a number of projects to support the prawn farming industry and provide clear direction towards recovery for affected farms and fisheries, and protecting the biosecurity of areas outside the Logan River control zone.

The Queensland Department of Agriculture and Fisheries has now completed its work to drain and decontaminate the prawn farms on the Logan River impacted by WSD and have moved to a program focusing on surveillance and biosecurity management within Queensland's Movement Control Area. It is likely that FRDC will need to support a range of WSD R&D projects in the future as immediate, medium- and longer-term priorities are identified through current project activities and ongoing consultation between industry, national and international aquatic disease experts and government, R&D and biosecurity agencies.

CRC-P bid successful—Future Oysters

The Federal Government has announced funding for the Future Oysters Cooperative Research Centre Project (CRC-P). CRC-Projects are a new class of 'mini' CRC, set to run for a maximum of three years and with a maximum government contribution of \$1 million per annum. The application for the CRC-P was developed by Oysters Australia and Australian Seafood Industries Pty Ltd in early May 2016. The Department of Industry, Innovation and Science has entered into a CRC-P funding agreement with Australian Seafood Industries Pty Ltd. Participant agreements are currently being finalised. Future Oysters CRC-P has a total cash budget of \$5,011,040. The FRDC total contribution is \$417,040 (through the IPA and additional investment). FRDC will apply its project application and project management systems to contract individual projects under the CRC-P. Applications under each of these programs are being developed by the participants and are to be finalised soon.



Fish and Chips Awards

The FRDC in partnership with state and territory fishing industry councils are taking a new approach to the National Fish and Chip Awards in 2017 as the FRDC promotes a new people's choice category, which will run in conjunction with the National Seafood Industry Awards in September.

The response to the program in the three months to 30 June 2017, saw over 75,000 votes received for some 900 fish and chip shops.

Through the awards the FRDC aims to engage with consumers and deliver key messages related to the science that underpins Australia's fisheries and their management. The FRDC will also use this opportunity to better educate and inform consumers on the sustainability of Australia's fisheries and the wide range of seafood options on offer. See more on the awards on page 54.

Environmental impacts of Atlantic Salmon farming in Tasmania

Over the course of the year there was significant media and community interest given to environmental impacts of Atlantic Salmon farming in Tasmania. Macquarie Harbour, a site for caged finfish (salmon and trout) aquaculture since the late 1980s has received a lot of attention.

Production in this area has steadily increased over the years. However, mid-2013 changes in benthic condition were detected. These resulted in a number of FRDC-funded projects to investigate and report on the observed changes, with a view of identifying areas to improve practices and management.

The FRDC continues to monitor and talk to researchers and industry on the situation in Macquarie Harbour. Further work is ongoing to examine and address issues in the Harbour and ensure that salmon farming in the area remains sustainable. The two key focus areas are understanding oxygen dynamics and benthic recovery, and risks to the Maugean Skate from varying environmental conditions.

Seismic testing research

For over a decade, several fishing and aquaculture sectors, have been concerned about the impact of seismic surveys on their target species. This area was identified as a priority area for future research and in 2016, the FRDC supported three projects to investigate the concerns. These projects were supported by industry along with members of the oil and gas industry who also contributed to the projects.

The research demonstrated the impacts of seismic testing, for the first time, was released to the public at the end of October 2016. This followed independent scientific review at both the proposal and draft final report phase. A summary of each report is available from the FRDC website www.frdc.com.au/Media-and-Publications/News-and-Media-Releases.

National Carp Control Program

The effort to rid our waterways of one of Australia's most harmful pests—the common carp—received a boost during the year with Deputy Prime Minister and Minister for Agriculture and Water Resources the Hon. Barnaby Joyce announcing that the FRDC would coordinate the \$15 million research and engagement program. Considerable work is required before a release of carp herpes virus could occur. This includes research into how to manage the release, clean up and ecological impacts, as well as legislative approvals (veterinary medicines and environmental) and community consultation. The funds will deliver the required research answers, approvals, and consultation; as well as develop a comprehensive plan for the potential release of the carp herpes virus (*Cyprinid herpesvirus*). The research and engagement program will be overseen by a number of steering committees and aims to be finalised by the end of 2018. More information on the National Carp Control Program can be found at www.carp.gov.au.





Internal environment

Appointment of new FRDC Chair

On 1 September 2016, Deputy Prime Minister and Minister for Agriculture and Water Resources, the Hon. Barnaby Joyce, announced the appointment of the Hon. Ron Boswell as the new FRDC Chair.

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. Ron is a strong advocate for Australia's primary producers.

The Hon. Harry Woods' term as the Chair of the FRDC Board finished on 30 August 2016. Harry steered the FRDC through a period of transition, overseeing the launch of the FRDC's new RD&E plan in 2015, as well as a period of corporate revitalisation that culminated in the opening of the Adelaide office in early 2016. He will be remembered by FRDC staff with affection. He was well liked for his considerate approach and efforts to get to know staff members individually.

Research Advisory Committee chairs and members appointed

The FRDC's newly appointed Research Advisory Committee (RAC) project managers and officers started the year by calling for applications for new chairs and members for the new RACs.

This process was finalised with the appointment of the new members and chairs for the Commonwealth and Tasmanian RACs. These were the last two jurisdictions to undergo the process. All RAC members and chairs underwent an induction process based on the FRDC's RAC Management Procedure and Investment in Research, Development and Extension Policy. More on the RAC chairs and members can be found on page 23 or www.frdc.com.au/Partners/Research-Advisory-Committees.

Recfishing Research Subprogram

The Recfishing Research Subprogram committee membership was renewed in late 2016. There are two new members being Frank Prokop and Stefan Sawynok who join Matt Barwick, Brett Cleary, Russell Conway, Josh Fielding, Allan Hansard, Owen Li, Andy Moore, Andrew Roland and Cameron Westaway. Peter Neville remains the Recfish Research Chair.

Fishing and Aquaculture RD&E Strategy update

Success through innovation: The National Fishing and Aquaculture Research, Development and Extension Strategy 2016 was finalised October. This is one of the 14 sectoral specific strategies that underpin the National Primary Industries Research Development and Extension Framework. It is now being implemented by all partners (see also page 27). Information on the finalised strategy can be viewed on the FRDC website at www.frdc.com.au/Research/RDE-planning-and-priorities.

New Human Dimensions Subprogram

A new subprogram has been established to lead and support FRDC's investment in social and economics RD&E. This subprogram extends and builds on the work and role of the Social Science and Economics Research Coordination Program 2010–15 (SSERCP).

As a coordination program, SSERCP was successful in raising awareness of the contribution of human dimensions' research to tackling intractable as well as emerging challenges.

Annual Stakeholder Planning Workshop update

The FRDC held its annual stakeholder planning workshop in Adelaide on 26 and 27 October 2016. A major aim of the workshop, apart from the discussion of priorities, was to determine better ways for the FRDC to drive co-investment across various partner groups. A number of common priority areas were identified (see below) and these will be addressed through FRDC investment:

- ▶ impacts of seismic testing and how to address and operate in a contested space in the future,
- ▶ resource access and allocation with relation to multiple stakeholders' groups,
- ▶ data needs and data gaps,
- ▶ people development across all sectors, related to both leadership training and succession planning.

Marketing groundwork

A key activity for the FRDC has been to work with DAWR to amend the *Primary Industries Research and Development Act 1989* (PIRD Act) to allow for the voluntary collection of marketing funds. This resulted in an Amendment Bill being introduced during the Autumn 2017 session of parliament.

The FRDC also worked closely with two industry sectors the Australian Prawn Farmers Association (APFA) and the Abalone Council Australia to progress the industry consultation phase required for the development of a marketing levy. Industry members from both sectors were consulted with widely during the year. It was expected that the APFA members would undertake a formal vote on the levy, however following the outbreak of WSD this was put on hold.

Trade statistics

International trade and export plays an important role for many in the Australian seafood industry. The FRDC is now providing access to the latest Australian Bureau of Statistics trade data that covers import and exports to and from Australia. The data is updated monthly and allows 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.

Status of Australian Fish Stocks

The Status of Australian Fish Stocks (SAFS) Reports has become widely recognised as a key source of information on the sustainability of key commercial fish species. Managed by the FRDC and overseen by the SAFS Advisory Committee, the reports collate available biological, catch and effort information to determine the status of Australia's key wild-catch fish stocks against a nationally agreed reporting framework.

The third edition of the reports was published online in December 2016 and includes an additional 15 species. In total, 294 stock status assessments were undertaken across the 83 species chapters, representing approximately 90 per cent of both the volume and value of Australia's total fisheries production. Assessments were undertaken at the biological stock level, wherever possible. The stock status classifications were as follows:

- ▶ one hundred and seventy-five (175) stocks or 59 per cent were assessed as being sustainable,
- ▶ twenty-six (26) stocks or 9 per cent transitional–depleting,
- ▶ nine (9) stocks or 3 per cent transitional–recovering,
- ▶ five (5) stocks or 2 per cent environmentally limited,
- ▶ seventeen (17) stocks or 6 per cent overfished,
- ▶ forty-nine (49) stocks or 17 per cent as undefined,
- ▶ thirteen (3) stocks or 4 per cent as negligible.

For further information, see story on page 35.



Intellectual property and commercialisation

The FRDC Board discussed the issue of intellectual property and commercialisation at its August 2016 meeting and how best to maximise the outcomes from investment. The outcome of the discussion will see the FRDC take a more proactive approach to identifying projects where intellectual property matters need to be addressed. It will invest in systems and capacity to improve the FRDC's ability to maximise opportunities with regard to commercialisation of intellectual property and research products.

The first stage undertaken has been to engage experts in the field to help the FRDC review the relevant business processes and to assess commercialisation opportunities from recently completed or funded projects. The FRDC also partnered with a leader in start-up science, Pollenizer, and the Cotton RDC to run two workshops—Rural.XO microhacks—to educate and assist stakeholders to take advantage of innovative ideas, with a view to turn them into a commercial reality.

Thank you

Continued support from the Australian Government and stakeholders across the commercial, recreational and Indigenous sectors has been welcomed by the Board over the last 12 months. Government and industry engagement play a vital role in ensuring high-quality research priorities are identified and turned into outcomes.

The Board thanks its four representative organisations for their continued strong collaboration. The FRDC also depends on the contributions of many other bodies and agencies for its success, including:

- ▶ peak and representative bodies (from all sectors),
- ▶ Commonwealth, state and territory fisheries management and research agencies,
- ▶ Research Advisory Committees,
- ▶ FRDC subprogram and coordination leaders and their committees,
- ▶ the many researchers who work on FRDC projects, and the
- ▶ many interested people and seafood consumers FRDC engages with.

The dedication and passion of FRDC staff is critical to the FRDC's ongoing success for which the Board is very grateful.

The Board welcomes feedback and invites you to contact any director and let them know your thoughts after reading this annual report.

Significant events after 30 June 2017

There have been no significant events after 30 June 2017.





Twenty-five years of evolution, quality and collaboration

From its inception on 2 July 1991, the inaugural Executive Director, Peter Dundas-Smith, and Chair, Bill Widerberg, implemented a quality management approach to all aspects of the FRDC's business practices. This saw the FRDC become the first RDC to achieve third-party certification as a quality organisation.

The quality-management system is at the heart of everything the FRDC does to this day. The key was to be 'efficient and effective', thus keeping overheads down to maximise the investment in RD&E. As a consequence of the quality-management approach, the FRDC was an early adopter of information technology to deliver financial and research management systems.

The FRDC moved from thinking of research and development as a grant, to thinking of it as an investment. The first big change was to sit down with industry and developing a better planning horizon. What that did was to drive a more commercial focus to the research commissioned, so that people could clearly see outcomes.

The next improvement was building plans across whole sectors or around thematic concepts—to look at national issues, and draw them together across multiple sectors. Ecological sustainable development is an example of a subprogram that covered all sectors, including wild-catch and aquaculture.

The FRDC went from being jurisdictionally focused, to jurisdiction plus sector, and then to jurisdiction, sector and national.

Collaboration

The other big change that has happened since the 1990s is that initially the FRDC had a big push on what was called 'collaboration'. But early on, the only group motivated to work in partnership was researchers.

From the mid-2000s, the FRDC started to encourage collaboration within the seafood industry. For example, could you make a case for abalone and rock lobster sectors to collaborate on a project in China where they are in the same market? Sure enough, this has been achieved.

The FRDC has continued this collaboration trend. Getting fisheries managers to work together has resulted in the development of various guidelines. The SAFS Reports are an example of starting to get collaboration between management agencies to produce a single whole-of-industry report.

Culturally, the FRDC is going to have to change from being an investor in research to being more of a service body. The key infrastructure services the FRDC is going to deliver (such as Fish Names, SafeFish and the SAFS infrastructure) are outlined in the current RD&E Plan 2015–20. The FRDC will remain focused in its role as a facilitator, but where needed will contribute to and undertake work as required.





PRIORITIES FOR 2017–18: DELIVERING ON THE RD&E PLAN

FRDC's RD&E Plan 2015–20 brought with it a significant change to the way planning and investment is undertaken. The FRDC will use three approaches to implement the RD&E Plan which are to lead, collaborate and partner.

Lead

FRDC will allocate a significant portion of the Australian Government's public good funding it receives and take the lead in priority setting for RD&E by focusing on three national priority areas. Under these approaches RD&E planning, prioritisation and funding will occur in the following ways.

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

Key activities this financial year include:

- ▶ publishing and communication of the 2016 SAFS Reports,
- ▶ developing methods to reduce the number of undefined species in the reports,
- ▶ progressing the development of a national bycatch reporting framework,
- ▶ developing and undertaking new forms of communication with stakeholders and end users (or consumers),
- ▶ developing guidelines for Australian Fisheries Management Standards,
- ▶ integrating recreational fisher-derived and fishery-independent survey data to better understand and manage the Murray Cod fishery in the Murray–Darling Basin,
- ▶ overseeing the development of the National Carp Control Plan.

2. Improving productivity and profitability of fishing and aquaculture

Key activities this financial year include:

- ▶ progressing the development of the easy open oyster,
- ▶ building on the outputs and structures in post-harvest processing established by the Seafood CRC,
- ▶ expanding the number of underutilised to utilised species,
- ▶ further improving post-harvest waste utilisation,
- ▶ scoping business opportunities for Indigenous Australians,
- ▶ progressing the recreational fishing sector's framework and contribution to a National Fish Habitat Strategy and Action Plan,
- ▶ working towards understanding the social and economic contributions of recreational fishing in Australia.

3. Developing new and emerging aquaculture growth opportunities

Key activities this financial year include:

- ▶ continuing the advances made in Yellowtail Kingfish production,
- ▶ exploring options for developing aquaculture in northern Australia and scoping the potential for novel species, systems and approaches,
- ▶ producing more, high-value aquaculture species in Australia.

FRDC will also continue to lead on national RD&E infrastructure that address whole of industry and community issues and opportunities. This infrastructure consists of the subprograms and coordination programs as follows:

- ▶ Indigenous Fishing Subprograms,
- ▶ Recfishing Research Subprogram,
- ▶ Aquatic Animal Health and Biosecurity Subprogram,
- ▶ Human Dimensions Subprogram,
- ▶ People Development Coordination Program.

The FRDC will deliver key services to its stakeholders in the national interest with current activities including Safefish and Fish Names.

Collaborate

FRDC will provide mechanisms and incentives for those under partnership agreements to leverage their funding where there is alignment with priorities at the national level.

Partner

There will be greater responsibility given to the end users of RD&E to set priorities under partnership agreements for both sectors and jurisdictions. Funding for this RD&E comes from industry contributions, the matching contribution from the Australian Government, and some additional funding from the jurisdictions.



FORECAST ANNUAL OPERATIONAL PLAN BUDGET 2017–18

FRDC FINANCIAL INCOME AND EXPENDITURE PLANNING 2015–20

REVENUE	2016–17	2017–18*	2018–19*	2019–20*
	\$m	\$m	\$m	\$m
<i>Australian Government 0.5% AGVP</i>	14.45	14.91	15.17	15.43
<i>Matching of industry contributions</i>	7.22	7.46	7.58	7.71
Total revenues from the Australian Government	21.67	22.37	22.75	23.14
Contributions revenue from industry	8.00	7.59	8.20	8.46
Projects revenue from other parties	4.90	5.50	2.40	0.40
Other revenue	1.57	0.26	0.95	0.95
Marketing and promotion	—	0.50	0.50	0.50
Total revenue	36.14	36.22	34.80	33.45

EXPENDITURE	2016–17	2017–18*	2018–19*	2019–20*
	\$m	\$m	\$m	\$m
Total programs expenditure	26.00	30.20	27.95	26.75
Management and accountability	5.06	5.67	6.08	5.90
Total expenditure	31.06	35.87	34.03	32.65

* Estimated forecast revenue and expenditure.

RD&E EXPENDITURE PERCENTAGES BY PROGRAM

Programs	2016–17	2017–18*	2018–19*	2019–20*
	%	%	%	%
Environment	31	50	39	36
Industry	50	33	40	41
Communities	4	2	4	5
People	5	8	8	8
Adoption	10	7	9	10
Total programs expenditure	100	100	100	100

* Estimated forecast expenditure.

TOTAL RD&E EXPENDITURE BY ACTIVITY

Activities	2016–17	2017–18*	2018–19*	2019–20*
	%	%	%	%
National priorities	17	10	12	14
National infrastructure	15	25	24	15
Response fund	4	3	3	3
Partnership agreements (industry sectors)	34	27	25	30
Partnership agreements (jurisdictions)	30	36	36	38
Total activities expenditure	100	100	100	100

* Note the percentages from year to year may vary depending on changes to priorities and the funding of differing size projects to meet the FRDC's balanced portfolio of long/short and big/small.

PIRD ACT REQUIREMENTS

	2016–17	2017–18	2018–19	2019–20
	\$	\$	\$	\$
Remuneration and allowances to directors and committee members	330,000	347,000	361,000	375,000
Cost recovery expenses to pay to the Commonwealth	15,000	15,000	15,000	15,000
Selection committee expenses and liabilities (if applicable)	NIL	60,000	10,000	NIL



THE CORPORATION

FRDC is a statutory corporation within the Australian Government's Agriculture and Water Resources portfolio and is accountable to the Parliament of Australia through the Minister for Agriculture and Water Resources. 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).

Vision

The FRDC's vision is for Australia to have vibrant fishing and aquaculture sectors which adopt world-class research to achieve sustainability and prosperity.

Planned outcome

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

Role

The FRDC's role is to plan and invest in fisheries RD&E activities in Australia. As a national organisation with strong linkages to industry, managers and researchers it has a fundamental role in providing leadership and coordination.

Portfolio minister

The portfolio minister for Agriculture and Water Resources is the Deputy Prime Minister, the Hon. Barnaby Joyce MP. The Assistant Minister to the Minister for Agriculture and Water Resources is Senator the Hon. Anne Ruston.

Stakeholders

FRDC works to a diverse and geographically dispersed group of stakeholders across fishing and aquaculture which are not mutually exclusive. For example, Indigenous fishers may participate in customary fishing, conduct aquaculture and commercial fishing, and fish recreationally.

Representative organisations

The FRDC has four ministerially-declared representative organisations.

- ▶ National Seafood Industry Alliance (representing the seafood industry),
- ▶ 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).

The FRDC also involves the Indigenous Reference Group and the Seafood Industry Australia in all representational organisation activities.

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. In line with the deliverables in the RD&E Plan, the FRDC will provide a balanced RD&E portfolio by investing in:

- ▶ the FRDC's five programs (environment, industry, communities, people, adoption),
- ▶ national jurisdictional (lead); regional and sector-focused projects (partner); and these working together for similar priorities (collaborate),
- ▶ short-term and long-term projects (an indicator of adaptive versus strategic research),
- ▶ high-risk (i.e. blue sky) and low-risk projects (percentage chance of success),
- ▶ functional and applied (not just about research) projects.

All 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.

Funding agreement

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. FRDC's Cost Allocation Policy sets how to allocate direct and indirect costs across its research and development and marketing programs. (Noting that the FRDC's marketing program is yet to be established.) The Policy is available from the website—www.frdc.com.au

Staffing

The FRDC is governed by a board of directors (see page 107) appointed for their expertise and is led by an executive director who manages the day-to-day operations of the organisation.

In 2016–17, the FRDC conducted its operations with 20 average staffing levels spread among 24 people (seven staff are part time). FRDC's staff are its most important resource, and are key to the Corporation's ongoing success. In addition to core staff, at any given point more than 1000 people work on FRDC projects around Australia. This includes approximately 250 principal investigators, 450 co-investigators, 200 project officers, 80 administration staff and 50 financial staff.

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. As at 30 June 2017, the positions spread among 24 people, 11 are male and 13 are female.

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.

Disabilities

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.

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.

Australian fishing industry statistics

THE VALUE OF PRODUCTION INCREASED IN ALL SECTORS OVER 2014–15.

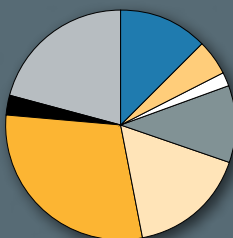
- ▶ Commercial fisheries grew because of aquaculture production (up 12% to \$2.8 billion).
- ▶ Wild-caught fisheries grew with rock lobster driving the rise (up 6% to \$1.6 billion).
- ▶ Aquaculture increased from growth in salmonid and prawn sectors (up 19% to \$631 million).

\$691 million

Rock lobster is the most valuable species group produced, rising by 14 per cent to \$668 million. The export value of rose by 17 per cent to \$691 million. In both cases the result is due to an increase in the average unit price.

SHARES IN GROSS VALUE OF FISHERIES AND AQUACULTURE PRODUCTION, BY JURISDICTION, 2014–15 (PRELIMINARY ESTIMATE, ROUNDED)

- Commonwealth 13%
- New South Wales 5%
- Northern Territory 2%
- Queensland 11%
- South Australia 17%
- Tasmania 30%
- Victoria 3%
- Western Australia 21%



\$1.4 billion

The value of Australian exports increased, driven by the export values of rock lobster and salmonids, up 10% to \$1.4 billion in 2014–15.

TOP FIVE WILD-CATCH AND AQUACULTURE SPECIES GROUPS, BY VOLUME AND VALUE (ANNUAL PER CENT CHANGE), 2014–15

TOP

5

Species group	Volume	Species group	Value
Salmonids	48,614 tonnes (↑ 16%)	Rock lobster	\$668 million (↑ 14%)
Australian sardine	38,759 tonnes (↑ 8%)	Salmonids	\$631 million (↑ 16%)
Prawns	25,059 tonnes (↑ 0.2%)	Prawns	\$358 million (↑ 6%)
Tuna	12,360 tonnes (↑ 16%)	Abalone	\$164 million (↑ 0.3%)
Oyster	10,307 tonnes (↓ 1%)	Tuna	\$161 million (↑ 10%)

TOP FIVE EDIBLE AND NON-EDIBLE EXPORTS, BY VALUE AND DESTINATION (ANNUAL PER CENT CHANGE), 2014–15

TOP

5

Species group	Value	Destination	Value
Rock lobster	\$691 million (↑ 17%)	Vietnam	\$717 million (↑ 27%)
Abalone	\$174 million (↑ 2%)	Hong Kong	\$248 million (↓ 12%)
Tuna	\$151 million (↑ 11%)	Japan	\$215 million (↓ 2%)
Pearls	\$111 million (↓ 23%)	China	\$51 million (↑ 27%)
Prawns	\$94 million (↓ 7%)	United States	\$45 million (↑ 8%)

Source: ABARES Australian fisheries and aquaculture statistics 2015 (published 2016)



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 regularly visit locations where they can engage directly with those involved in fishing and aquaculture and see issues first hand.

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 completed a significant change and upgrade of how it engages with stakeholders which has largely been driven by decisions listed in the FRDC RD&E Plan 2015–20. Key changes have included the appointment of three new staff (Adelaide based) to focus on and manage stakeholder relationships, the re-invigoration of RACs, and the affirmation and signing of two new IPAs.

Consultation with representative organisations

The FRDC has four representative organisations with which it consulted during 2016–17.

- ▶ Australian Recreational and Sport Fishing Industry Confederation Inc. (trading as Recfish Australia),
- ▶ National Aquaculture Council Inc.,
- ▶ Commonwealth Fisheries Association Inc.,
- ▶ National Seafood Industry Alliance.

Under clause 6.6 of the FRDC's funding agreement with DAWR, the FRDC may meet travel and other expenses incurred in connection with consultation between the FRDC and each of its representative organisations. The FRDC aims to meet with these organisations at least twice a year. The organisations often combine their visits to meet with other Canberra-based government agencies. While the FRDC budgeted \$15,000 for representative organisation consultation, payments are only made to reimburse costs when they are associated with this activity (\$18,791.98 exclusive of GST was spent in 2016–17). The FRDC also involves the Indigenous Reference Group and the Seafood Industry Australia which are not technically representational organisation but are invited to all meetings.

Consultation with its representative organisations allows the FRDC to gain valuable insights on the RD&E priorities for industry sectors. It also provides a way for the FRDC to report the outcomes from its RD&E investment.

Consultation with Australian Prawn Farmers Association

The FRDC's investments in prawn farming research and development is mostly guided by the Australian Prawn Farmers Association's (APFA) RD&E Plan. FRDC and APFA have enjoyed a very close working relationship for a number of years and APFA has a lead role with the FRDC in ensuring its RD&E priorities are met. The table below outlines the financial record of the relationship.

Year	2012–13	2013–14	2014–15	2015–16	2016–17
APFA contribution	\$127,232	\$148,956	\$189,250	\$161,515	\$177,197
FRDC expenditure on projects	\$399,429	\$255,213	\$73,300	\$40,711	\$383,588

Year	2016–17	2017–18	2018–19	2019–20
Cost recovery expenses to pay to the Commonwealth	\$15,000	\$15,000	\$15,000	\$15,000

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 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 the fishing industry, fisheries managers and researchers; and most also have environmental and other community interest representation. RACs are a new approach for FRDC, and represent the next evolutionary step from the jurisdictionally-based Fisheries Research Advisory Bodies (FRABs) which have served the FRDC well since its inception.

The RAC Chairs in 2016–17 were as follows.

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

For further information on the RACs—www.frdc.com.au

Industry partners

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

The FRDC will develop and maintain partnerships with various fishing and aquaculture sectors and jurisdictions, encouraging them to take a major role in developing RD&E priorities. It is expected that sector, jurisdictional and national RD&E priorities will interact and contribute to each of their achievements. The FRDC has started discussions with key stakeholders to establish an Antarctic IPA. During the year the FRDC has IPAs with the following organisations:

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

Australian Government

The Minister for Agriculture and Water Resources through his department identifies 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 office of the Minister, Assistant Minister and the FRDC. The Australian Fisheries Management Authority and the Department of the Environment also play an important role in informing research priorities.

Australian Fisheries Management Forum

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

The FRDC believes that adoption of research outputs by management agencies is key to optimising management outcomes. It will continue to work with AFMF, participating as an invited representative to its meetings, providing advice and ensuring AFMF priorities are incorporated into its planning 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 Council of Rural Research and Development Corporations (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 [CCRDC](#) 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 the annual 'Outlook' conference and other producer conferences. Additionally, the FRDC continues to provide advice and services in relation to project management using the FRDC project management software.

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 FRDC will have over 400 active projects under management. The research is undertaken and delivered by key partners including:

- ▶ fishing and aquaculture industry,
- ▶ Department of Agriculture and Water Resources,
- ▶ Australian Fisheries Management Authority,
- ▶ state/territory fisheries research centres,
- ▶ Commonwealth Scientific and Industrial Research Organisation (CSIRO),
- ▶ universities,
- ▶ cooperative research centres (CRCs),
- ▶ other rural RDCs and corporations,
- ▶ industry groups,
- ▶ co-investors from the private sector.

Aligning RD&E priorities

Knowledge for fishing and aquaculture into the future: The FRDC's RD&E Plan 2015–20 was launched by Senator the Hon. Richard Colbeck at Parliament House on 16 September 2015. There have been no variations to the plan.

The FRDC has taken great care to align its planning processes to clearly show how the priorities of a grassroots fisher can fit with, and align to, national priorities and programs, and this in turn helps achieve the Corporation's outcome statement.

In addition, the FRDC program areas have been aligned closely to the objectives of the PIRD Act—environment, industry, people and communities, adoption and accountability and governance (see Figure 3 on pages 28–29)—further strengthening the link between activity investment and outcomes.

The FRDC's annual planning and priority setting cycle starts with the Board undertaking a review of operations (including achievements listed in the previous year's annual report), which is followed by feedback being sought from stakeholders about their priorities for the next year. These are factored into the cycle leading to an updated annual operational plan (and portfolio budget statements), ensuring these documents align with the FRDC's five-year RD&E Plan.

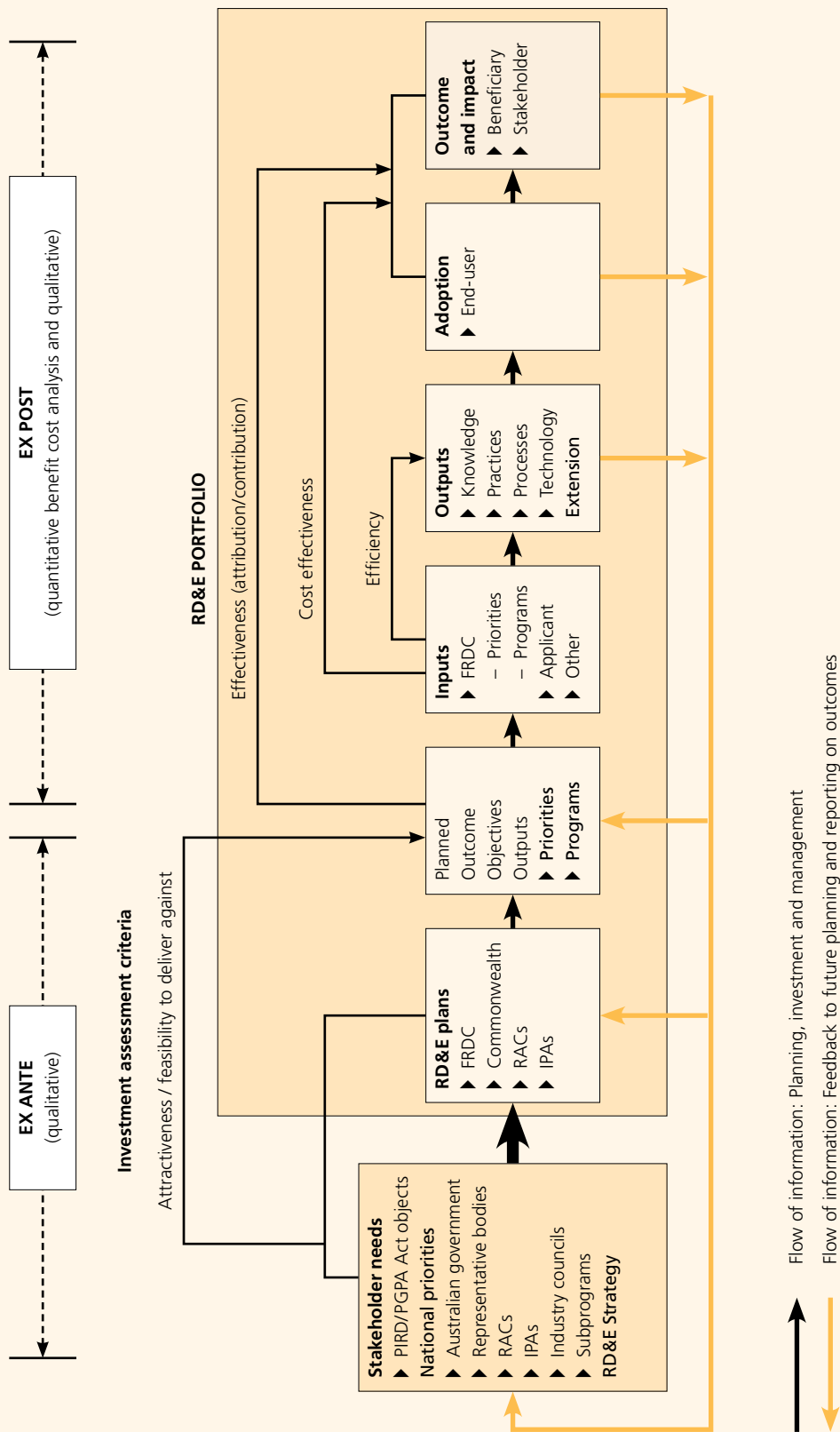
Requests for investment against the Plan are then called for and projects that address the priorities and needs of stakeholders and the FRDC are provided with funding.

The FRDC aims to spread its investment in RD&E across the whole value-chain of commercial fishing and aquaculture, and for the benefit of both Indigenous and recreational fishers. This balanced approach ensures RD&E is funded that incorporates issues of critical national importance as well as stakeholder priorities, because—ultimately—all FRDC's investment in RD&E is driven by the needs of its stakeholders.

The following year's annual report completes the cycle by reporting on key achievements.



FIGURE 2: FRDC RD&E MONITORING AND EVALUATION FRAMEWORK



National Primary Industries Research, Development and Extension Framework

The Australian, state and Northern Territory governments, rural RDCs, CSIRO and universities jointly developed the National Primary Industries Research, Development and Extension Framework to encourage greater collaboration and promote continuous improvement in the investment of RD&E resources nationally.

Under the Framework there are 14 sector strategies and eight cross-sector strategies. Implementation of these strategies is overseen by the Agricultural Senior Officials Committee's Research and Innovation Committee. While not all cross-sectoral strategies have relevance to the FRDC and fishing and aquaculture, where they do the FRDC provides input into the strategy, and wherever possible encourages industry to also provide input and sit on committees for these strategies. Key cross-sectoral strategies relevant for fishing and aquaculture are animal biosecurity, animal welfare, biofuels and bioenergy and climate change.

Development of the National Fishing and Aquaculture RD&E Strategy 2015–20

The National Fishing and Aquaculture RD&E Strategy was established in 2010 to provide direction to improve the focus, efficiency and effectiveness of RD&E to support Australian fishing and aquaculture over a five-year period. Development of a new strategy started in 2014.

Success through innovation: The National Fishing and Aquaculture Research, Development and Extension Strategy 2016 was finalised October. The next iteration builds on the platform established by the original strategy (*Working Together: The National Fishing and Aquaculture RD&E Strategy*) and provides a nationally agreed, common vision for the industry over the next five years, guiding the investment of state and national research funding.

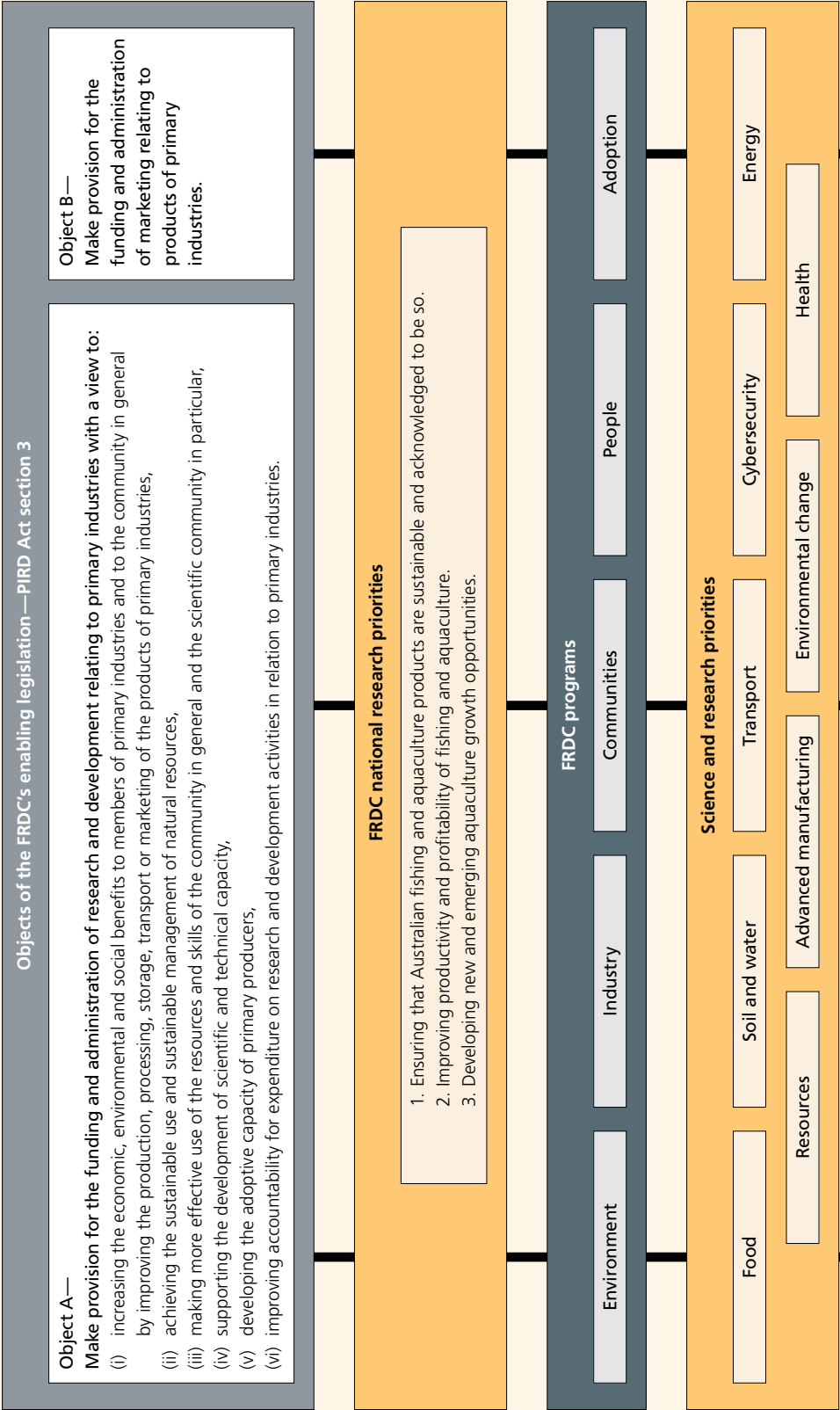
There are six 'goals' in the Strategy, each with a number of priority areas. The goals are:

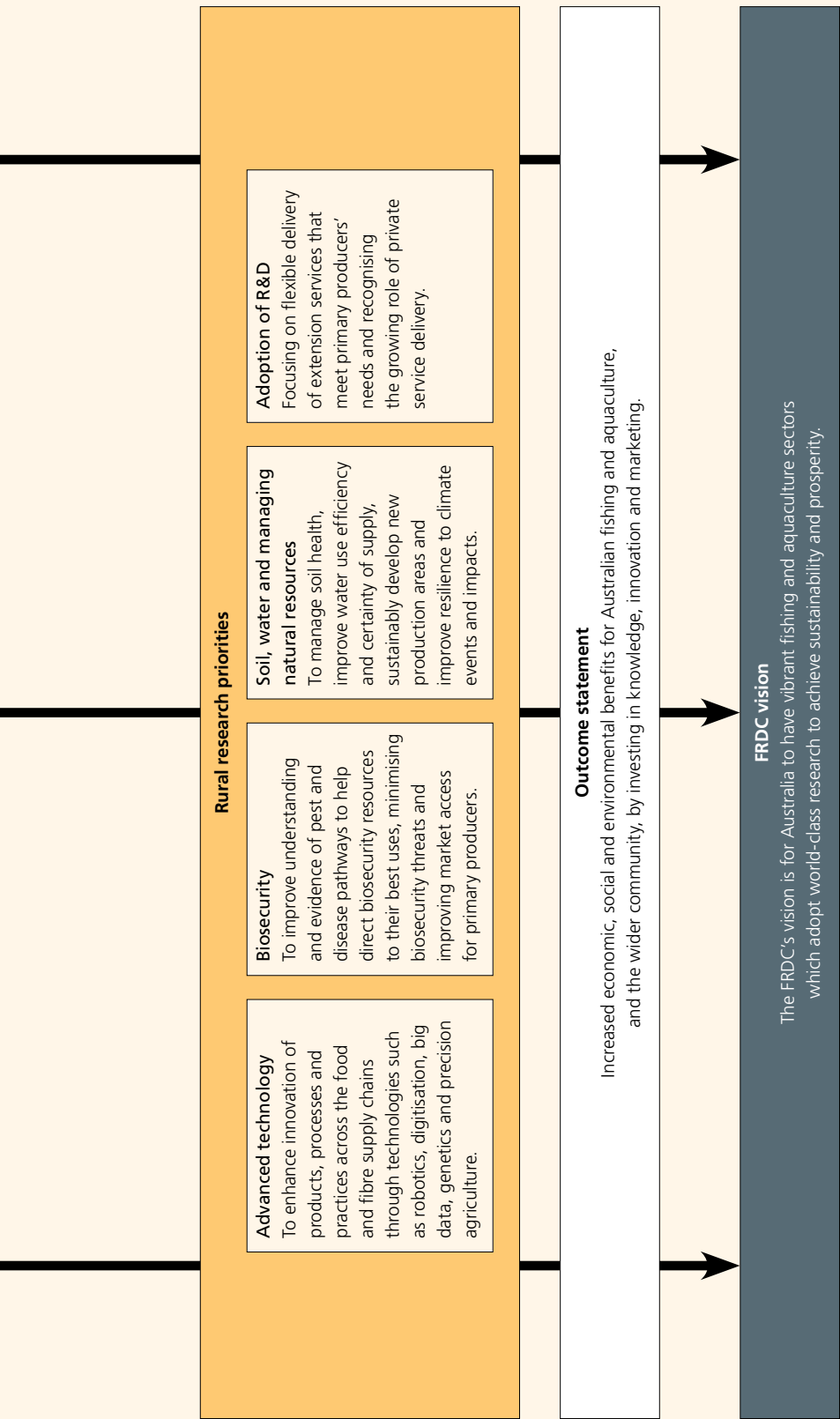
- ▶ Australia's fisheries and aquaculture sectors are well managed, and acknowledged to be, ecologically sustainable.
- ▶ Security of access to, and allocation of, fishing and aquaculture resources is improved.
- ▶ Benefits and value from fisheries and aquaculture resources (productivity and profitability) are maximised, and aquaculture production is increased.
- ▶ Governance and regulatory systems are streamlined.
- ▶ Health of the habitats and environments upon which fisheries and aquaculture rely are maintained.
- ▶ Aquatic animal health management is improved.

The goals and priority areas are designed to seize on opportunities in fishing and aquaculture as well as ensure that industries and activities using these natural resources will be able to continue to do so in the future.

The Governance Committee and associated Research Providers Network are committed to identifying major research in relevant areas of the Strategy and supporting researchers for the various types of RD&E to ensure a coordinated and collaborative approach is in place. Key to the Strategy is a strong monitoring and evaluation framework to ensure that researcher capability and technical expertise are available to deliver on the priority areas for fishing and aquaculture RD&E nationally.

FIGURE 3: THE FRDC'S FRAMEWORK FOR INTEGRATING LEGISLATIVE, GOVERNMENT AND INDUSTRY PRIORITIES





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



INPUTS TO OUTPUT

The FRDC has developed a flexible approach to how it funds projects to align with the principles of ‘lead, collaborate and partner’ in its current 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 4 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, it has been coded into the grid shown 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, and 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.

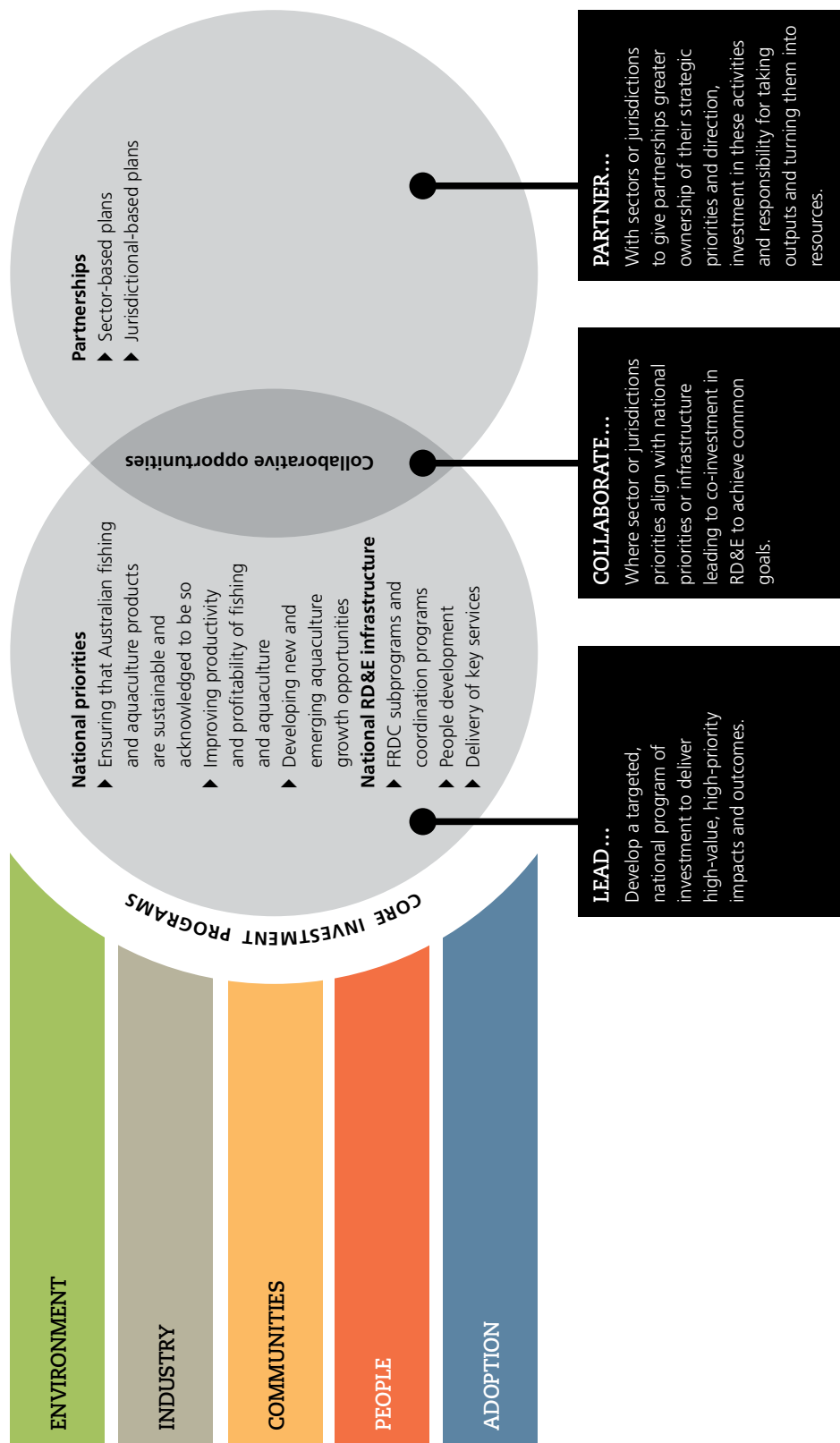
NATIONAL PRIORITY	INFRASTRUCTURE	PARTNER: Jurisdiction	PARTNER: Industry	COLLABORATION
ENVIRONMENT	INDUSTRY	COMMUNITIES	PEOPLE	ADOPTION

The tables on subsequent pages highlight the second year of progress towards achieving deliverables in FRDC’s RD&E Plan 2015–20. These are expected to be completed or implemented throughout the life of the Plan. In the tables that show the status of deliverables, the icons below mean that activity:

	has been completed (there are none at this stage),
	is on track for completion,
	is underway,
	work is yet to start (there is just one at this stage).

FRDC’s RD&E Plan 2015–20 is available from—www.frdc.com.au

FIGURE 4: THE FRAMEWORK FOR RD&E INVESTMENT BY THE FRDC 2015–20





FRDC NATIONAL PRIORITIES

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 2016–17, there was \$1.89 million or around 7.74 per cent of the total R&D investment for this program.

Priority area activities	Portfolio Budget Statement (PBS) target 2016–17	Achievement
Increased knowledge about how community values align with the values of Australian fishing and aquaculture sectors, with the aim of improving community perceptions. Positive perceptions of the commercial fishing industry increase from 28% to 40% by 2020 as measured through the independently-commissioned FRDC stakeholder survey.	One hundred and fourteen species included in SAFS Reports. Perception of industry increases to 31%.	Fifteen new species added to take total to 83 and currently working on next edition to expand coverage. Achieved: The community perception of the Australian seafood industry (all sectors) was 41%. The community perception of the commercial wild-catch sector rose 8% up to 32% which is the highest rating since the FRDC started undertaking community perception surveys. See page 36 for further information.

The following table provides a guide to progress in achieving the deliverables in FRDC's RD&E Plan.

Output	Status	Comment
Information on the performance and value of Australia's fisheries is available.		The Australian fisheries statistics and the SAFS Reports both provide overviews of production and worth of the industry. New risk-based assessment model being developed.
The number of species in the national SAFS Reports increases to include 200 species.		Fifteen new species added to take total to 83 and currently working on the 2018 edition which will increase numbers and change (expand) the coverage of the reports.
RD&E has provided a basis to reduce the number of species classified as 'undefined' from the approximately 30% currently to less than 10%.		Currently under 10%. First stages being undertaken to reduce the number of undefined.
Positive perceptions of the commercial fishing industry increase from 28% to 40% by 2020 as measured through the independently-commissioned FRDC stakeholder survey.		The community perception of the Australian seafood industry (all sectors) was 41%. The community perception of the commercial wild-catch sector rose 8% up to 32% which is the highest rating since the FRDC started undertaking community perception surveys. See page 36 for more information.



Project activity during the year

Quality assurance for fisheries science

Project 2014-009

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

Ensuring the quality of scientific information used to manage Australia's fisheries and marine ecosystems is important in earning the trust of stakeholders and the community in the decision-making process.

For fisheries management decisions to be based on evidence that is trusted, government, stakeholders and the public need to have confidence and trust in the research and scientific information used to inform these decisions.

In response to this need, Australia has become one of a growing number of countries to adopt quality control guidelines for scientific research.

The report *Research and Science Information Guidelines for Australian Fisheries* outlines what constitutes best-practice, high-quality and reliable scientific information. The guidelines are intended to be applied to research on wild-capture fisheries and their impact on the marine environment, but hold relevance to scientific research generally. The guidelines establish high-level key principles for science information quality, supported by definitions for clarity and describe the responsibilities of research purchasers and research providers. They also provide criteria for effective peer review.

Meeting the requirements of these guidelines will primarily be the responsibility of those who "buy research" (research purchasers) and those who "supply the research" (research providers). These two roles may rest within the single organisation (buying and doing by different areas), or under separate organisations.

The provisions of these guidelines are intended to apply to all stages of the research process, including aspects of research planning processes and the appropriateness of the proposed methodology, to ensure the reliability and objectivity of resulting scientific information.

The FRDC will establish the guidelines to guide and certify all research in which it invests. The guidelines are being implemented by the Australian Fisheries Management Authority.

For further information: www.frdc.com.au

National Stock Status Reports deliver view on major species

Project 2015-034

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

A new approach to reporting the status of Australian fish stocks improves transparency and provides public access to dynamic data on the status of stocks

The latest edition of the SAFS Reports, released in December 2016, shows Australia's fish stocks are in good shape, with almost 60 per cent of included stocks assessed as sustainable. The 83 species and species complexes assessed, represent approximately 90 per cent of both the volume and value of Australia's total fisheries production and include 294 individual fish stocks.

This third edition of the reports has added 15 new species, including iconic species such as the Western Australian Dhufish and the popular Orange Roughy, which have both endured severe population declines. The FRDC coordinated the production of the reports in 2016, for the first time, and plans to expand the species reported on to 200 by 2020.

Almost 100 of Australia's fisheries scientists were tasked with producing the 83 species reports. In addition, a further 50 fisheries scientists anonymously reviewed the reports to ensure they are as accurate as possible.

Findings

The reports highlight the dynamic nature of fisheries and reinforce the need for constant monitoring and management. The reports highlight two key categories that should remain the focus for both—'transitional depleting' and 'overfished'. The number of stocks in both categories has increased—partly due to the inclusion of the 15 new species—with 26 stocks, representing 14 species, reported as 'transitional depleting'.

There were 17 'overfished' fisheries, representing 13 species, which is of concern. Close monitoring of these stocks will continue as part of the recovery and management plans in place to restore their numbers. All of the 49 stocks classified as 'undefined' also have management in place; however, there was insufficient data available to confidently classify the stocks. The 13 stocks classified as 'negligible' have a very small commercial catch.

The SAFS Reports are available online at a new website, www.fish.gov.au. The website provides easy access to dive into this wealth of information. The design of the reports has undergone a significant makeover and expansion of online functionality. New photographs of species have been added to enhance the visual appeal of the website.

Data has become the backbone of the website's functionality. This, combined with new web technology, means readers can not only see the data, they can explore and interrogate it (see www.fish.gov.au/summary/data-tools).

For further information: www.fish.gov.au

Community perceptions survey of the fishing industry

Code 2011-514

The FRDC's 2017 community perceptions research surveyed 1007 people in June—a demographically representative sample of the population—finding that 41 per cent of Australians believe the Australian seafood sector is sustainable which is an increase of two per cent on the 2015 survey, and four per cent on the 2011 result.

However, the proportion who believe the fisheries sector is unsustainable has remained relatively steady since that first 2011 survey, at around one in five; 21 per cent was the official response this year, up one per cent on 2015.

Those declaring themselves "unsure" this year made up 38 per cent of respondents. However, further analysis of this group's other answers suggested many lean toward a negative view of fisheries sustainability, according to Innovative Solutions, the firm commissioned to conduct the survey. Women and people aged under 35 years were also generally more critical in their responses overall.

Of the 38 per cent of "unsure" respondents, 18 per cent were "hopeful and confident" the sector would be sustainable. Combined with the 41 per cent of those who already view it as sustainable, this brings the total of "positively inclined" respondents to 59 per cent. The authors suggest these two groups should be the priority for continued communication efforts.

Areas identified for further effort include awareness about fisheries management and increasing the profile of fishers in their local communities. There was a strong correlation in the survey responses between those who viewed the sector as sustainable and those who had some awareness of fisheries management. Those who regularly ate seafood were also likely to rate the sector as sustainable.

The survey also found a clear correlation between familiarity with the commercial sector and perceptions of sustainability of the industry overall. The report suggests that improving perceptions about the sustainability of wild-catch fisheries would have the greatest impact on perceptions of Australian seafood overall, attributing a 57 per cent share of influence to the wild-catch sector. Aquaculture had a 22 per cent share of influence, with 19 per cent for recreational fishing and two per cent for traditional fishing. It is also important to better understand the obstacles preventing people from considering the commercial wild-catch sector to be sustainable.

Four themes emerged from responses about commercial challenges: running out of fish, illegal fishing or fishing without regard for the environment, fishing practices that damage the environment, and fishing as an unprofitable enterprise.

Results also indicated that Australians believe sustainability is a shared responsibility, across government, commercial and community interests, with governments and commercial fishers seen as the primary custodians, with the greatest potential to influence perceptions of the sector overall. Almost two thirds of respondents (64 per cent) viewed Australian fisheries as more sustainable than fisheries in other countries.

The FRDC's 2017 community perceptions survey found general support for country of origin labelling on seafood. More than 70 per cent of respondents agreed that "country of origin labelling allows you to make a more informed choice about the seafood you buy" with scores of eight or more out of a possible 10.

FRDC has conducted community perception surveys every two years since 2011, but is now planning annual surveys from 2017 to 2020, to measure performance against its national priority 1: Ensuring that Australian fishing and aquaculture products are sustainable and acknowledged to be so.

The full community perceptions of the Australian fishing industry 2017 research report is available from www.frdc.com.au/Services/Market-research.

For further information: Peter Horvat, peter.horvat@frdc.com.au



FRDC NATIONAL PRIORITIES

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 2016–17, there was \$ 0.81 million or around 3.3 per cent of the total R&D investment for this program.

Priority area activities	PBS target 2016–17	Achievement
<p>Volume of aquaculture rises to above 100,000 tonnes.</p> <p>The value of Australia's fishing and aquaculture increases by 20%.</p> <p>Provide RD&E to support increased trade of fishing and aquaculture products into countries with free trade agreements by 300% by 2020.</p> <p>Understand the quantity of potential production from Australia's fishing and aquaculture resources.</p> <p>Increase knowledge to improve the utilisation of fisheries resources by Indigenous Australians.</p>	<p>Annual aquaculture production exceeds 85,000 tonnes.</p> <p>Value increases to \$2.4 billion.</p>	<p>Aquaculture production rose to 91,000 tonnes at the beginning of 2015–16 according to ABARES fisheries statistics.</p> <p>The value of Australia's fishing and aquaculture industry rose to \$2.9 billion.</p>

The following table provides a guide to progress in achieving the deliverables in FRDC's RD&E Plan.

Output	Status	Comment
Provide RD&E to support increased trade of fishing and aquaculture products into countries with free trade agreements by some 300%.		New trade database established, see page 94. Seafood Trade Advisory Group working with key sectors to improve exports.
Understand the quantity of potential production from Australia's fishing and aquaculture resources.		Project initiated to map current production levels versus potential future production. This incorporates under caught total allowable catch limits and new fisheries.
Understand and improve the utilisation of fisheries resources by Indigenous Australians.		Partnered with Torres Strait Regional Authority to develop business and market plans for finfish and mud crab. FRDC Indigenous Reference Group undertaking scoping project to collect Indigenous catch data.
Identify obstacles and opportunities to increase productivity through habitat.		Project initiated to empower recreational fishers as champions of healthy fish habitats. Project completed that looked at catchment management to boost fishery production.

Project activity during the year

Ocean Jackets, latchets and liquid fish

Project 2015-204

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

Raising demand for selected bycatch species or creating a protein blend are potential outcomes from research that aims to create value from fish that would otherwise be discarded.

Just two species—Deepwater Flathead (*Platycephalus conatus*) and Bight Redfish (*Centroberyx gerrardi*)—make up the bulk of the catch for fishers in the Great Australian Bight Trawl Sector (GABTS) off the South Australian coast. Yet over the years, fishers in the sector have identified almost 300 different species in their nets.

Small quantities of non-target species are often retained for sale; however, discards can account for a significant portion of the catch, depending on the time of year and fishing location. It is something the Great Australian Bight Fishing Industry Association is keen to change. The association has been working with researchers as part of an FRDC-funded project to identify ways to reduce discards and increase the viability of the fishery.

Ten years of data from vessel logbooks, on-board observer reports and independent fisheries surveys have been collated to assess the mix and catch volumes of different species, in order to identify those with market potential. The project has investigated export sales of these species into Asia and potential new markets and product opportunities. CSIRO is using additional information on processing, packing and transportation costs to assess the economic viability of retaining these species.

In addition to new markets, the GABTS project has also evaluated potential processing techniques that could be adopted for either on-board or land-based processing of bycatch, particularly mincing or liquefying fish protein through hydrolysis. These processes would allow fishers to value-add to the entire catch and effectively eliminate discards. Use of an on-board processing plant is being investigated to hydrolyse fish protein, with the liquid potentially sold into fish feed or fertiliser markets.

Trawlers in the GABTS have enough storage capacity to process all of their bycatch. Markets and support for new products in the supply chain are more crucial issues to the success of greater resource use. The project will include an economic analysis and modelling of the supply chain for distribution of bycatch species and alternative fish products.

For further information: Ian Knuckey, ian@fishwell.com.au



FRDC NATIONAL PRIORITIES

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 2016–17, there was \$1.54 million or around 6.3 per cent of the total R&D investment for this program.

Priority area activities	PBS target 2016–17	Achievement
There are two to three new aquaculture species that are seeing good productivity and profitability growth as measured by an increase in tonnage from other species. 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.	Production of new aquaculture species increases to 2000 tonnes.	Aquaculture production rose to 91,000 tonnes at the beginning of 2015–16. Exact volumes of the key species (namely groupers, Murray Cod and Yellowtail Kingfish) are not able to be included in this annual report due to the privacy requirements of the small number of companies involved. Given that, during 2016–17 two new kingfish farms started operation, likewise a number of Murray Cod farms increased production capacity and it is expected that production will be above 2000 tonnes.

The following table provides a guide to progress in achieving the deliverables in FRDC’s RD&E Plan.

Output	Status	Comment
There are two or more emerging aquaculture opportunities/species for which RD&E has identified clear commercial opportunities and technologies for good production and profitability growth.		The three-year R&D for Profit project on developing new white fish (Yellowtail Kingfish) has continued to provide information and assist the two new growers in New South Wales and Western Australia.



Project activity during the year

Kingfish research gathers momentum

Project 2016-200.40, 2016-117

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

From feed to disease, researchers around the country are joining forces with industry partners to enhance and develop Yellowtail Kingfish aquaculture.

The 'Kingfish for Profit' (K4P) initiative is more than half way through a three-year national program and researchers have identified several fish health and nutrition 'signposts' to help improve the viability of Yellowtail Kingfish (*Seriola lalandi*) aquaculture as it continues to expand in Australia.

The \$6 million K4P initiative is part of the Australian Government's 'Rural Research and Development for Profit' program, and is coordinated through the FRDC. The aim is to bring an affordable, consistently available farmed 'white' fish to market in Australia—a companion to the increasingly popular Atlantic Salmon.

Evaluations of feed ingredients, feeding strategies for different environmental conditions and growth stages, and health indicators for Yellowtail Kingfish have been the focus of the program's early trials.

The FRDC also funds other Yellowtail Kingfish aquaculture research in line with its national research priority 3: Developing new and emerging aquaculture growth opportunities. This continues its historical investment on this species, which has also been partly conducted through the Australian Seafood CRC, which has ceased operations.

The South Australian Research and Development Institute (SARDI) and New South Wales Department of Primary Industries (NSW DPI) are the lead research agencies in the K4P program. Commercial partners include Yellowtail Kingfish producers Clean Seas and Huon Aquaculture and feed manufacturers Ridley Corporation and Skretting Australia.

K4P research findings are already providing advice to improve nutrition and feed management practices, and are also making progress on longer-term industry-wide goals, such as the development of non-invasive health diagnostics. The investment in these areas of research has provided the confidence for industry to further invest capital in the development of the Yellowtail Kingfish farming sector that began in 1998 in South Australia and continues to expand with commercial ventures in Western Australia and New South Wales.

Winter feeding

Trials centred at the South Australian Aquatic Science Centre at West Beach, in Adelaide, are investigating the needs of fish of one to four kilograms and cover all three K4P project themes: nutrition, feeding strategies and nutritional health.

David Stone, SARDI's principal investigator for the K4P nutrition theme says much of the previous feeding research has focused on the needs of fish during the 'summer' growth period, in warmer water. However, the production cycle also requires fish to be cultured throughout winter. There is considerable scope to improve profitability of farming by increasing performance of Yellowtail Kingfish using on-farm feeding practices that are designed specifically for winter water temperatures.

Many fish species show reduced growth and are less efficient in converting feed to body weight in cold conditions. Seawater temperatures off the South Australian coast can fall to 10°C and Yellowtail Kingfish being cultured typically lose weight and condition that must be recovered as water temperatures increase in spring.

Commercial Yellowtail Kingfish winter feeding strategies have previously been based on minimal feeding to reduce the cost of feeds and feeding operations. To address this production issue, a trial was designed to evaluate the potential gains from better feeding regimes specifically for use during winter.

Further evaluation within commercial operations is needed to determine whether the finding transfers from the laboratory to commercial operations conducted in sea cages, but if successful, it could result in significant production gains leading to greater profitability.

Further work is needed to determine whether Yellowtail Kingfish have 'compensatory' growth capabilities, with accelerated growth in spring to offset otherwise slower growth or weight loss during winter. This could further influence the refinement of feeding strategies.

Microbial indicators

Marty Deveney and Andrew Oxley at SARDI are nutritional health co-theme leaders for the K4P program. This team has been working to identify microbes that live in the gut of Yellowtail Kingfish and assess correlations between those in the gut and those on the skin and gills, or even in the water in which the fish live.

The aim is to match specific microbes with specific nutritional responses and diseases. The researchers found that in general the populations of gut microbes of Yellowtail Kingfish differed significantly between fish cultured in the land-based hatchery and those in marine environments—both sea cages and in the wild. The make-up of the microbe populations changed substantially with the onset of conditions such as gut enteritis, suggesting a link during periods of poor health of fish.

Like the gut, the microbial communities of the skin and gills also changed with the changing health status of fish. A series of potential biomarkers has been identified to assess fish health. These include the presence or absence of certain bacteria species and the ratio between 'good' and 'bad' microbes as indicators of health status, or for use as possible probiotic treatments.

Feed ingredients

Trials involving brood stock and fish of less than one kilogram are centred at Port Stephens Fisheries Institute in New South Wales. Mark Booth of NSW DPI is based at Port Stephens, where he and his team are researching the nutritional requirements of Yellowtail Kingfish feed ingredients and their digestibility. In contrast to the research in South Australia, this project is focused on how the fish respond in summer conditions.

Mark Booth says the research builds on NSW DPI research undertaken during the past decade under the auspices of the FRDC-funded Aquafin CRC and the Australian Seafood CRC, which developed Yellowtail Kingfish feed formulation models.

One laboratory-based experiment has compared the digestibility of various fish, poultry and vegetable raw materials, finding that Yellowtail Kingfish find land-animal protein sources generally more digestible than plant protein sources that contain high levels of carbohydrate. Mark says plant protein concentrates and rendered animal meal are both useful as protein sources.

Fishmeal and fish oil replacement are key areas of research for industry, both in terms of cost-of-production savings and in terms of ongoing industry sustainability as it reduces reliance on wild-harvested feed ingredients.

Other NSW DPI research is focusing on the baseline requirements of essential nutrients and amino acids including choline, histidine and taurine for smaller fish. Feed and feeding strategies for different life stages will allow the animals to make the most efficient use of the feed. This will have direct benefits for on-farm running costs.

Another study has investigated the feeding efficiency of Yellowtail Kingfish in low dissolved oxygen environments. Results from this study showed that the negative effects were exacerbated at high feeding levels, suggesting that farmers should restrict feeding in low oxygen environments and monitor both oxygen saturation and concentration levels.

Several of the Yellowtail Kingfish program's research findings have already been presented at national and international conferences, including the World Aquaculture conference in South Africa in June 2017.

New South Wales sets course for a Yellowtail Kingfish future

New South Wales is set to harvest mid 2017 its first Yellowtail Kingfish from its Marine Aquaculture Research Lease in Providence Bay, Port Stephens. The project is part of a five-year joint research and production venture between NSW DPI and the Huon Aquaculture Group.

Yellowtail Kingfish aquaculture has been the focus of research at the NSW Port Stephens Fisheries Institute since 2008, and this is being accelerated into marine trials through the K4P initiative launched in 2015. Ocean-based research and emerging commercial aquaculture production has been underway in Western Australia since 2008.

NSW DPI has been monitoring the marine lease sites and has not detected any environmental impacts from the aquaculture operations so far. Water quality and sea floor sampling is undertaken routinely and a remote operating vehicle takes video footage of the sea floor (www.huonaqua.com.au/about/portstephens). Samples are taken from below the proposed sea pen sites, areas outside the boundary of the research lease and at 'reference' sites between the lease and Broughton and Cabbage Tree Islands. NSW DPI will use this data from the Marine Aquaculture Research Lease and from the Port Stephens facility to help develop a policy platform for aquaculture in New South Wales marine waters. The research partnership is helping to guide the future of the industry in the state, to ensure it is viable and sustainable.

Western focus

Yellowtail Kingfish research underway in Western Australia focuses on the conditions specific to the growing regions in that state, which include pre-approved finfish aquaculture zones in the state's Kimberley and mid-west coastal zones. The mid-west zone, around Geraldton, has been developed with Yellowtail Kingfish in mind, with a state-funded pilot to grow out the species underway.

For further information: Steven Clarke, steven.clarke@sa.gov.au





NATIONAL RD&E INFRASTRUCTURE

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

The FRDC will continue 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 2016–17, there was \$4.59 million or around 18.8 per cent of the total R&D investment for this program. This is 7 per cent above the AOP forecast budget.

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.

The table that follows provides a guide to progress in achieving the deliverables in FRDC's RD&E Plan.

Measure	Targets 2016–17	Output
People development		
Continue to invest in people development and leadership.	Targets for this subprogram are aligned to the People program.	<ul style="list-style-type: none"> ▶ Completed. 2013-410 RD&E capability audit and assessment for the Australian fishing and aquaculture industry. ▶ Completed. 2016-411 Create a matrix of skills and capability building priorities across FRDC partners and advisory groups. ▶ Achieved. National Seafood Industry Leadership Program completed with 16 people participating. See story on page 49. ▶ Two industry people received Nuffield Australia Farming Scholarships to study innovative practices in the fishing or aquaculture sectors. ▶ Young Science and Innovation Awards Scholarship awarded.
Recfishing Research		
<p>Provide investment capacity for the recreational fishing sector.</p> <p>Deliver on identified recreational RD&E needs.</p> <p>Invest data collection on social and economic impacts which is comparable with other sectors.</p> <p>Invest in people development activities for this sector</p>	Nationally coordinated plan detailing recreational fishing priorities.	<p>Recfishing Research continues to maintain a nationally coordinated plan. The number one priority is to conduct a national social and economic survey. Work in 2016–17 sees that this will be progressed in 2017–18.</p> <p>People development also remains a high priority and Recfishing Research continue to invest in this area approving funding in 2016–17 for a bursary program for young emerging leaders to attend the 8th World Recreational Fishing Conference.</p>
Human Dimensions		
Continue to encourage stakeholders to use Human Dimensions expert group to aid investment in this area.	Targets for this subprogram are aligned to the Communities program.	<p>Achieved. Two projects (2014-301, 2013-301) complete. See pages 70–71.</p> <p>New Human Dimensions Subprogram funded, see page 69.</p> <p>Achieved. Inshore fisheries workshop undertaken with fisheries managers from the Primary Industries and Regions South Australia (PIRSA) and members of the Lakes and Coorong Fishery and Marine Scalefish Fishery.</p>

Measure	Targets 2016–17	Output
Aquatic Animal Health and Biosecurity Subprogram (AAHBS)		
Maintain the AAHBS, ensure adequate investment in risk areas and this expert group is used by FRDC stakeholders when required.	One project to develop positive control materials for exotic pathogens.	<p>AAHBS Subprogram provided high level advice to FRDC and industry in a year where a number of diseases were issues, namely prawn White Spot Syndrome Virus and Pacific Oyster Mortality Syndrome. A number of projects were completed that addressed the performance indicator.</p> <ul style="list-style-type: none"> ▶ 2014-002: Development of stable positive control material and development of internal controls for molecular tests for detection of important endemic and exotic pathogens. ▶ 2015-003: Development of standard methods for the production of marine molluscan cell cultures. ▶ 2016/009: <i>Perkinsus olseni</i> in abalone —development of fit-for-purpose tools to support its management
Indigenous Reference Group		
Maintain the Indigenous Fishing and Aquaculture Subprogram and ensure extension of priorities to all FRDC stakeholders.	No specific targets for this year.	<p>Achieved: Indigenous Reference Group extended into an FRDC Subprogram. Projects addressing subprogram priorities include:</p> <ul style="list-style-type: none"> ▶ 2016-206: Business Nous—Indigenous business development opportunities and impediments in the fishing and seafood industry. ▶ 2016-204: Indigenous business development opportunities and impediments in the fishing and seafood industry—‘Wave to plate’ establishing a market for Tasmanian cultural fisheries. ▶ 2016-201: Business opportunities and impediments for Aboriginal community development in supportive fishing industries in the Roper River to Robinson River area of the Northern Territory. ▶ 2014-233: Improving access for Indigenous Australians to, and involvement in the use and management of Australia’s fisheries resource. ▶ 2015-205: Mapping livelihood values of Indigenous customary fishing.

Project activity during the year

Indigenous fishing values

Project 2015-2015

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

A study overseen by the FRDC's Indigenous Reference Group (IRG) has found that the pursuit goes way beyond a simple pastime and documents how fishing is regarded within different Indigenous communities. Researchers for the 'Livelihood values of Indigenous customary fishing' study are working with a range of Aboriginal people, including rangers and community members from the three communities being studied: the New South Wales south coast, far west South Australia and the Crocodile Islands in north-east Arnhem Land in the Northern Territory.

Identifying values is a key area of the IRG's research and development focus. Understanding how Indigenous communities value fishing resources and fishing access is a key component to achieving greater participation of Indigenous people in commercial fishing. Uncovering these values means there can be an evidence base for allocation and resource-use decisions that take account of these values. The findings will help to facilitate the development of policy and regulations to enable greater Indigenous engagement in the fishing sector by incorporating values held by Indigenous people in relation to fishing.

To conduct the study, researchers enlisted culturally appropriate ways of eliciting information. First, they developed a tailored interview process, consulting with the IRG and then those in the field, to refine survey methods suited to the study. The study was then passed through the Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) ethics committee.

The team made research agreements with each of the three communities to ensure that local people were employed for the project. Dozens of interviews were carried out across the communities. Interim findings in the study identified several ways in which community wellbeing is connected to the ability to fish.

The study is due for completion at the end of the year, with interim results being presented at conferences throughout 2017. An exhibition of photos was launched in June to support it, including pictures of fishing from the AIATSIS collection, those taken in the field during the project and as part of a competition designed to engage local people

For further information: Rod Kennett, rod.kennett@aiatsis.gov.au






COLLABORATE

The FRDC will provide the means 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 2016–17, there was \$0.037 million or around 0.2 per cent of the total R&D investment for this program. It is important to note that the \$600,000 fund sits above the normal funding and collaboration, and acts as a bonus to encourage other partners in projects.

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

Activity	Input	Status	Comment
Incentive Fund	Invest \$600,000 into collaborative projects.		The collaborate fund is a relatively new initiative and has taken longer to gain traction with users. In 2016–17 only a small number of projects met the criteria for the collaboration fund during the year.

Project activity during the year

Leaders aim to strengthen national seafood identity

Project 2014-407

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

Generating greater recognition of fishing and seafood as a quintessential part of Australian culture and that is one of the aims of projects undertaken by participants of the 2016 National Seafood Industry Leadership Program (NSILP).

Participants in the 2016 program included representatives from research bodies, government, small business, professional fishers, big seafood companies, peak fishing industry bodies, a peak recreational body, industry consultants, a world-class fisheries certification agency and the Indigenous sector.

The 2016 NSILP concluded in November with an intensive week of meetings with politicians including Deputy Prime Minister Barnaby Joyce, Senator Anne Ruston, other members of Parliament and their senior advisers.

The meetings were followed by a formal graduation ceremony and dinner, with participants providing an overview of the projects they worked on in teams during the year.

Group projects included:

- ▶ creation of a street art 'seafood trail' to promote the seafood industry at the Australian Wooden Boat Festival in February 2017,
- ▶ a '#thiscouldbeyou' social media campaign to raise the understanding of career opportunities available in the seafood industry,
- ▶ a widespread media blitz to generate understanding of the contribution of the fishing industry to the broader community,
- ▶ a photographic exhibition and campaign for International Women's Day 2017, celebrating the contribution of women to the seafood industry.

The program provides skills sessions and practical activities that enhance participants' knowledge and confidence to lead their industry into the future.

For further information: Jill Briggs, 02 6035 7284, jill@ruraltraininginitiatives.com.au, www.ruraltraininginitiatives.com.au





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 53–54). Project selection and approval while accepting recommendation from the groups remains the responsibility of the FRDC Board.






Industry Partnership Agreements





Principal inputs

During 2016–17, there was \$8.37 million or around 34.3 per cent of the total R&D investment for this program. This is 3 per cent below the AOP forecast budget.

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

IPA with	Targets 2016–17	Rating	Output
Australian Abalone Growers Association (AAGA)	Maintain this IPA and work with AAGA to develop their RD&E Plan		R&D management project funded to coordinate investment against the strategic RD&E Plan. Projects that align to the Plan's priorities continue.
Australian Barramundi Farmers Association (ABFA)	Maintain this IPA and work with ABFA to deliver on their identified priorities		Investment in projects that meet the strategic R&D plan continues. Outputs include: ► Development of video documentation of farming practices across Australia completed.

IPA with	Targets 2016–17	Rating	Output
Abalone Council Australia (ACA)	Maintain this IPA and work with ACA to deliver on their identified priorities		<p>Current IPA coming to the end. Work begun on negotiating new IPA and undertaking RD&E planning process. Outputs include:</p> <ul style="list-style-type: none"> ▶ Continuing to progress projects which are informing harvest strategies, marketing and export protocols. Continue to work effectively with other groups and FRDC investment partners such as SafeFish and the Seafood Trade Advisory Group. ▶ There is an overall balance in the investment in research on Australian wild abalone fisheries however some of this comes from the investment through RACs (Tasmania, South Australia, New South Wales and Western Australia). ▶ The ACA is in a new RD&E planning phase and improving the balance in RD&E investment through ACA will be a key consideration in this process.
Australian Council of Prawn Fisheries (ACPF)	Develop this IPA and work with ACPF to develop their RD&E Plan		<p>New IPA agreement with ACPF signed. RD&E Plan developed and investment against this plan initiated. Outputs include:</p> <ul style="list-style-type: none"> ▶ Market research for 'Love Australian Prawns' completed. ▶ Bycatch workshop held to identify RD&E needs.
Australian Prawn Farmers Association (APFA)	Maintain this IPA and work with APFA to deliver on their identified priorities		<p>APFA has started developing its next RD&E Plan for 2018–22.</p> <ul style="list-style-type: none"> ▶ Key focus for APFA has been responding to White Spot Virus outbreak which was confirmed in December 2016.
Australian Southern Bluefin Tuna Industry Association (ASBTIA)	Maintain this IPA and work with ASBTIA to deliver on their identified priorities		<p>ASBTIA has finalised its new RD&E Plan 2017–20.</p> <ul style="list-style-type: none"> ▶ There are few ASBTIA R&D projects which are currently active. ▶ FRDC is working with industry to conduct more frequent R&D planning meetings to prioritise and provide guidance for development and implementation of projects.
Oysters Australia (OA)	Maintain this IPA and work with OA to deliver on their identified priorities		<p>IPA is active (2014–19). The Future Oysters CRC-P was established December 2016 through OA and a consortium of partners, and is progressing a suite of projects. Outputs include:</p> <ul style="list-style-type: none"> ▶ Better oysters through advanced breeding programs for disease resistance. ▶ Healthy oysters through R&D to develop novel methods to assess health, manage disease and better understand the environmental factors implicated in oyster diseases. ▶ More oysters through assessment of commercial potential of alternative species to diversify production, and development of new technologies to increase production and profitability. ▶ Investment in an extension and adoption program will assist in building the capabilities of producers to adopt R&D outputs.

IPA with	Targets 2016–17	Rating	Output
Pearl Consortium (Pearls)	Maintain this IPA and work with Pearls to deliver on their identified priorities		<p>Outputs include:</p> <ul style="list-style-type: none"> ▶ Better understanding of environmental drivers of pearl production. ▶ Improved understanding of the physiological processes affecting pearl quality. ▶ Increased production efficiency, including more efficient farming systems. ▶ Improved hatchery-based production, including continued investment in genetic improvement. ▶ Improved community confidence through publicly available information on the status of the wild stock fishery. ▶ Increased capacity of people through engagement in training programs and leadership development.
Southern Rock Lobster Limited (SRL)	Maintain this IPA and work with SRL to deliver on their identified priorities		<p>IPA is active. A new management project for the IPA was approved in 2016 which sees SRL taking a stronger leadership role in areas other than RD&E while still maintaining a strong focus on RD&E investment. A new strategic plan was developed and is already providing strong guidance for RD&E investment, especially around improving public perception and positioning the fishery in a strong position across the three jurisdictions in which it operates. Outputs include:</p> <ul style="list-style-type: none"> ▶ Better understanding of harmful algal blooms and the physiological response of animals to these toxins. ▶ Improvements in harvest strategies and harvest practices/efficiency. ▶ Increased capacity of people and understanding of future needs. ▶ Development of traceability systems which will help provision of safe sustainable seafood.
Tasmanian Salmonid Growers Association (TSGA)	Maintain this IPA and work with TSGA and the individual entities to deliver on their identified priorities		<p>Outputs include:</p> <ul style="list-style-type: none"> ▶ Continued development of vaccines for industry through the Australian Aquatic Animal Health and Vaccine Centre seeing real benefits to fish health and fish mortality rates. ▶ Understanding of the environmental impacts of salmon farming and management of these. ▶ Continued development of technologies to reduce interaction with other marine species. ▶ Continued development of people for future needs of the industry.
Western Rocklobster Council (WRLC)	Maintain this IPA and work with WRLC to deliver on their identified priorities		<p>Investment against RD&E Plan accelerated. Outputs include:</p> <ul style="list-style-type: none"> ▶ Review and analysis of risk of the Western Rock Lobster industry completed. ▶ People development activities initiated, including governance training and industry bursaries.






RAC partnership agreements




Principal inputs

During 2016–17, there was \$7.18 million (about 29.4 per cent of the total R&D investment) invested in R&D activities for this priority with jurisdictional RACs.

RACs are in place 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 table provides a guide on the progress FRDC has made in meeting its output target.

RAC	Targets 2016–17	Status	Comment
RAC-COM	Establish new RAC structure and produce new RD&E Plan		<ul style="list-style-type: none"> Established new RAC, with an emphasis on greater expertise in active commercial fishing. RD&E Plan near finalised. Funded projects address all named priorities.
RAC-NSW	Establish new RAC structure and produce new RD&E Plan		<ul style="list-style-type: none"> New RAC structure and processes established. No RD&E plan finalised however a number of priorities have been identified to structure an investment strategy. A number of applications have been recommended to address identified priorities. One hundred and twenty per cent budget investment into priority driven research for the current financial year.
RAC-NT	Establish new RAC structure and produce new RD&E Plan		<ul style="list-style-type: none"> New RAC structure and processes established. Draft RD&E plan in place with engagement processes in progress to finalise document. A number of applications have been recommended to address identified priorities. Ninety per cent budget investment into priority-driven research for the current financial year.
RAC-QLD	Establish new RAC structure and produce new RD&E Plan		<ul style="list-style-type: none"> New RAC structure and processes established. Comprehensive RD&E plan finalised (aiming to align with the recently released 'Queensland Sustainable Fisheries Strategy'. A number of applications have been recommended to address identified priorities. One hundred and ten per cent budget investment into priority-driven research for the current financial year.
RAC-SA	Establish new RAC structure and produce new RD&E Plan		<ul style="list-style-type: none"> Established new RAC membership, with a greater commercial fishing composition. RD&E Plan completed and distributed to relevant stakeholders for comment. Formal consultation process between industry and this RAC being trialled. Funded projects address all named priorities.

RAC	Targets 2016–17	Status	Comment
RAC-TAS	Establish new RAC structure and produce new RD&E Plan		<ul style="list-style-type: none"> ▶ Established new RAC. ▶ RD&E Plan in development. ▶ Revising links between sector-based research advisory groups and this RAC. ▶ Funded projects address all named priorities.
RAC-VIC	Establish new RAC structure and produce new RD&E Plan		<ul style="list-style-type: none"> ▶ Established a new RAC with a balanced membership across areas of expertise e.g. Indigenous, social science, commercial, recreational and aquaculture. ▶ Committee succession planning underway. ▶ RD&E Plan distributed to relevant stakeholders for comment. ▶ Trialling mechanisms for stakeholder engagement (via survey) with further work in this area to be prioritised.
RAC-WA	Establish new RAC structure and produce new RD&E Plan		<ul style="list-style-type: none"> ▶ New RAC structure and processes established. ▶ Comprehensive RD&E plan finalised. ▶ A number of applications have been recommended to address identified priorities. ▶ Seventy per cent budget investment into priority-driven research for the current financial year.

Project activity during the year

People's choice for fish and chips awards

Project 2016-136

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

There's a new look to the National Fish and Chips Awards in 2017 as the FRDC promotes a new people's choice category, which will run in conjunction with the National Seafood Industry Awards in September.

Each state and territory fishing industry council has historically run individual industry awards, of which the Fish and Chips Award is just one category. This year, however, the FRDC is coordinating two categories—people's choice and judge's choice—across all state, territory and national awards.

Through the awards the FRDC aims to engage with consumers and deliver key messages related to the science that underpins Australia's fisheries and their management. The FRDC will also use this opportunity to better educate and inform consumers on the sustainability of Australia's fisheries and the wide range of seafood options on offer.

The National Fish and Chips Awards will be presented as part of the National Seafood Industry Awards on 28 September 2017 at the Seafood Directions Conference in Sydney.

For further information: Peter Horvat, www.fishandchipsawards.com.au

Community stake in skate survival

Projects 2010-016, 2013-008

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

Australia, and specifically Tasmania, is home to what is possibly the rarest skate species in the world. Officially identified in 1988, the Maugean Skate (*Zearaja maugeana*) has only ever been found in two locations: Bathurst Harbour and Macquarie Harbour, both on the west coast of Tasmania.

With such a limited distribution, little has been known about the skate until now. Jeremy Lyle, from the Institute of Marine and Antarctic Studies, has led an FRDC-funded project to conduct the first major study into the ecology and biology of the Maugean Skate.

The project has identified the distribution, habitat, reproductive dynamics, feeding habits and population of the Maugean Skate in Macquarie Harbour. It has also assessed the impacts of current and proposed marine farming operations on the population, including the impact of salmonid escapees, and evaluated strategies to reduce risks of bycatch and incidental mortality of the Maugean Skate due to gillnetting.

Researchers spent 12 months monitoring the population of skate using an extensive array of acoustic receivers positioned throughout Macquarie Harbour. Local aquaculture companies Tassal, Huon and Petuna supported the project with boats and staff to help researchers set the large number of receivers involved. Almost 60 Maugean Skate were acoustically tagged at multiple locations. The tags emit a unique signal that is detected when the tagged skate move to within about 400 metres of a receiver. Using this technology, the behaviour of individual Maugean Skate was monitored over 12 months.

Research fishing was also conducted over 15 months to assess reproductive status and diet before releasing skate back into the water. All skate were microchipped before being released. Population sizes were estimated using tag recapture rates.

The project concluded that Maugean Skate prefer depths with less variable salinity, temperature and oxygen content. This knowledge has been a key driver for changes to reduce the capture of skate in gillnets.

For further information: Jeremy Lyle, 03 6226 8255, jeremy.lyle@utas.edu.au



CRC-P bid successful—Future Oysters

Projects 2016-800 to 2016-507

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

The Australian Government has announced funding of 11 CRC-Ps including the Future Oysters CRC-P.

The project oversees a focused research program that will accelerate the breeding of disease resistant oysters, improving disease management, increasing productivity and profitability; and diversifying risks to allow the Australian oyster aquaculture industry to grow both domestically and globally. In the first year of the CRC-P eight projects have been approved.

Future Oysters CRC-P project	Applicant and budget (exclusive of GST)
2016-800: Future Oysters CRC-P management and extension	Oysters Australia \$480,040
2016-801: Enhancing Pacific Oyster breeding to optimise national benefits	Australian Seafood Industries Pty Ltd \$1,835,200
2016-802: Accelerated Sydney Rock Oyster breeding research	NSW DPI \$507,650
2016-803: New technologies to improve Sydney Rock Oyster breeding and production	NSW DPI \$208,300
2016-804: Advanced understanding of POMS to guide farm management decisions in Tasmania	University of Tasmania \$694,773
2016-805: Polymicrobial involvement in oyster herpesvirus [OsHV] outbreaks (and other diseases)	NSW DPI \$342,200
2016-806: Advanced aquatic disease surveillance for known and undefined oyster pathogens	SARDI \$714,300
2016-807: Species diversification to provide alternatives for commercial production	SARDI \$228,426

These projects focus on delivering against the three Future Oyster CRC-P R&D programs.

- ▶ **Better Oysters:** Research is currently accelerating the rate of progress towards breeding disease resistant Pacific Oysters and Sydney Rock Oysters. Other projects are advancing technologies to improve the selective breeding of oysters. For the first time, Pacific Oyster selective breeding has started in South Australia to provide disease resistant selected families to support the local industry.
- ▶ **Healthy Oysters:** Research is investigating the impacts and factors linked to POMS in Tasmania. Research conducted over the past summer has documented environmental and farm management factors, oyster performance, and mortalities in affected areas to determine management approaches that can reduce the impacts of this disease. In New South Wales the role of other microorganisms in POMS outbreaks is being investigated. Other projects are being conducted in New South Wales to improve the understanding of the causes and disease-causing agents of winter mortality and QX disease in Sydney Rock Oysters and a mortality syndrome effecting Pacific Oysters in South Australia. New approaches to surveillance of important oyster diseases has also commenced.
- ▶ **More Oysters:** The commercial potential of native flat oysters (*Ostrea angasi*) has started and a network of growers and researchers has been formed to coordinate trials on farms in South Australia and Tasmania. A risk assessment is being conducted and trials are in progress within a biosecure facility to assess the potential to culture rock oysters from Western Australia in South Australia.

For further information: Wayne Hutchinson, wayne.hutchinson@frdc.com.au

OUTPUTS— ANALYSIS BY FRDC PROGRAMS






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 2016–17, there was \$7.46 million or around 30.6 per cent of the total R&D investment for this program. This is 9 per cent below the annual operational plan (AOP) forecast budget.

Performance indicators	Targets 2016–17	Status	Comment
Demonstrate improved sustainability performance from the use of RD&E outputs. Development of innovative technologies to reduce fishery take and interaction with bycatch and with threatened, endangered and protected (TEP) species.	One project to develop techniques to mitigate whale interactions with fishing gear. Workshop to address priorities in developing low impact, fuel efficient gear.		Achieved. Projects 2013-037 and 2014-004 complete. Achieved. Workshop (project 2016-057) to identify research needs and a future project to reduce bycatch and improve fuel efficiency via Low Impact Fuel Efficient (LIFE) prawn trawls complete. See story page 60.
Improvement in understanding of the impacts of climate change that leads to adaptation by fisheries management and industry. Development of mitigation methods to reduce greenhouse gas emissions of industry.	Report on completion of Fishing and Aquaculture Climate Change Program.		Report completed. All climate related R&D is available on the FRDC website.
Development of mechanisms and technologies to collect economic, environmental and social data to inform management processes. Improvement in knowledge of the relationship between environmental processes and known biological processes. Development of techniques for incorporation of ecosystem-based fisheries management in fisheries. Development of knowledge to help the industry to meet environmental standards.	Pilot project to assess potential for reporting on social economic and environmental parameters for individual fisheries. Produce third Status of Australian Fish Stocks Reports.		Achieved. Project 2013-301 completed, see story page 70. Achieved. Third edition of Status of Australian Fish Stocks Reports published in December 2016, see story page 35.

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.

RD&E project management

The FRDC identifies RD&E needs, and the means of addressing them, through a planning process and by entering project agreements with research providers. Management of fisheries R&D involves reporting against economic, environmental and/or social outcomes at a strategic level through this annual report, and in more detail in the final reports for projects.

As part of the assessment and contracting for projects, the FRDC looks at a range of factors including their environmental impacts, and ensures that appropriate approvals are in place and are obtained. The FRDC project agreement sets out a range of obligations to ensure that not only the FRDC meets its obligations, but researchers working on FRDC-funded projects also adhere to that high standard. Not only does the agreement require researchers to comply with relevant legislation, such as the EPBC Act, it requires that where a project involves changes to the natural environment, or can have an effect on the natural environment that the researchers must ensure all necessary permits or licences are obtained from the relevant state, territory or Commonwealth authority. In addition, where an interaction (death or serious injury) occurs with a threatened, endangered or protected species the FRDC must be notified within 10 days.

Large components of the RD&E undertaken by the FRDC focus on providing information that will assist these agencies improve the sustainable use of Australia's aquatic resources. The projects outlined on the following pages highlight the diversity and excellence of the FRDC's current research portfolio. For a full listing of projects funded visit the FRDC website—www.frdc.com.au



Project activity during the year

FRDC leads National Carp Control Plan

Multiple project numbers

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

The FRDC will lead the newly announced \$15 million National Carp Control Plan, which will evaluate the benefit of biological control of carp through the use of a carp virus (*Cyprinid herpesvirus*). Minister for Agriculture and Water Resources Barnaby Joyce has appointed Matt Barwick to lead development of the plan, dubbing him 'the Carpinator'.

In developing the carp control plan, Matt and his team will work with state and federal government departments and non-government stakeholders, including researchers, industry and environmental organisations, recreational fishers, Indigenous and community groups, tourism operators and landholders. The plan is expected to be complete by the end of 2018.

The first step is to evaluate whether the virus will effectively deliver a significant reduction in carp impacts and achieve a 95 per cent reduction in carp by 2045, at an acceptable cost. The earliest possible release date for carp virus, pending approvals, is late 2018.

The National Carp Control Plan is funded by the Department of Agriculture and Water Resources, the Department of Environment and Energy and the Department of Industry, Innovation and Science.

For further information: Matthew Barwick, matt.barwick@frdc.com.au, www.carp.gov.au

Workshop to identify research needs and a future project to reduce bycatch and improve fuel efficiency via Low Impact Fuel Efficient (LIFE) prawn trawls

Project 2016-057

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

Fisher experiences will play a crucial role in extending the use of new gear designed to reduce prawn trawl bycatch and improve fleet efficiency.

After more than 20 years of research, Australian prawn trawl fisheries already have an extensive 'toolbox' at their disposal to improve efficiency and reduce environmental impact.

A two-day workshop held in Sydney in February was attended by industry representatives from all prawn trawl fishing states, as well as fisheries managers, researchers and gear modification experts. The aim of the workshop was to identify further research needs, particularly those related to reducing bycatch and improving fuel efficiency.

At the workshop, an overview of work already undertaken and discussions of industry issues, state by state, identified that extension of existing bycatch mitigation measures and their suitability should be the priority, rather than new projects. The ACPF and the FRDC hosted the workshop. It proved a good opportunity to exchange ideas between fisheries, and between researchers and industry.

Workshop participants were also keen to get a better understanding of research being done overseas which might have applications in Australia. This included initiatives in Europe as a result of the implementation of the Landing Obligation (often referred to as the 'discard ban' involving the phasing-out of discarding of certain species).

The ACPF is planning portside presentations of the prawn trawl research to help fisheries 'gear match' existing tools to address specific operational issues.

The workshop report is available on the FRDC website: www.frdc.com.au/research/final_reports/2016-057-DLD.pdf.

For further information: Rachel King, 02 8006 0498, 0425 237 566, acpf.eo@gmail.com

Toothfish tagging reveals territory dynamics

Project: 2010-064, 2013-013

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

For every tonne of Patagonian Toothfish (*Dissostichus eleginoides*) harvested from Australian waters this winter, at least two fish were tagged and returned to the Southern Ocean as part of an accelerated monitoring program for the fishery.

In 2015, the tally was 8800 fish tagged and released. The past two years represent a doubling of the previous tagging rate. The tagging aims to determine more conclusively the nature of the relationship between the Australian Heard Island and McDonald Islands Patagonian Toothfish fishery and adjacent French Kerguelen Islands fishery.

Are they a single population, requiring joint management, or are they independent populations, with some shared genetics? The answer is a crucial one for the Australian and French governments managing their respective fishing territories and catch quotas.

Marine scientist Dirk Welsford at the Department of the Environment and Energy's Australian Antarctic Division is leading the FRDC's four-year project. The project began in 2014 and has access to almost 30 years of commercial and research data from both fisheries, which are based around the Kerguelen Plateau, where the Southern and South Indian Oceans meet.

Patagonian Toothfish are known to spend most of their lives within a 40-kilometre home range. However, genetic testing has revealed that Toothfish populations in the two territories are closely related. The recapture of Australian-tagged fish in French waters, and more recently French-tagged fish in Australian waters has shown that fish can and do migrate up to 2500 kilometres.

The outcome is expected to be a resource assessment model that includes improved understanding of both Australian and French Patagonian Toothfish populations and accounts for migration between the two fishing zones. A workshop with fisheries managers from Australia and France is planned to report on the final modelling and implications for management.

For further information: Dirk Welsford 03 6226 8237, dirk.welsford@aad.gov.au





Benefit cost analysis

Impact assessment of FRDC project 2012-047: Characterising benthic pelagic interactions in Macquarie Harbour

This impact assessment forms part of the FRDC's evaluation framework (see pages 85–91) and covers the investment characterising benthic pelagic interactions in Macquarie Harbour—organic matter processing in sediments and the importance for nutrient dynamics. The project was funded by FRDC and the University of Tasmania for the period October 2012 to August 2015.

Methodology

The investment was analysed qualitatively within a logical framework that included activities and outputs, outcomes and impacts. Impacts were categorised into a triple bottom line framework. Principal impacts identified were then valued. Benefits were estimated for a range of time frames up to 30 years from the year of last investment. Past and future cash flows were expressed in 2016/17 dollar terms and were discounted to the year 2016/17 using a discount rate of 5 per cent to estimate the investment criteria.

Results/key findings

The major impacts identified were of a financial nature involving increased long-term biomass of Atlantic Salmon in Macquarie Harbour, and a reduction in the probability of fish mortality events. Environmental and social impacts were also identified but not valued, despite their importance. The main beneficiaries of the project will be the three Atlantic Salmon operators in Macquarie Harbour, as they will be able to capture the financial benefits of the project.

Investment criteria

Total funding from all sources for the project was \$0.66 million (present value terms). The value of benefits was estimated at \$2.97 million (present value terms). This gave an estimated net present value of \$2.31 million, and a benefit-cost ratio of approximately 4.5 to 1.

Impacts

Table 10 provides a summary of the principal types of potential impacts from project analysis (see www.frdc.com.au for the full assessment report). The impacts are categorised into economic, environmental and social impacts.

TABLE 10: TRIPLE BOTTOM LINE CATEGORIES OF PRINCIPAL POTENTIAL IMPACTS FROM THE 2014 SAFS REPORTS

Economic	<ul style="list-style-type: none"> ▶ Reduction in farming profit in the short term due to a contribution to a decreased Atlantic Salmon biomass limit. ▶ Potentially increased profit long term due to a higher biomass limit than otherwise would have occurred. ▶ Potentially a lower probability of Atlantic Salmon deaths from low dissolved oxygen levels.
Environmental	<ul style="list-style-type: none"> ▶ Maintenance of biodiversity and sustainability in the Macquarie Harbour, through avoiding worsening environmental conditions.
Social	<ul style="list-style-type: none"> ▶ Increased incomes to Macquarie Harbour community due to spillovers from sustainable Atlantic Salmon aquaculture industry and maintained harbour health. ▶ Potentially increased animal welfare due to fish deaths not occurring ▶ Maintenance of Tasmania's 'clean green' image for other industries and maintenance of World Health Assembly status. ▶ Maintenance of social licence for Atlantic Salmon aquaculture in Tasmania. ▶ Increased knowledge and research capacity.

Public versus private impacts

There are both private and public impacts from the project. The main private impact is the net increase in profits for the Atlantic Salmon companies operating in Macquarie Harbour. The maintained social licence is another private impact that will flow to the Atlantic Salmon companies. While there are significant private benefits, there are significant benefits that flow to the public. The main public benefit is in the form of a healthier environment in Macquarie Harbour. There are also additional benefits in the form of increased animal welfare, and increased regional incomes.

Conclusions

Funding for project 2012-047 totalled \$0.66 million (present value terms) and produced estimated total expected benefits of \$2.97 million (present value terms). This gave a net present value of \$2.31 million, an estimated benefit-cost ratio of 4.5 to 1, an internal rate of return of 13.2 per cent and a modified internal rate of return of 6.3 per cent.

The analysis provided a good example of an investment in research into effects of industry on the environment. The project allowed vital information that both industry and regulators needed to make sustainable decisions to preserve the operating environment and ensuring sustainable operations could continue. While no environmental impacts were valued, the continuing sustainability of Atlantic Salmon to operate in the harbour can be viewed as being the result of policy decisions protecting the environment.

Several environmental and social impacts were not valued due to lack of data, and difficulty placing credible monetary value on the impacts. Some of these impacts may have a large effect on the valuation if they were to be valued. Therefore, the investment criteria reported are likely an underestimate of the performance of the investment, as the environmental benefits are not valued, but are presumed to be highly significant. There was also a high degree of uncertainty in valuing the impacts. This was due to the valuation being driven by the counterfactual, with conservative assumptions having to be made.




The subsequent projects and research funded by FRDC, University of Tasmania, Atlantic Salmon operators, and others involved suggest that there is a high commitment to making sure that Macquarie Harbour is a sustainable location to farm Atlantic Salmon.

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 2016–17, there was \$12.31 million or around 50.4 per cent of the total R&D investment for this program. This is 10 per cent above the AOP forecast budget.

Performance indicators	Targets 2016–17	Status	Comment
Development of processes and technologies to improve the efficiency of governance and regulatory systems for fishing and aquaculture.	Extension of National Harvest Strategy Guidelines undertaken.		Achieved. Harvest strategy guidelines extended via FRDC website and supplementary summary publication.
Development of methods to incorporate economic knowledge into fisheries management.	Methods for setting economic target reference points multi-species fisheries completed.		Project (2015-202) still underway. Due for completion at the end of 2017.
Development of processes for efficient, transparent allocation of shares and associated property rights for all aquatic resource users.	One report on Indigenous cultural fishing and fisheries governance.		One report completed.



Project activity during the year

Assessing the performance of Australia's fisheries management

Projects 2014-235, 2006-071.20

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

Australia's fisheries sector has improved its performance over the course of a decade, with a new analytical framework helping to target further gains. Sustainably making the most of Australia's fisheries is the long-term aim of a new process designed to evaluate fisheries' performance and to quantify the benefits being delivered.

This includes identifying the 'performance gap'—the difference between the potential value of benefits and the actual value of the benefits gained. The analysis incorporates not just the value of fish caught and farmed, but also the flow-on economic and social benefits from commercial, recreational and Indigenous fishing.

Over the past eight years, the FRDC has been developing a 'performance and use' analysis tool, with evaluations undertaken in 2009 and in 2014, which have included a retrospective evaluation of data from 2003. Industry experts scored the overall performance of Australian fisheries in 2003 at just 2.8 out of 10. This rose to 5.8 in 2009, before a slight drop to 5.6 in 2014. Each of the four fishing sectors—commercial wild-catch, Indigenous, recreational and aquaculture—is scored separately across four topics: social and engagement, economy, environment and management.

Aquaculture data was only added in 2014 and there are still gaps in the information available for recreational and Indigenous customary fisheries. The most comprehensive and consistent analysis across the three periods has been for the commercial wild-catch sector, which improved its performance score from 2.8 in 2003 to 5.9 in 2014. The greatest improvement has been reported in wild-catch fisheries management, which increased from 1.6 in 2003 to 6.6 in 2014.

The research methodology being used is known as the Delphi technique. It relies on input from experts involved in the fisheries sector. In 2014, there were 132 experts who contributed, representing commercial fishers, fish farmers, recreational fishers, Indigenous fishers, researchers and fisheries managers. A total of 34 criteria are used to score the performance of each sector against the four performance categories. Another 'performance and use' evaluation is planned for 2019.

For further information: Josh Fielding, 02 6285 0400, joshua.fielding@frdc.com.au

Whiting on its way

Project 2015-225

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

Automated processing, helped along by timely FRDC investment, is allowing the Victorian-based Lakes Entrance Fishermen's Co-operative Ltd (LEFCOL) to develop its first value-added products of Eastern School Whiting. Commercialisation of the crumbed and battered whiting fillet products has taken almost five years, since LEFCOL first began the search for suitable processing equipment.

LEFCOL receives about one-third of the national school whiting catch, which totals 1200–1300 tonnes. In the past, much of Australia's whiting catch was frozen and sold whole to south-east Asia. However, the co-op has been keen to develop local markets for the whiting and offer an alternative to imported products, which make up about 72 per cent of seafood consumed in Australia.

Eastern School Whiting fillets may be small, with fillets averaging 15 grams (or 30 grams for a butterfly fillet), but they are sweet and succulent. The size of the fish means hand-filleting is difficult and time-consuming; only 30 per cent of the fish is recovered as fillets. Given the twin issues of high labour costs in Australia and a shortage of skilled staff, automation has proven the key to reducing the costs enough to make volumes of filleting worthwhile.

After investing more than \$150,000 in the filleting equipment, FRDC invested a further \$150,000, which allowed LEFCOL to design its own feed-in system. It is manufactured in Gippsland by a local engineering firm and incorporates known technologies into a new sorting system suited to whiting and which could also be adapted to other species. In addition to the financial investment, LEFCOL staff have spent hundreds of hours working to design, develop and optimise the processing system.

For further information: Brad Duncan, 03 5155 1688, manager@lefcoll.com.au, www.fish.gov.au/report/27-eastern-school-whiting-2016

Strong buy-in for Deckhand reporting app

Project 2011-250

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

South Australia’s Southern Rock Lobster fishers are the first to go fully digital for their government reporting requirements, with all 168 vessels in the fishery’s southern zone opting to submit data electronically for the 2016–17 season. It is a voluntary decision by the fishers, made possible by two crucial elements: a software program they feel confident using, and the compatibility of that software with the state government’s data systems. The Deckhand app has been developed by South Australian commercial Piri fisher Tom Robinson, who is also a director of Real Time Data, a software company he founded with business partner Simon Dick.

Deckhand received FRDC funding in the early development phase and runs on Apple iOS devices. It allows fishers to capture data electronically even while out of range of the mobile phone network and it can record all the details of a fishing session, from path and pots to catch, time and location.

The first step in connecting the app to government reporting requirements began in 2012, when 22 boats in the Southern Zone of the South Australian Rock Lobster fishery began trials to refine the app. In the following years the number of boats involved in the trial expanded, with fishers using both Deckhand and paper reporting simultaneously. The data submitted through the app was then used to test a new ‘back-end’ data system developed by Primary Industries and Regions South Australia (PIRSA), known as eCatch, which has been launched this year.

For further information: Tom Robinson, tom@goolwapipico.com, Real Time Data, 0427 262 553





Benefit cost analysis

Impact assessment of FRDC project 2010-200: The innovative development of the *Octopus tetricus* Fishery in Western Australia

This impact assessment forms part of the FRDC's evaluation framework (see pages 85–91) and covers the investment in the in the project: Innovative development of the *Octopus tetricus* fishery in Western Australia. The project was funded by FRDC and the Department of Fisheries, Western Australia over the period July 2010 to June 2013.

Methodology

The investment was analysed qualitatively within a logical framework that included activities and outputs, outcomes and impacts. Impacts were categorised into a triple bottom line framework. Principal impacts identified were then valued. Benefits were estimated for a range of time frames up to 30 years from the year of last investment. Past and future cash flows were expressed in 2016/17 dollar terms and were discounted to the year 2016/17 using a discount rate of 5 per cent to estimate the investment criteria.

Results/key findings

The major impact identified was of a financial nature. However, some social and environmental impacts were also identified but not valued. It is expected that the Western Australian commercial octopus industry will be the primary beneficiary of the investment.

Investment criteria

Total funding from all sources for the project was \$0.89 million (present value terms). The value of benefits was estimated at \$6.44 million (present value terms). This gave an estimated net present value of \$5.55 million, and a benefit-cost ratio of 7.2 to 1.

Impacts

Table 11 provides a summary of the principal types of potential impacts from project analysis (see www.frdc.com.au for full report). The impacts are categorised into economic, environmental and social impacts.

TABLE 11: TRIPLE BOTTOM LINE CATEGORIES OF IMPACTS FROM THE RESEARCH INTO INNOVATIVE DEVELOPMENT OF THE *OCTOPUS TETRICUS* FISHERY IN WESTERN AUSTRALIA

Economic	<ul style="list-style-type: none"> ▶ Increased profit due to larger octopus catch. ▶ Improved beach prices as a result of consistent catch. ▶ Cost savings from the matching of gear and boat operation to a more consistent catch. ▶ Increased lobster catch due to reduced octopus predation.
Environmental	<ul style="list-style-type: none"> ▶ Improved resource management with more accurate data used to set sustainable octopus catch.
Social	<ul style="list-style-type: none"> ▶ Increased regional income along south and west coasts of Western Australia. ▶ Additional revenue for the Western Australia Government from licence fees in the new octopus fishery. ▶ Increased octopus research capacity and research techniques that can be applied in other Australian and overseas cephalopod fisheries.

Public versus private impacts

The majority of benefits identified in this evaluation will be captured by octopus licence holders and therefore are considered private benefits. Public benefits have also been delivered, including environmental benefits and social benefits.

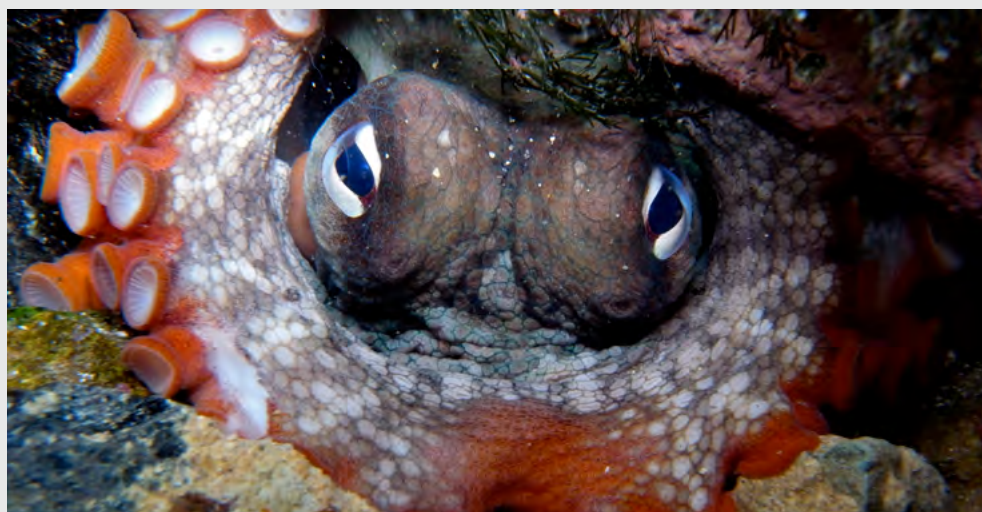
Environmental and social impacts were reported in Table 11. The principal environmental benefit was improved resource management with more accurate data on sustainable octopus catch. Social benefits delivered by the research included increased regional income along the Western Australian south and west coasts, additional revenue for the Western Australian Government from licence fees in the new octopus fishery and increased octopus research capacity.

Conclusions

Investment in this project has provided the evidence base for sustainable expansion of the Western Australian *Octopus tetricus* fishery. Commercial fishers have responded to the opportunity and have increased their catches. A new octopus processor has been established in Geraldton and Fremantle Octopus has expanded both their value-added domestic and export sales.

Investment in this project totalled \$0.89 million (present value terms) and produced aggregate total expected benefits of \$6.44 million (present value terms). This gave a net present value of \$5.55 million, a benefit-cost ratio of 7.2 to 1, an internal rate of return of 21 per cent and a modified internal rate of return of 14 per cent.

The analysis provided a good example of how a relatively small FRDC investment can ‘kick-start’ a whole new industry.





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 understood. For a full listing of projects visit—www.frdc.com.au

Principal inputs

During 2016–17, there was \$0.98 million or around 4 per cent of the total R&D investment for this program. This is 2 per cent above the AOP forecast budget.

Performance indicators	Targets 2016–17	Status	Comment
Development of knowledge to better inform the community's perceptions of the industry and to increase support for the industry.	One report that develops and tests social objectives for fisheries management completed.		Achieved. Two projects (2014-301, 2013-301) complete. See stories pages 70–71. New Human Dimensions Subprogram funded, see story that follows.
Development of knowledge that can help the industry to adapt to change.	Workshop to do with community supported fisheries.		Achieved. Inshore fisheries workshop undertaken with fisheries managers from South Australia.

Project activity during the year

New Human Dimensions Subprogram

A new subprogram has been established to lead and support FRDC's investment in social and economics RD&E. This subprogram extends and builds up the work and role of the Social Science and Economics Research Coordination Program 2010–15 (SSERCP).

As a coordination program SSERCP was successful in raising awareness of the contribution of human dimensions research to tackling intractable as well as emerging challenges. These challenges include resource sharing and allocation; optimising social and economic benefits to specific resource users as well as the community-at-large; diminishing social acceptability of commercial fisheries and aquaculture; understanding drivers of industry behaviour and community preferences in relation to marine resources and resource users; and supporting evidence-based and structured decision-making processes.

The new subprogram will continue to provide technical advice to the FRDC's advisory groups and industry partners, as well as being able to invest directly and co-invest with other partners, in projects aligned with its goals and priorities. This evolution to a subprogram was supported by stakeholders at the FRDC's RD&E priorities workshop in Adelaide in October 2016—see www.frdc.com.au/Partners/Research-Advisory-Committees/Stakeholder-workshops.

The subprogram committee will develop an RD&E Plan in the first quarter of 2017. Emily Ogier, based at University of Tasmania, is the subprogram leader.

For further information: Emily Ogier, emily.ogier@utas.edu.au

Beyond GVP: The value of inshore commercial fisheries to fishers and consumers in regional communities on Queensland's east coast

Project 2013-301

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

A project conducted by researchers at the CSIRO and James Cook University, reveals that Queensland inshore fisheries have a substantial flow-on effect in generating income for regional economies and in benefits to local consumers.

Understanding such aspects is vital to any consideration of resource management and allocation. The project quantified the potential economic benefits to regional communities generated by inshore fisheries (pot, net and line fisheries) on Queensland's east coast, beyond the much-used gross value of production. It also looked at the industry's value to consumers.

The three-year study was prompted by frustration within the industry at the lack of understanding of the contribution the sector makes to regional economies and the scarcity of information about this.

The study was carried out by economists and social scientists from the CSIRO and James Cook University, assisted by Queensland University of Technology research students.

Key research findings

- ▶ Commercial fisheries have a significant 'multiplier' effect for regional economies (an additional \$1.94 produced for every \$1 of fish caught).
- ▶ There are high levels of public support for commercial fishing in coastal communities.
- ▶ Local residents value fresh local fish and will pay a price premium.
- ▶ Tourists to coastal communities expect fresh local seafood to be part of their holiday experience.

A spin-off study by PhD student Samantha Paredes, who worked on this project, will measure how important local fishing is to tourism in coastal areas.

For further information: Sean Pascoe, 07 3833 5966, sean.pascoe@csiro.au



Beyond GVP: Social and economic evaluation of New South Wales coastal commercial wild-catch fisheries

Project 2014-301

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

A study conducted by the University of Technology in Sydney (UTS), shows the importance of wild-catch fishing to the social and economic lives of New South Wales coastal communities, the value coastal residents place on having a local industry, and the contributions that professional fishers make to their communities.

A collaboration between social scientists and economists from UTS, the University of Wollongong, ENVision Environmental Consulting and the Western Research Institute developed a multi-faceted picture of the New South Wales wild-catch fishing industry's contributions to community wellbeing.

The research involved in-depth interviews of more than 160 people with connections to the industry, an economic survey of New South Wales fishers, a telephone survey of 1400 people to gauge public perceptions of it, and questionnaires and interviews with fish merchants, co-operatives, retailers, wholesalers including the Sydney Fish Market, and tourism operators.

It found that professional fishing and the secondary seafood sector in 2012–13 had a likely direct and indirect output of \$436–\$501 million and an added value of \$215–\$248 million. It supported up to 3857 full-time jobs across New South Wales—of which about 1000 people were working full-time in fishing, with another 403 full-time jobs involved in supplying fishers with goods.

The study revealed a high level of public support for, and concern about, the local industry in the state. Ninety-six per cent of New South Wales coastal residents indicated the desire to support their local community was a major motivation in buying local product. More than three-quarters were concerned about potential job losses and the loss of identity of New South Wales fishing towns.

It also found that fishers contribute to society in many ways. They share information about fish movements, weather patterns and the local environment with the wider community, regulators, scientists and recreational fishers; participate in activities such as cleaning up rubbish and rescuing injured wildlife; help maintain public jetties, slipways and ice machines; and donate fish and ice to community events. More than 60 per cent of fishers have taken part in search and rescue operations.

Data gained in the study is being disseminated in informational brochures through fishing co-operatives, local government departments, the NSW Department of Primary Industries and the Sydney Fish Market.

For further information: Kate Barclay 02 9514 1579, kate.barclay@uts.edu.au





Benefit cost analysis

Impact assessment of FRDC project 2012-500.20: Common Language Group—To establish a forum (Common Language Group) for working with stakeholders to reach agreement on issues which are contentious in the fishing and aquaculture sectors

This impact assessment forms part of the FRDC's evaluation framework (see pages 85–91) and covers the investment in the project that formed a Common Language Group. The purpose of the investment was to develop agreed positions on a range of topical and contentious issues that existed along the seafood supply chain. Initially the investment was managed by Seafood Services Australia (SSA), and then continued by Food Focus Australia after SSA ceased operations in July 2013.

To reduce confusion and improve communication along the seafood supply chain from fishers to wholesalers, retailers and consumers, the FRDC established a Common Language Group which became active in the year ending June 2013. It was hypothesised that the level of confusion and number of contentious issues could be reduced by the development of agreed positions on a range of topical issues that could be communicated via an agreed common language to all seafood stakeholders, including seafood consumers.

Methodology

The investment was analysed qualitatively within a logical framework that included activities and outputs, outcomes and impacts. Impacts were categorised into a triple bottom line framework. Principal impacts identified were then valued. Benefits were estimated for a range of time frames up to 30 years from the year of last investment. Past and future cash flows were expressed in 2016/17 dollar terms and were discounted to the year 2016/17 using a discount rate of 5 per cent to estimate the investment criteria. The project did not produce any quantifiable impacts so no quantitative evaluation processes were applied to estimate benefits.

Results/key findings

The major potential impact identified was of a capacity building nature. It is expected that the development of a concise definition of terms will have improved the understanding of different viewpoints of various issues that exist along seafood supply chains.

Investment criteria

Total funding from all sources for the investment was \$0.61 million (present value terms). As FRDC funding was 100 per cent of total funding, the FRDC investment costs were also \$0.61 million in present value terms. However, none of the benefits identified were valued in monetary terms. Hence, the full set of investment criteria were not estimated or reported as part of the impact assessment.

Impacts

The impacts from the improvements delivered by the investment were considered only marginal. Table 12 provides a summary of the principal types of potential impacts from project analysis (see www.frdc.com.au for full report). The impacts are categorised into economic, environmental and social impacts.

TABLE 12: TRIPLE BOTTOM LINE CATEGORIES OF IMPACTS FROM THE COMMON LANGUAGE GROUP INVESTMENT

Economic	► Some level of improved understanding of the different perceptions of the Australian seafood sector and its supply chain has been delivered. This may have some impact on the wider community's perceptions of the industry and result in support for the maintenance of access to resources through a contribution to maintaining the industry's licence to operate.
Environmental	► If the identification of several sustainability issues potentially leads to their further examination, in turn, this may lead to positive environmental outcomes and impacts.
Social	► Potential exists for a reduced level of conflict between different community sectors driven by some improved understanding of the definitions and views of different interest groups.

Public versus private impacts

Potentially, the project could have led to both private and public impacts through strengthening of the industry's licence to operate as well as a more sustainable seafood supply chain. However, neither of these impacts are considered significant to date.

Conclusions

Total funding for the investment over the three years totalled \$0.61 million in present value terms. As FRDC funding was 100 per cent of total funding, the FRDC investment costs were also \$0.61 million in present value terms. While the investment did not result in any significant impacts that could be valued, the process was useful in developing a base and representative structure for improving communication between different interest groups in the future. In this regard, the project has built some capacity for building a higher level of consensus and this objective is currently being pursued by the FRDC.







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 FRDC's investment in R&D.

Projects funded under Program 4 primarily address the FRDC's People development 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 2016–17, there was \$1.34 million or around 5 per cent of the total R&D investment for this program. This is 5 per cent below the AOP forecast budget.

Performance indicators	Targets 2016–17	Status	Comment
Provision of knowledge and opportunities to develop leadership skills.			Completed. 2013-410 RD&E capability audit and assessment for the Australian fishing and aquaculture industry.
Development of knowledge, skills and processes to support industry to engage in debate, adapt to change, and move toward co-management of fisheries.			Completed. 2016-411 Create a matrix of skills and capability building priorities across FRDC partners and advisory groups.
Development of knowledge and tools to meet future workforce and skill needs. Collect and analyse data to better understand training needs.	Second capability audit completed for research capacity.		Completed. 2013-410 RD&E capability audit and assessment for the Australian fishing and aquaculture industry. Completed. 2016-411 Create a matrix of skills and capability building priorities across FRDC partners and advisory groups.
Co-invest with partners to capacity building around innovation and commercialisation.	Fifteen participants complete bursary program. Seventeen participants complete leadership courses.		Mostly achieved. National Seafood Industry Leadership Program completed with 16 people participating. See story on page 77. Two industry people received Nuffield Australia Farming Scholarships to study innovative practices in the fishing or aquaculture sectors. Young Science and Innovation Awards Scholarship awarded.

Project activity during the year

Awards for young people in agriculture, fisheries and forestry

Project 2008-339

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

Addressing the common need for concentrated oxygen for both treatment of pneumonia and in aquaculture, has been the focus of the FREO2 Foundation, a company that evolved from research at the University of Melbourne to develop a water-powered oxygen concentrator called the Siphon.

In recognition of the promise of this work for aquaculture, FREO2 engineer Kevin Rassool (pictured below) won the FRDC-sponsored award at the 2017 Science and Innovation Awards for Young People in Agriculture, Fisheries and Forestry. The award was presented at the Australian Bureau of Agricultural and Resource Economics and Sciences Outlook conference in March and includes funding to assist his research.

By directing running water through a raised pipe the Siphon creates a vacuum, which is the power source used to concentrate the atmospheric air into oxygen. The vacuum 'squeezes' air through a molecular sieve, effectively trapping all the nitrogen and removing it from the air. The resultant gas is up to 95 per cent pure oxygen. It uses no electricity, and the only ongoing cost is replacement or refurbishment of the cheap molecular sieve after five to 10 years.

The dissolved oxygen level in water is one of the key limiting factors for intensive aquaculture, and many operations use concentrated oxygen diffusers. In 2016, the FREO2 Foundation formed a partnership with Green Camel, an aquaponics farm in Western Sydney that produces Barramundi. The Siphon system, which FREO2 is installing in 2017 at Green Camel's facility at the University of Sydney, will be powered by 'salvaged' energy from Green Camel's wastewater system, meaning minimal ongoing costs.

For further information: www.freo2.org



Scholar discovers new value in consumer perspectives

Project 2016-407

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

An international study tour has helped put Australia's seafood marketing in perspective. Abby McKibben (pictured below) is the brand manager for Huon Aquaculture, one of Australia's largest Atlantic Salmon producers. The initial impetus for her Nuffield Scholarship was 'luxury' seafood branding and the importance of provenance for products such as Huon's Atlantic Salmon caviar.

Abby identified several approaches applicable to the seafood sector including making the consumer experience central to the marketing of the product and having third-party testimonies. During her scholarship she travelled through the food-producing regions of Europe and the United Kingdom, visiting leading producers and investigating their marketing strategies.

Abby's scholarship was sponsored by Blundstone Australia, Robert Gatenby Memorial Trust, Roberts Limited and Tasmanian Alkaloids. The FRDC is also a long-term supporter of the Nuffield Scholarship program.

For further information: www.nuffield.com.au



Leadership skills to connect shared aspirations

Project 2016-408

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

The FRDC has sponsored another two participants in the Australian Rural Leadership Foundation's 23rd cohort: Alex Ogg, operations manager at the Western Australian Fishing Industry Council (WAFIC), and Helen Jenkins, executive officer of the Australian Prawn Farmers Association.

Alex says he hopes the program will help him to become more effective in his specific role at WAFIC, and more broadly across the fisheries sector while Helen says she hopes the course will help to expand her thinking and views.

"I want to be equipped with skills to navigate a journey of growth for Australia's prawn farm industry and to be more effective at influencing key decision makers to allow this to happen," she says.

The Australian Rural Leadership Foundation runs several programs for emerging leaders, including the Australian Agribusiness Leadership Program, TRAIL for emerging leaders, and client-specific programs.

For further information: www.rural-leaders.com.au



Fisheries fields two scholars for 2017

Project 2016-407

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

The FRDC has sponsored Queensland's Glenn Wormald and South Australia's Jonas Woolford as two of the 23 Nuffield Australia Farming Scholars for 2017.

Jonas Woolford's family company harvests wild abalone in the Eyre Peninsula, South Australia. He plans to investigate cohesion between primary industry, community and government for the effective co-management of natural resources. Glenn Wormald is manager of larval rearing at Pacific Reef Fisheries' hatchery, based at Guthalungra near Bowen, Queensland.

Current prawn farming practices in Australia involve breeding and rearing larvae in a hatchery, then transferring them to grow-out ponds, but this technique leads to variable survival rates and restrictions on the growing period due to low temperatures. He will use the scholarship as an opportunity to study nursery systems already in operation overseas to harness best-practice management.

For further information: www.nuffield.com.au

Students win for presentations on aquaculture research

Project 2008-351

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

Two outstanding presentations based on the work of PhD students Tina Oldham and Jiadai Wu that could benefit aquaculture industries won FRDC-sponsored awards at the Australian Marine Science Association annual conference.

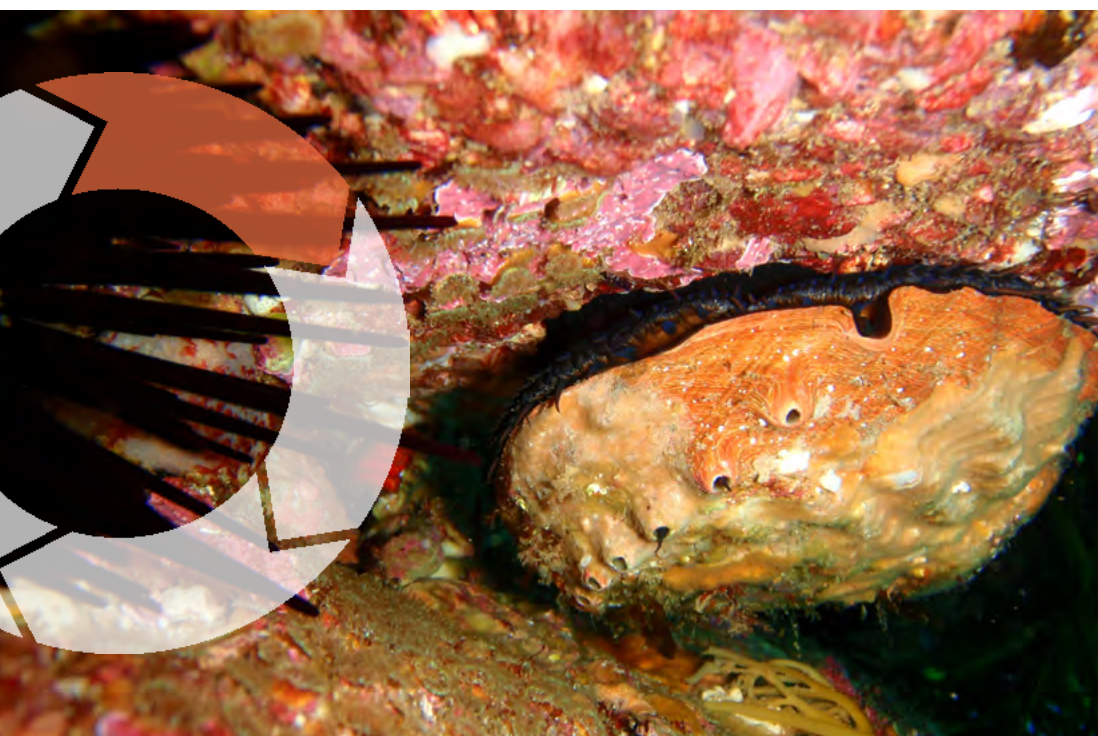
University of Sydney PhD student Jiadai Wu won the FRDC student poster award, which outlined her work sequencing a gene that helps Blacklip Abalone (*Haliotis rubra*) produce an antiviral protein. This respiration protein—hemocyanin (HrH)—possesses antiviral activity against one of the most common human pathogens, herpes simplex virus type 1 (HSV-1), which is responsible for cold sores.

It opens the way for the development of therapeutic applications, such as a drug to treat HSV-1, which is the second-most-prevalent human virus in the world, after the common cold. HSV-1 infects 3.7 billion people globally, including 70 per cent of the Australian population. Jiadai's findings could also benefit the abalone industry in Australia, which recently suffered an outbreak of an abalone herpes virus that killed 95 per cent of infected molluscs in 14 days.

The University of Tasmania's Tina Oldham has addressed a key environmental challenge facing the Tasmanian Atlantic Salmon (*Salmo salar*) industry—hypoxia related to low levels of dissolved oxygen. In research assisted by Huon Aquaculture, she monitored levels of dissolved oxygen at five water depths in five commercial salmon cages throughout a summer season.

Tina's winning presentation, 'Occurrence of hypoxia in Tasmanian Atlantic Salmon production cages—biological and environmental influences', included findings that dissolved-oxygen saturation varies as much as 73 per cent from the surface to the bottom of a cage. She also found dissolved-oxygen levels are highly variable and can change dramatically within minutes. Overall, Tina found dissolved-oxygen concentrations, which fluctuate naturally, were reduced in cages compared to reference sites. Optimal dissolved-oxygen concentrations were generally present only in the cage's upper half.

For further information: www.amsa.asn.au





Benefit cost analysis

Impact assessment of FRDC project 2008-327: Investment in the People development program—FRDC agribusiness scholarship

This impact assessment forms part of the FRDC's evaluation framework (see pages 85–91) and covers the investment in the project to strengthen business management capacity in fish and fish product supply chains. The project was funded by the FRDC over the years ending June 2008 to June 2015.

Methodology

The investment was analysed qualitatively within a logical framework that included activities and outputs, outcomes and impacts. Impacts were categorised into a triple bottom line framework. Principal impacts identified were then valued. Benefits were estimated for a range of time frames up to 30 years from the year of last investment. Past and future cash flows were expressed in 2016/17 dollar terms and were discounted to the year 2016/17 using a discount rate of 5 per cent to estimate the investment criteria.

Results/key findings

The major impact identified and valued was of a financial nature. However, some social impacts also were identified but not valued. It is expected that members of the Australian fish and fish product supply chains, including Australian consumers, will be the primary beneficiaries of the investment.

Investment criteria

Total funding from all sources for the project was \$0.18 million (present value terms). The value of benefits was estimated at \$0.56 million (present value terms). This gave an estimated net present value of \$0.38 million, and a benefit-cost ratio of 3.0 to 1.

Impacts

Table 13 provides a summary of the principal types of potential impacts from project analysis (see www.frdc.com.au for full report). The impacts are categorised into economic, environmental and social impacts.

TABLE 13: TRIPLE BOTTOM LINE CATEGORIES OF PRINCIPAL IMPACTS FROM THE SUPPLY CHAIN TRAINING SCHOLARSHIPS

Economic	<ul style="list-style-type: none"> ▶ Increased seafood business operational efficiency and effectiveness from innovation and product development and more efficient resource allocation resulting in reduced costs and increased profit. ▶ Increased demand for seafood from: <ul style="list-style-type: none"> – improved and more consistent product quality reaching the consumer, and – from improved promotion and communication of the sustainability of seafood industries. ▶ Increased future capacity for industry networking and strengthened industry leadership.
Environmental	▶ Nil
Social	<ul style="list-style-type: none"> ▶ Personal career development for scholarship holders. ▶ Increased personal and business capacity to develop and negotiate solutions to issues faced in the future. ▶ Spinoff to increased community wellbeing through the spill-over effects of increased supply chain efficiency, effectiveness and profitability.

Public versus private impacts

Most impacts identified in this evaluation are personal, business and industry related and therefore the benefits are considered largely private benefits. Some of the private benefits accruing to individuals and businesses will be transformed to specific industry and seafood industry impacts. Minor public benefits may have been delivered, including social benefits in the form of public health and regional community spill-overs.

Conclusions

The investment in this project has resulted in improvements in personal, business and industry capacity along the Australian seafood supply chains.

Funding for the project over the eight years totalled \$0.18 million (present value terms) and produced estimated total expected benefits of \$0.53 million (present value terms). This gave a net present value of \$0.36 million, a benefit-cost ratio of 3.04 to 1, an internal rate of return of 25.7 per cent and a modified internal rate of return of 9.5 per cent.

While several social impacts identified were not valued, their contributions were considered minor compared with the impact valued. Nevertheless, combined with conservative assumptions for the impact valued, investment criteria as provided by the valued benefit are likely to be underestimates of the investment performance.


The analysis provided a good example of a small investment in training that has benefited the seafood industry in the short to medium term through decreased costs and increased demand. However, there is likely to be an additional longer-term economic and industry impact as part of the strengthened individual business capacity built may be translated into stronger industry networks and strengthened industry leadership capacity.

PROGRAM 5: ADOPTION

Adoption is the use of knowledge arising from RD&E. A core activity in which the FRDC invests is extension—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 2016–17, there was \$2.32 million or around 10 per cent of the total R&D investment for this program. This is 2 per cent above the AOP forecast budget.

Performance indicators	Targets 2016–17	Status	Comment
Increase in rates of adoption.	Eighty per cent of projects complete extension strategies at start of the project.		All projects require submission of extension strategies. FRDC promotes research during and at the completion of the project with end users.

Project activity during the year

Appetite for Excellence program

Project 2014/504

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

South-east Queensland was the destination for this year's Electrolux Appetite for Excellence tour, continuing to engage young leaders in the hospitality industry with the story of Australian seafood. FRDC has sponsored the event for more than a decade, recognising that food service professionals, from chefs to front-of-house staff, are increasingly interested in and advocates for the quality and provenance of what they offer customers.

This year the 17-member group met with seafood producers Fraser Isle Spanner Crab (suppliers of Red Claw Crabs) and Walker Seafoods in Mooloolaba, and Urangan Fisheries in Hervey Bay. The participants were able to learn from the businesses they visited and at the same time it was an opportunity for those in the sector to gain insight into the needs as well as the misconceptions of their consumers.

Some tour participants also met with Senator Anne Ruston, the Assistant Minister for Agriculture and Water who was visiting industry in Noosa at the same time. The chefs were able to discuss what they see as the key issues they face and how seeing first hand, by meeting with the producers that many of the perceived issues were already being addressed. Participants were also keen to learn about FRDC resources such as the SAFS Reports as a means to learn more about the ingredients they use.

For further information: www.appetiteforexcellence.com.au; Peter Horvat, peter.horvat@frdc.com.au

Seafood Escape

Project 2016-501

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

Pairing professional fishing crews with leading Australian chefs has provided the formula for a television series to showcase the hard work involved in bringing Australia’s diverse and high-quality seafood to consumers. The FRDC has partnered with recreational fishing host Andrew ‘ET’ Ettingshausen to develop the six-part pilot series Seafood Escape.

Seafood Escape aired on Channel 10 and Southern Cross nationally across Australia in January and February 2017. As well as showcasing the action and adventure involved in sourcing sustainable seafood, the show goes an extra step to examine how seafood has been incorporated into our national cuisine. It also highlights the environment, taking viewers to some of the country’s most scenic coastal communities.

Over the past decade, the FRDC has invested in activities aimed at raising the profile of Australia’s fisheries and its RD&E Plan 2015–20 places even greater emphasis on this. It’s about letting the Australian community know that our fisheries are well-managed, professional operations. Through its investment in the Appetite for Excellence program, the FRDC was able to identify chefs to participate.

Each of the six half-hour episodes is set in a different part of Australia. The program then follows a steady format, first setting the scene of whichever coastal community is the destination for that week’s episode. Viewers then meet the local fishing skippers and crews—and, crucially, a local chef and their restaurant. The program combines both observational documentary and contemporary cooking show style.

For further information: Peter Horvat, peter.horvat@frdc.com.au





Benefit cost analysis

Impact assessment of FRDC project 2014-714: Investment in writing our history—The people and achievements of the Australian Seafood CRC

This impact assessment forms part of the FRDC's evaluation framework (see pages 85–91) and covers the investment in the project Writing our history—The people and achievements of the Australian Seafood CRC. The project was funded by FRDC over the period July 2014 to June 2016.

Methodology

The investment was analysed qualitatively within a logical framework that included activities and outputs, outcomes and impacts. Impacts were categorised into a triple bottom line framework. Principal impacts identified were then valued. Benefits were estimated for a range of time frames up to 30 years from the year of last investment. Past and future cash flows were expressed in 2016/17 dollar terms and were discounted to the year 2016/17 using a discount rate of 5 per cent to estimate the investment criteria. The project did not produce any quantifiable impacts so no quantitative evaluation processes were applied to estimate benefits.

Results/key findings

While the investment did not result in any significant impacts that could be valued, the process was useful in assembling in one location the key issues and outputs/findings of the Seafood CRC. In so doing, the project maintained awareness of the Seafood CRC's research for potential use in future seafood RD&E funding and priority setting by the industry, Commonwealth and state agencies, and FRDC. In addition, the project highlighted the effective profile of the CRC program and re-enforced satisfaction and pride held by Seafood CRC staff and associates.

Investment criteria

Total funding from all sources for the investment was \$0.11 million (present value terms). However, none of the benefits identified were valued in monetary terms. Hence, the full set of investment criteria were not estimated or reported as part of the impact assessment.

Impacts

The impacts from the improvements delivered by the investment were considered negligible. Table 14 on the following page provides a summary of the principal types of potential impacts from project analysis (see www.frdc.com.au for full report). The impacts are categorised into economic, environmental and social impacts.

TABLE 14: TRIPLE BOTTOM LINE CATEGORIES OF PRINCIPAL POTENTIAL IMPACTS FROM WRITING OUR HISTORY—THE PEOPLE AND ACHIEVEMENTS OF THE AUSTRALIAN SEAFOOD CRC

Economic	<ul style="list-style-type: none"> ▶ By assembling all reports and products of the Seafood CRC, the project maintained awareness of their research for potential use in future seafood RD&E funding and priority setting by the industry, Commonwealth and state agencies. ▶ The project highlighted the legacy of the Seafood CRC and hence supported the effective profile of the CRC program.
Environmental	▶ Nil
Social	▶ The project reinforced the satisfaction and pride held by Seafood CRC staff and associates.

Public versus private impacts

The first two impacts identified can be considered largely public impacts although there may have been private benefits to former staff and CRC associated personnel as signalled by the third impact.

Conclusions

Total funding for the investment over the two years totalled \$0.11 million in present value terms. FRDC funding was about half of this at \$0.05 million in present value terms. While the investment did not result in any significant impacts that could be valued, the process was useful in assembling in one location the key issues and outputs/findings of the Seafood CRC.





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 (ex ante, see Figure 2 on page 26) and if a formal measurement process to evaluate benefit cost (post ante), 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 R&D 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.

CRRDC cross-portfolio evaluation

Over the past year, the FRDC, along with the other RDCs in the CRRDC, has funded a consortium of evaluation consultants to update the evaluation analysis to cover the period 2010–15 and develop an updated framework for ongoing monitoring and reporting across the RDCs. This builds on the work done by each RDC, but it is the first major cross-portfolio review in the past five years.

A stocktake of current evaluation activities of rural RDCs for the CRRDC was conducted by Lange Consulting & Software in the second half of 2015. The stocktake aimed to document existing evaluation processes and practices and inform the development of a high-level joint RDC performance framework.

From the recommendations, an opportunity was identified to standardise practices, terminology, measurement of intangibles, metrics and performance measures against Australian Government strategic research priorities for benefit cost analysis. This will better enable aggregation of performance data and provide improved visibility of the cost effectiveness of research programs across each RDC's portfolio.

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 1)

In 2016–17 FRDC started a five-year program of impact assessments that would be carried out annually on a number of investments across the RD&E portfolio. Agtrans Research was contracted to complete the assessments which were required 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.

At the commencement of the program FRDC identified that the unit of investment to be evaluated would be the individual FRDC project and that a total of 20 randomly-selected projects would be evaluated each year—see Table 15 for a list of all projects. The table presents some descriptive statistics about the sample in relation to the selection criteria, including cost, length and investment area.

TABLE 15: KEY SAMPLE STATISTICS FOR FIRST YEAR OF ANNUAL FRDC ECONOMIC EVALUATIONS

Program area	Number of sample projects	Total FRDC investment (nominal \$)	Division of investment (%)	Small (<\$50,000)	Medium (\$50,001 to \$250,000)	Large (>\$250,000)
Environment	8	2,502,775	40	1	3	4
Industry	7	2,409,931	38	1	3	3
Communities	1	152,371	2	0	1	0
People	2	964,844	15	1	0	1
Adoption	2	284,116	5	1	1	0
Total	20	6,314,038	100	4	8	8

General evaluation method

The 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.

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 uses cost benefit 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 individual investments potentially represent an underestimate of the performance of that investment.

Preliminary aggregate results

The following section presents estimated investment criteria for each of the 20 FRDC RD&E investments evaluated, for all 20 investments in aggregate, and for the aggregate investment by program. The investment criteria were based on the draft economic evaluations carried out to date, thus the results are subject to change.

For the purposes of the investment analyses, the investment costs of all parties were expressed in 2016/17 dollar terms using the implicit price deflator for gross domestic product. All benefits after 2016/17 were also expressed in 2016/17 dollar terms. All costs and benefits were discounted to 2016/17 using a discount rate of 5 per cent. The base analyses used the best available estimates for each variable, notwithstanding a level of uncertainty for many of the estimates. All analyses ran for the length of the project investment period plus 30 years from the last year of investment.

Results presented include the present value of costs (PVC), estimated present value of benefits (PVB), and resulting benefit cost ratio (BCR).



Investment criteria by project

Table 16 shows the estimated investment criteria by project for the 2015/16 FRDC evaluation sample. Project investments subjected to impact assessment that were not valued in monetary terms are indicated by NR.

TABLE 16: INVESTMENT CRITERIA BY INDIVIDUAL PROJECT (TOTAL INVESTMENT, 5 PER CENT DISCOUNT RATE)

Project code	Program	Project title	PVB (\$m)	PVC (\$m)	BCR
2008-002	Environment	Targeting and catch per unit effort [CPUE] definition in the Southern and Eastern Scalefish and Shark Fishery trawl fishery through auxiliary data.	0	0.71	NR
2011-030	Environment	Evaluating candidate monitoring strategies, assessment procedures and harvest control rules in the spatially complex Queensland Coral Reef Fin Fish Fishery.	0	1.39	NR
2012-032	Environment	Aquatic Animal Health Subprogram: Pacific Oyster Mortality Syndrome (POMS)—risk mitigation, epidemiology and OsHV-1 biology.	6.30	4.17	1.51
2012-047	Environment	Characterising benthic pelagic interactions in Macquarie Harbour—organic matter processing in sediments and the importance for nutrient dynamics.	2.97	0.66	4.53
2012-058	Environment	Tactical Research Fund: Limiting impacts of the spread of urchins by rebuilding abalone populations.	0	0.10	NR
2013-008	Environment	Movement, habitat utilisation and population status of the endangered Maugean Skate and implications for fishing and aquaculture operations in Macquarie Harbour.	6.37	0.68	9.35
2013-053	Environment	Summer spawning patterns and preliminary daily egg production method survey of Jack Mackerel and sardines off the east coast.	1.45	0.68	2.15
2014-030	Environment	Status of key Australian Fish Stocks (SAFS) Reports 2014 and beyond.	2.61	2.27	1.15
2009-710	Industry	Bioeconomic evaluation of commercial scale stock enhancement in abalone.	1.70	0.73	2.33
2009-723.30/ 2013-714	Industry	Analysis of product differentiation opportunities for Australian wild-caught abalone in China—Stage 1 and 2. Establishing improved trade access and market development of Australia's abalone and rock lobster to China (trialling and evaluating the AWA™ supply chain education program).	44.81	2.85	15.74
2010-200	Industry	Innovative development of the <i>Octopus tetricus</i> fishery in Western Australia.	6.44	0.89	7.21
2010-777	Industry	Seafood CRC: Analysis of the core leadership group and network structure of East Coast Trawl to develop, implement and evaluate strategic opportunities.	0	0.32	NR

Project code	Program	Project title	PVB (\$m)	PVC (\$m)	BCR
2012-225	Industry	Technical reviews of formal harvest strategies.	0	0.5	NR
2013-753	Industry	Seafood CRC: A new refrigeration system reference design and demonstration prototype for fishing vessels.	5.92	0.82	7.23
2015-406	Industry	Development of a national Pacific Oyster Mortality Syndrome (POMS) response plan.	0.05	0.03	1.79
2012-500.20	Communities	To establish a forum (Common Language Group) for working with all stakeholders to reach agreement on issues which are contentious in the fishing and aquaculture sectors.	0	0.61	NR
2008-306	People	Building economic capability to improve the management of marine resources in Australia.	12.40	2.38	5.21
2008-327	People	People development program: FRDC Agribusiness Scholarship.	0.56	0.18	3.04
2009-303	Adoption	Australasian Aquaculture 2010–14.	2.58	1.15	2.24
2014-714	Adoption	Writing our history—The people and achievements of the Australian Seafood CRC.	0	0.11	NR

Sarah Ugalde, research officer on Future Oysters CRC-P, inspects oysters placed on farms to investigate the period of infection for POMS.



Discussion

At the individual project level, seven of the 20 project investments subjected to impact assessment were not valued in monetary terms. The total investment across all 20 RD&E projects ranged from \$0.03 million to \$4.17 million (present value terms), while estimated benefits ranged from zero to \$44.8 million. The weighted average for all 20 projects was approximately 4.5 to 1 and the simple average BCR was approximately 3.2 to 1. The BCR for only the 13 projects valued was estimated at 5.4 to 1.

At the program level, four of the five FRDC program areas reported a positive BCR. Based on the investment criteria presented, the Industry program reported the best performance with an estimated BCR of 9.7 to 1. On the other hand, the Communities program had no quantified benefits and thus no BCR was reported. In part, this was because only one project was able to be included in the sample based on the agreed selection criteria. It is anticipated that, as further project investments from the Communities program are evaluated as part of the ongoing, annual FRDC evaluation process, future aggregate results reported over time may include quantified benefits for this program.

The investment in FRDC's People program showed a strong return on investment with an estimated BCR of 5.05 to 1. The positive result gives an indication of the value of investing in the education, training and professional development of people related to fisheries and aquaculture industries.

The largest proportion of total investment was in the Environment program, with a PVC of \$10.66 million. Many of the impacts attributed to the projects within this program were not valued as part of the impact assessment process due to the difficulty in valuing non-market benefits and a lack of necessary evidence/data. It is worth noting that many of the project investments that formed part of the Industry program delivered impacts that included the maintenance of ecological integrity outcomes as well as industry outcomes. Therefore, it is likely that the estimated BCR of 1.9 to 1 is an underestimate of the performance of the investment in the FRDC's Environment program.

Findings

Total funding across all 20 FRDC RD&E project investments totalled \$21.23 million (present value terms) and produced estimated total expected benefits of \$94.95 million (present value terms). This gave an aggregate weighted average BCR of 4.5 to 1.

TABLE 17: INVESTMENT (PVC AND PVB) FRDC PROGRAM AND AGGREGATED RESULTS (TOTAL INVESTMENT, 5 PER CENT DISCOUNT RATE)

Program	Number of projects	PVB (\$m)	PVC (\$m)	BCR
Environment	8	19.79	10.66	1.86
Industry	7	59.61	6.13	9.72
Communities	1	0.00	0.61	NR
People	2	12.96	2.57	5.05
Adoption	2	2.58	1.26	2.05
Aggregate total	20	94.95	21.23	4.47

The overall result should be viewed positively by FRDC, the various fisheries and aquaculture industries, and policy personnel responsible for allocation of public funds.

REPORT OF OPERATIONS PART 3: SERVICES



MARKETING

During the year the FRDC did not undertake any marketing activities.

Promotional possibilities for fishing and seafood

The *Rural Research and Development Legislation Amendment Bill 2013* was passed by Federal Parliament on 12 December 2013. It extends the scope and range of activities the FRDC and other RDCs can undertake by amending their enabling legislation, the PIRD Act. The legislative changes now allow the FRDC to link RD&E to marketing, as part of a natural progression to improve outcomes for the industry.

An important component of the change is the requirement that the FRDC can only use funds collected under a statutory levy for these marketing activities. A number of activities have progressed the FRDC towards redressing this.

Voluntary marketing funds

On Wednesday 29 March 2017, the Hon. Luke Hartsuyker MP, Assistant Minister to the Deputy Prime Minister, introduced the *Primary Industries Research and Development Amendment Bill 2017* into the House of Representatives. The bill is designed to allow PIRD Act RDCs to conduct marketing activities with voluntary contributions.

Marketing levies development

As part of developing the appropriate systems and knowledge, the FRDC has continued to meet with the levies area of DAWR as part of assisting APFA and the Abalone Council of Australia move to implement a marketing levy. These meetings have helped establish a clear picture of the processes, steps and time frames required to put in place a statutory levy, if industry decides to go down this path.

Prawn farmers to pave path to market

The APFA, as a key partner in the 'Love Australian Prawns' national campaign decided to progress with the development of a marketing levy. To oversee the development, they established a sub-committee which assisted in the industry consultation process. The APFA consultation process was completed in early February 2017. Due to the continuing concerns and issues associated with the outbreak of White Spot Disease the APFA postponed the vote to put in place a marketing levy.

Australian Wild Abalone™

The Abalone Council Australia (ACA) has continued discussions with fishers on establishing an abalone marketing levy with a view to funding the continuation and expansion of the Australian Wild Abalone™ program. Development of a business case and marketing plan was completed during the year.

Extensive consultation was undertaken by the ACA to ensure it spoke with as many industry people as possible—this has included attending industry and personal meetings in each abalone producing state. The ACA have engaged the Australian Electoral Commission to conduct an industry ballot.

TRADE

Trade statistics

International trade and exporting plays an important role for many in the Australian seafood industry. The FRDC is now providing access to the latest Australian Bureau of Statistics trade data that covers import and exports to and from Australia.

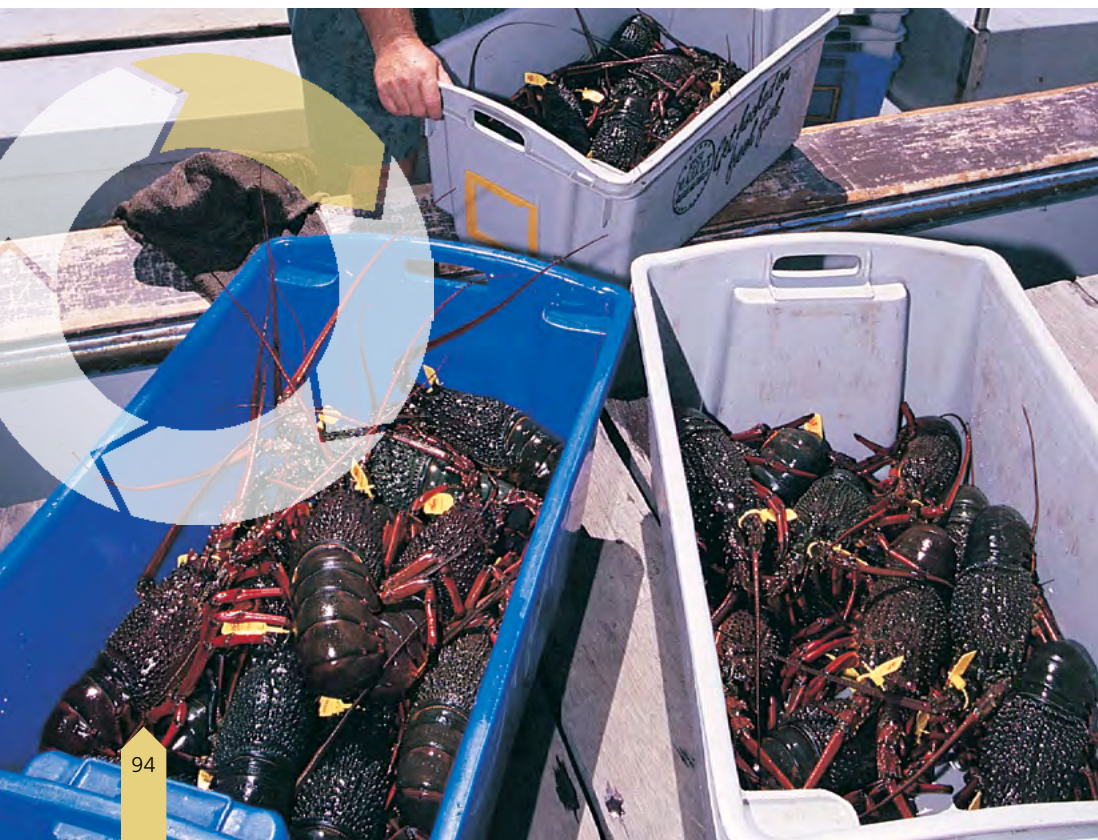
The data is updated monthly and can be filtered and will allow in depth analysis of import and export trends based on key attributes—country, state, product type. Export codes have been grouped together in logical blocks for ease of use. Visit the trade portal at www.frdc.com.au/Services/Trade-data.

FRDC to manage technical barriers to trade on behalf of DAWR

The FRDC is assisting DAWR to undertake a review of commercially significant non-tariff barriers affecting Australia's highly-traded or trade-ambitious agricultural commodities across key markets.

The project will work with other rural RDCs and will focus on a small number of these highly-traded or trade-ambitious primary industry commodities as case studies.

The project will focus on the countries negotiating the Regional Comprehensive Economic Partnership, which include China, India, Japan, the Republic of Korea and ASEAN [Association of Southeast Asian Nations] member states. This work can be extended, supplemented or redirected to other negotiations, such as the potential Australia-European free trade agreement or trans-Pacific partnership countries, as prioritised by the department.



STANDARDS

The FRDC is approved by the Accreditation Board for Standards Development Organisations as a Standards Development Organisation. On 22 September 2016, FRDC undertook a re-certification audit to maintain its accreditation and was successful.

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. During the year, FRDC agreed to take over responsibility for AS4470-1997 *Fishing line—Determination of breaking load* from Standards Australia. This will require the standard to be reviewed for currency and updated.

Further information is available at www.seafoodstandards.com.au

Australian Fish Names Standard

The Australian Fish Names Standard is a searchable online database (www.fishnames.com.au) that includes all species listed in the standard. Users can find a fish by name and check its previous or non-standard names, as well as seeing an image in some cases.

This increases consumer confidence in the seafood they buy because standard names allow for more effective fisheries monitoring and management, which in turn results in greater sustainability of fisheries resources. Traceability and food-safety management can also be improved with more efficient seafood marketing campaigns, which should lead to increased industry profitability.

Having a standard in place also allows 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.



FISH NAMES COMMITTEE MEMBERSHIP

Independent Chair	Gus Dannoun
Deputy Chair and expert member (seafood marketing)	Richard Stevens
Australian seafood industry representative	Simon Boag
Fisheries management agencies representative	Jason Gibson (AFMF nominee)
Recreational fishing representative	Russell Conway
Seafood importers representative	Norm Grant
Major supermarkets representative	Hamish Allen
Seafood processors representative	Anthony Mercer
Hospitality industry representative	Glenn Austin
Department of Agriculture and Water Resources representative	Lisa McKenzie
Expert member (fish taxonomy)	Gordon Yearsley
Expert member (seafood marketing and fish and invertebrates taxonomy)	Don Tuma

OBSERVERS AND NON-VOTING MEMBERS

Standards Development Organisation representative	Patrick Hone
Standards Development Organisation representative	John Wilson
Standards Development Organisation representative	Peter Horvat

PROJECT MANAGER AND ADMINISTRATION

Fish Names Committee Project Manager	Alan Snow
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Fish Names update

The Fish Names Committee met at the FRDC on 25–26 August. At this meeting, the Committee approved the following fish names for inclusion in the Australian Fish Names list.

- ▶ Antarctic Toothfish for *Dissostichus mawsoni*,
- ▶ Crystal Crab for *Chaceon albus*,
- ▶ Eastern Crystal Crab for *Chaceon bicolor*,
- ▶ Ornate Rock Lobster for *Panulirus ornatus*,
- ▶ Scalloped Rock Lobster for *Panulirus homarus*,
- ▶ Fourspine Rock Lobster for *Panulirus penicillatus*,
- ▶ Painted Rock Lobster for *Panulirus versicolor*,
- ▶ Longleg Rock Lobster for *Panulirus longipes*,
- ▶ Mud Rock Lobster for *Panulirus polyphagus*.



White Banana Prawn (*Penaeus merguensis*) was not approved with a view to re-advertising this as just Banana Prawn.

FRDC completed reviewing and building a new Fish Names website (www.fishnames.com.au). The Fish Names database is now integrated into all FRDC web platforms as a base for species names.

INFORMATION AND COMMUNICATIONS TECHNOLOGY

Aligning information management systems for the future

During 2016–17, FRDC further leveraged the benefits of moving its information and communications technology (ICT) infrastructure, platform and software to cloud services. This has enabled better collaboration with stakeholders using Microsoft's SharePoint Online.

The FRDC also started rolling out the use of Business Intelligence platforms to get further insights into complex data.

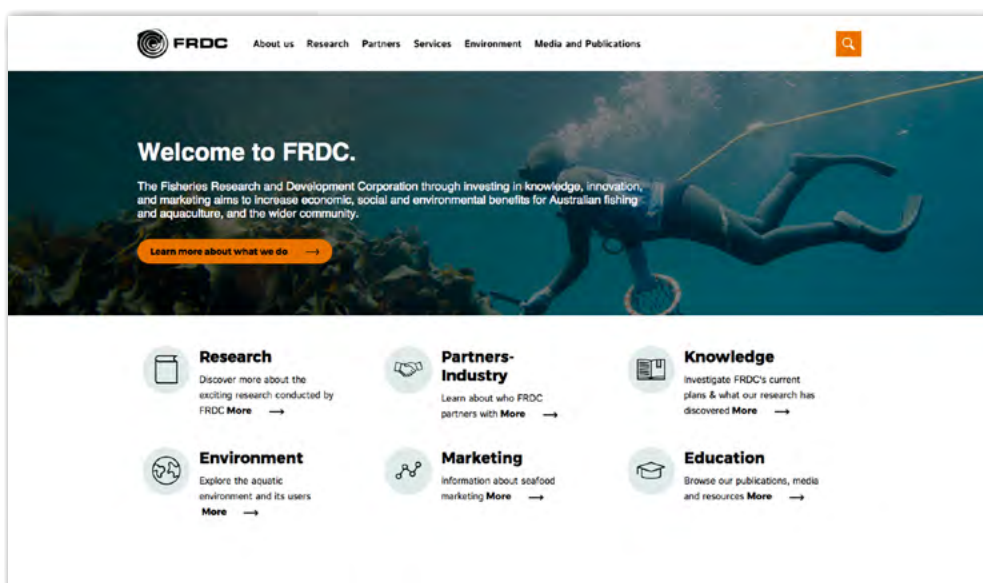
The Corporation also launched a database that will underpin public reporting through various websites such as fishnames.com.au, fish.gov.au, etc. The database will hold information on standard fish names, stock status reporting, seafood trade data, nutrition of seafood, etc.

Further efforts were put into the continual improvement of the ICT systems which reduces manual steps in the project management life cycle, context aware help files and expanded capability to store project-related information.

Web services

The FRDC reviewed its ICT strategy during the year to ensure it aligned with government policy and meets best practice. This has seen the FRDC begin a plan of renewal that will see a number of changes to both hardware and software infrastructure that underpin the FRDC's websites. Key to this will be moving data holding to a cloud-based system which will provide better management, greater security and minimise system downtime for both internal and external end users.

FRDC continues to run five key website platforms (frdc.com.au; fish.gov.au; fishfiles.com.au; fishnames.com.au and seafoodstandards.com.au), in addition to a number of project-related sites. Over 2016–17 the FRDC has brought four of the five sites together (with the fifth near completion) into a single database back end to improve the management, inter-operability and data sharing between them. This is the first upgrade to the FRDC's web infrastructure since 2012.



CORPORATE COMMUNICATIONS

Undertaking the marketing engagement program resulted in a significant change over the year in the mix of communication activities. A greater emphasis was placed on mediums that allowed for two-way dialogue, such as face-to-face or via social and digital media. The FRDC attended and presented at industry events across the country to ensure stakeholders had the opportunity to have their say. This was supported by wider-information articles placed in FRDC's *FISH* magazine (see below).

FISH magazine

FISH is a major tool for FRDC to communicate with industry and its broader stakeholders. It provides a way to deliver information on RD&E projects that are underway or have been finalised. The publication is the leading fisheries research magazine in Australia and has gained widespread recognition for its quality and accuracy. *FISH* provides the FRDC with a platform for extending knowledge generated from research as well to discuss key policy, practice and management issues that are relevant to fishing and aquaculture stakeholders. The data-driven approach continues to receive positive feedback and underpins that *FISH* (and the FRDC) is well respected and trusted by its stakeholders.

The FRDC has increased its digital *FISH* magazine coverage over the year with more stakeholders opting to receive electronic copies. Likewise having articles available on the FRDC website has seen increased user engagement.

For further information: Peter Horvat, peter.horvat@frdc.com.au



Food service e-newsletter

During the year the FRDC launched a new e-newsletter that goes out fortnightly to the food service sector. E-FISH News aims to deliver snippets of information that highlight an issue or topic and provides the link back to more detail to the key seafood buyers and users that can influence opinion. By providing simple factual information it is hoped that when issues arise the FRDC will become a source for all seafood answers. As the newsletter develops it will link to FRDC data sources providing up-to-date market information, news, research and profiles of species, industry and opinion leaders.

Video production

The FRDC will have been working with industry to develop a video library that relates to both fishery and fishing type or method. The showcases the work and practices as well as the efforts being undertaken to improve sustainability of the seafood industry.

FRDC will work with the jurisdictionally-based RACs and IPAs to identify sectors who want to showcase the activities being undertaken. The long-term view is to have video and supporting information available via Fishfiles for every fishery or form of aquaculture across Australia. This does not mean the FRDC will undertake all of the preparation, but it will invest where there is a strategic need or fishery that requires coverage. FRDC will then promulgate this content out to consumers and the community via the Fishfiles website and social media channels.

Digital communications

The internet and associated enabling technologies will continue to be the central point from where FRDC will disseminate information. It will be the central point from which all other activities will link. All FRDC research indicates that the internet (including e-mail bulletins) is now a primary method by which all stakeholders are accessing information.

FRDC and Fishfiles (consumer) websites

The current FRDC and Fishfiles websites are functioning well. However, the focus in 2016–18 is to upgrade all sites and provide better integration as part of FRDC's ICT strategy. The new integrated platform will allow sharing of content between sites and provide more opportunity to leverage existing material.

The FRDC will also embark on developing more material (such as the video library mentioned previously) for all sites, but will have a specific focus on the consumer website—Fishfiles. It remains the strongest performing site and following redevelopment will better enable Fishfiles to be the central place for consumers on seafood education. FRDC's key websites are: www.frdc.com.au, www.fishfiles.com.au and www.fish.gov.au.



Social media

Social media gives FRDC the chance to interact and engage with consumers and address questions and respond to their concerns. Embracing social media opens up the way FRDC can communicate with consumers and the community more broadly. The FRDC has built a powerful presence with just over 20,000 followers on Facebook, and 1000 on Twitter. As a whole, across all social media platforms FRDC has now in excess of 38,000 followers. A library of YouTube videos has also been created to cover topics from cooking seafood to fishing and aquaculture practices.

FRDC social media include:

- ▶ www.facebook.com/FRDCAustralia,
- ▶ twitter.com/FRDCAustralia,
- ▶ www.facebook.com/fishfiles,
- ▶ www.facebook.com/catchoftheyear,
- ▶ [@frdc_au](https://twitter.com/frdc_au),
- ▶ www.youtube.com/FisheriesResearchAU.

REPORT OF OPERATIONS PART 4: 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 106.

FRDC strategic planning and reporting documents (comprising RD&E plan, annual operating plan and annual report) were completed and presented within their duly legislated time frames to the Minister for Agriculture and Water Resources 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 risks.

Principal inputs

During 2016–17, there was \$4.85 million or around 16.6 per cent of total FRDC expenditure.

Performance indicators

Since the management and accountability outputs contribute to the planned outcome of the FRDC's R&D programs, they are crucial to the FRDC's effectiveness and efficiency. These outputs are outlined on the following pages.

Performance indicators	Target	Achievement
Projects focus on the FRDC Board's assessment of priority research and development issues.	95%	Achieved. All projects assessed were identified as a priority via funding process.
Projects are assessed as meeting high standards/peer review requirements for improvements in performance and likely adoption.	95%	Achieved. Because all projects assessed were identified as a priority via the funding process the likelihood of adoption is high.
Maintain ISO 9001:2008 accreditation.	100%	Accreditation achieved. See page 95.
Submit planning and reporting documents in accordance with legislative and Australian Government requirements and time frames.	100%	Achieved. All documents submitted on time.
Implement best practice governance arrangements to promote transparency, good business performance and unqualified audits.	100%	Achieved. FRDC audit met best practice standards, see pages 115–117.
Demonstrate the benefits of RD&E investments by positive benefit cost analysis results.	100%	Achieved. FRDC undertook benefit cost analysis against each program area, see page 62–63, 67–68, 72–73, 79–80 and 83–84.

Quality system

The FRDC is a certified 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 one internal audit in 2016 and underwent its triannual re-certification audit, which included transitioning to the new edition of the standard on 19 September 2016.

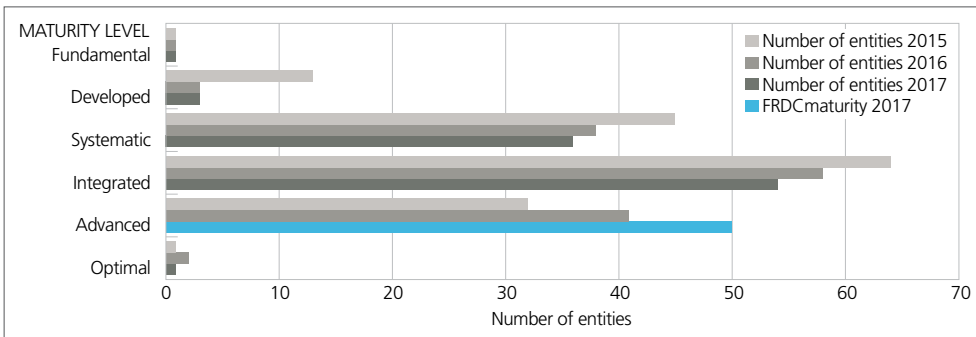
Risk management

There was no incidence of fraud detected at the FRDC during 2016–17.

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 management 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.

The Board reviewed and approved the FRDC risk management framework at its meeting in February 2017. All staff participated in an internal risk workshop on 16 September 2016 which was used to update the FRDC's risk register. Additionally, the Board reviews the highest-ranked strategic risks at every meeting.

In 2016, the FRDC participated in Comcover's Risk Management and Benchmarking Survey which is conducted annually. The program measures FRDC's risk management maturity across the nine elements of the Commonwealth Risk Management Policy (the Policy). FRDC achieved a maturity level of 'advanced' and the average maturity level of all survey participants in 2016 was integrated.



Finance and administration

The 2016–17 audit report by the Australian National Audit Office confirmed the FRDC's financial statements gave a true and fair view of its financial position and there were no adverse findings associated with the audit.

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 has currently 11 IPAs and has renewed and signed a new agreement with the Australian Council of Prawn Fisheries.

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 5: Contributions, maximum matchable contributions by the Australian Government and returns on investment, 2016–17 (page ii).

FRDC also holds a share in Australian Seafood Co-products (ASCo) which is a company developed to look at alternate uses for fish processing waste.

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. Each organisation selected is directly engaged under contract for that project. 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 by the FRDC Board is available on the website—www.frdc.com.au

Consultancy services and selection of suppliers

During the year, the FRDC engaged 12 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 exclusive of GST (\$)
IT Payroll Solutions	Quality management consulting	106,358
HAYS Personnel Services	Recruitment agency	14,430
Mercer Human Resource Consulting	Workforce management/planning	75,581
PricewaterhouseCoopers	Internal auditors	35,100
ThistleBrig Pty Ltd T/A Australian Business Class	Board performance review	18,767
Wayk Consulting Pty Ltd	Information technology and advice	187,251
George X IT Solutions	Information technology and advice	74,842
SPYDA Web Group Pty Ltd	Information technology and advice	40,550
Isentrix	Information technology and advice	49,060
CommsNet Group	Information technology and advice	20,734

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

Consultancy	Description	Amount exclusive of GST (\$)
Intuitive Solutions	Stakeholder research	51,570
Making Data Easy	Customer relationship management maintenance of mailing list for <i>FISH</i> magazine	78,817

The FRDC has met Office of Legal Services Coordination obligations and submitted the signed Annual Compliance Certificate and Legal Services Directions Expenditure report for 2016–17.

Ministerial directions

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. In 2016–17, no ministerial directions and notifications were received.

Government policy

The FRDC complied with all relevant Australian Government policy requirements:

- ▶ Australian Government Cost Recovery Policy,
- ▶ Australian Government Commonwealth Procurement Rules,
- ▶ Australian Government Protective Security Policy Framework
- ▶ Australian Government Commonwealth Property Management Framework,
- ▶ 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 163.

Judicial reviews and administrative tribunals

There were no judicial or administrative tribunal decisions that had a significant effect on the operations of the FRDC in 2016–17.

Protective Security Policy Framework

The FRDC wrote to the Minister on 4 August to report that the FRDC was compliant with the framework.

The FRDC has worked consistently during the year to align FRDC practices with the Protective Security Policy Framework. It has implemented a number of physical and system changes to meet the requirements of the framework, which include installing both physical security and information technology improvements. The FRDC continues to work on improving its security policies and procedures with regards to security risk management.

Freedom of information

During 2016–17, 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.

From 1 May 2011, agencies subject to the FOI Act are required to publish information as part of the Information Publication Scheme (IPS). This requirement is in Part II of the FOI Act and has replaced the former requirement to publish a section 8 statement in an annual report. An agency plan showing what information is published in accordance with the IPS requirements is accessible from the FRDC website. More information on freedom of information see Appendix E on page 158.

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. 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

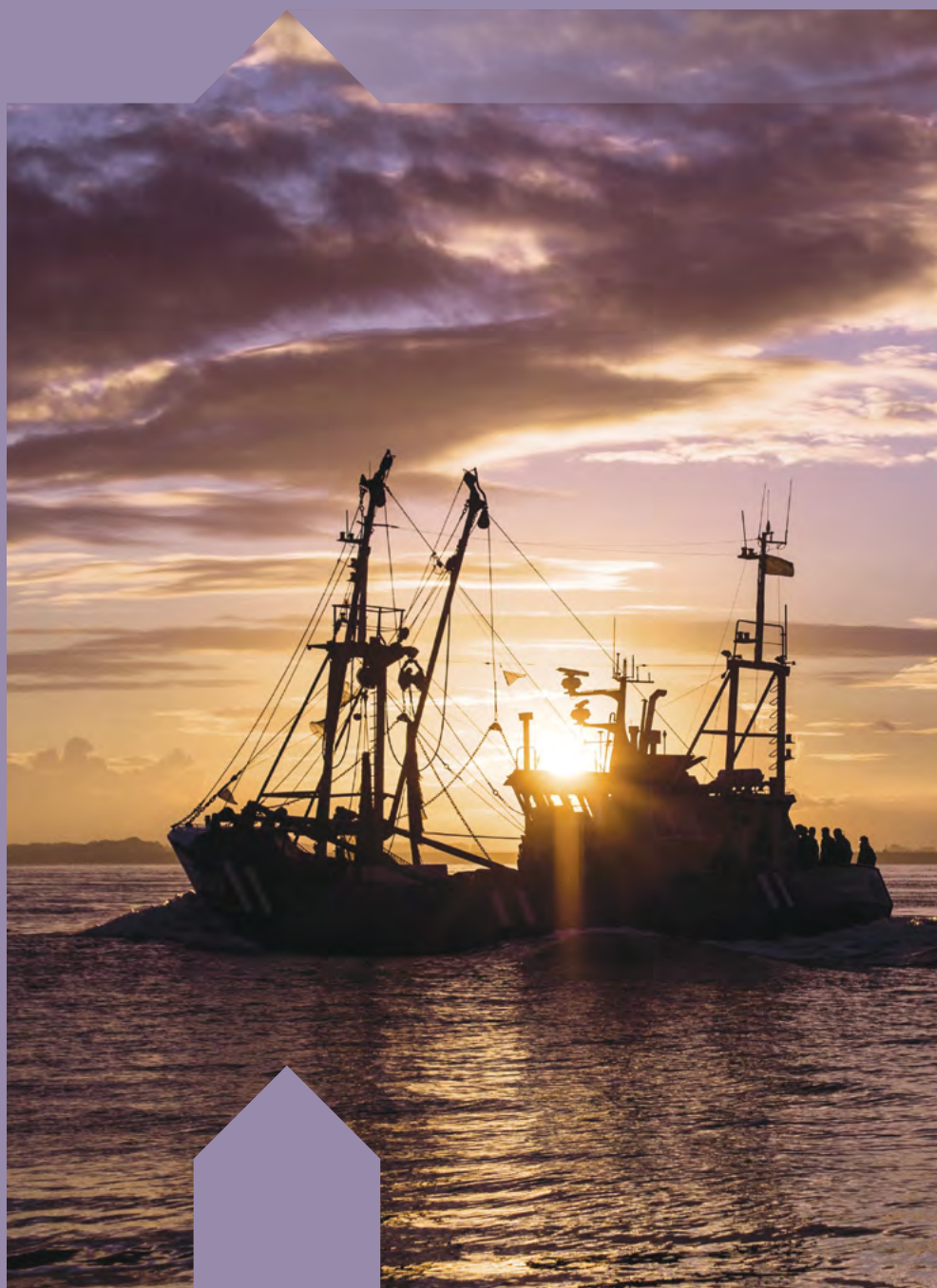
Statistics of any notifiable incidents of which the entity becomes aware during the year that arose out of the conduct of businesses or undertakings by the entity.	▶ No injuries occurred on FRDC premises during 2016–17.
Initiatives taken during the year to ensure the health, safety and welfare of workers who carry out work for the entity.	▶ Consultation of WHS issues includes all staff. ▶ Agreed health and safety management arrangements policy and procedures.
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.	▶ Health and safety awareness and incidents are brought to the attention of all staff at staff meetings. ▶ Occupational rehabilitation physiotherapist provides ergonomic assessments to all new staff in their immediate working environment, and when requested. ▶ Staff are provided with access to influenza vaccinations. ▶ Workplace safety training. ▶ Annual fire safety and warden training, and six-monthly checks of fire safety equipment. ▶ Annual testing and tagging of electrical appliances. ▶ Qualified first aid officer and fire warden. ▶ Assessment of risks in line with the risk framework annual review.
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.	▶ Increased awareness of roles and responsibilities in WHS including responsibilities of managers. ▶ No requests were received from staff and no undertakings were given by the FRDC. ▶ No directions or notices were given to the FRDC.

Notifiable incidents	2012–13	2013–14	2014–15	2015–16	2016–17
Deaths	0	0	0	0	0
Dangerous occurrences	0	0	0	0	0
Serious personal injury	1	0	0	0	0
Incapacity	0	0	0	0	0
Total	1	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 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 executive 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 three times a year in regions key to the fishing industry. This provides directors with the opportunity to discuss issues with relevant industry stakeholders, as well as see first-hand, the fishing industry in action.

The Board plays a fundamental role in guiding the FRDC and provides management with strong leadership. It oversees the FRDC's 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 the approval of new projects.

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



FROM LEFT, top row: Ron Boswell, Renata Brooks, Colin Buxton.
Second row: John Harrison, Lesley MacLeod, Daryl McPhee.
Third row: John Susman, Patrick Hone.

Directors' biographies

The Hon. Ron Boswell: Chair

Appointed as Chair 1 September 2016.

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.

Renata Brooks: Deputy Chair

Director from 1 September 2009 (with a short break in appointment from 1–11 September 2012).

Renata Brooks is an independent director and consultant. Previously she was Deputy Director General, Land and Natural Resources in the NSW Department of Primary Industries, with responsibility for the New South Wales crown land estate, natural resource policy and programs, and coordination of primary industry policy. She has held senior executive positions within the NSW Department of Primary Industries in the areas of science and research, agriculture, fisheries, biosecurity, compliance and mine safety. She holds a Bachelor of Veterinary Science from the University of Sydney with first class honours, a Graduate Certificate in Bioethics from the University of Technology Sydney, and is a Fellow of the Australian Institute of Company Directors.

Colin Buxton: Director

Director from 1 September 2015.

Colin Buxton is an independent director and principal consultant at Colin Buxton & Associates. Previously he was director of the Fisheries, Aquaculture and Coasts Centre at the Institute for Marine and Antarctic Studies (IMAS) at the University of Tasmania (UTAS). He 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. Colin is currently an adjunct professor at IMAS, and holds board positions at the Seafood CRC, Southern Rock Lobster Ltd, Tasmanian Environment Protection Authority and the Royal Hobart Golf Club to name a few. He has been a frequent consultant to government and industry in both South Africa and Australia, and is a graduate of the University of Cape Town and Rhodes University where he obtained a PhD for 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.

John Harrison: Director

Director from 1 September 2015.

John Harrison was appointed as Chief Executive Officer (CEO) of the Western Australian Fishing Industry Council in November 2013. In August 2017 he was appointed to the Board of the WA Marine Science Institution. Previously he was CEO of the Western Rock Lobster Council and executive officer of the Professional Fishermen's Association in New South Wales. He has been a member of many committees including estuary floodplain management, NSW Seafood Industry Advisory Council, and NSW, Northern Territory, Commonwealth and Western Australian Fisheries Research Advisory Body. He was CEO of Recfish Australia, participating in the National Oceans Advisory Group, National Shark Recovery Group, Co-management of Fisheries Task Force, and the Aquatic Animal Working Group under the Australian Animal Welfare Strategy. He was also executive director of the Amateur Fishermen's Association of the Northern Territory from 1998 to April 2005.

Lesley MacLeod: Director

Director from 1 September 2015.

Lesley MacLeod is the former CEO of Dairy Innovation Australia and a former board member of Murray Dairy, Barley Australia and MBQIP Ltd. She was educated in Edinburgh, Scotland and 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 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.

Daryl McPhee: Director

Director from 1 September 2015.

Daryl McPhee is Head of Higher Degree Research at Bond University. His core expertise is in fisheries and marine ecology. He has published over 90 reports and publications include Fisheries Management in Australia (Federation Press) and the Environmental History and Ecology of Moreton Bay (CSIRO Publishing). Daryl has undertaken consulting projects on a range of projects including the impacts of dredging and spoil disposal, liquefied natural gas plants and pipelines, sand extraction, bauxite mining, port developments, desalination, thermal discharge from power generation, and fisheries and marine aquaculture. He is internationally recognised as a leader in fisheries management research and in terms of recreational fishing, is one of the most well-published researchers in Australia. Much of his recent work has focused on understanding and mitigating the risk of unprovoked shark bites on people, and the environmental history of Australian coastal areas.

John Susman: Director

Director from 1 September 2015.

John Susman is Managing Director and owner of FISHTALES, a seafood industry marketing consultancy. While completing a Bachelor of Arts (commerce) and his postgraduate studies, John ventured into restaurants at a crucial stage in the evolution of the Australian hospitality industry. Cutting his teeth alongside a cadre of legendary chefs provided him with a thorough knowledge and passion for what it takes to prepare, cook and present great food. He set up the legendary Flying Squid Bothers, an integrated scallop fishing business which became Australia's first water-to-plate operation. He is consistently regarded as a foremost authority on seafood, not only in Australia, but globally, John is a regular judge in consumer and industry awards and regularly appears on television, radio and print media to lend his expertise and views on sustainability and seafood. In 2004, John was admitted in to the Fairfax Australian Food Industry Hall of Fame, for his services to the Australian food industry and in 2012 Delicious magazine also awarded him Outstanding Provedore of the Year.

Dr Patrick Hone: Executive Director

Appointed Executive Director from 21 April 2005.

Patrick Hone is Executive 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.

Independent committee member

Christine Feldmanis—Non-executive director

Appointed as an independent member of the Finance, Audit and Risk Committee September 2014.

Christine Feldmanis has more than 30 years' experience in the financial arena, in both government and private sectors. She has extensive experience in investment management, finance, accounting and risk management, legal and regulatory compliance, governance and business building in both the listed and unlisted financial product markets.

Christine formerly held senior executive and C-suite positions with firms including Deloitte, Elders Finance, Bankers Trust, NSW TCorp and Treasury Group Ltd. She currently works as a professional non-executive director and is a director and chair of the Audit and Risk Committees of Perpetual Equity Investment Company Ltd, Delta Electricity and Netball NSW. She is also a director of Uniting Financial Service and Bell Asset Management Ltd; an independent member of the Audit and Risk Committees for a number of New South Wales government agencies and an independent compliance committee member for Australian financial services licensees in the boutique funds management sector.

Attendance at Board meetings held during 2016–17

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.

TABLE 18: ATTENDANCE BY DIRECTORS AT BOARD MEETINGS

Date	25/08/16	06/10/16	22 to 23/11/16	22/02/17	26 and 28/04/17	15/06/17
The Hon. Harry Woods (Chair)	Yes	n/a	n/a	n/a	n/a	n/a
The Hon. Ron Boswell (Chair)	n/a	Yes	Yes	Yes	Yes	Yes
Ms Renata Brooks (Deputy Chair)	Yes	Yes	Yes	Yes	Yes	Yes
Professor Colin Buxton	Yes	Yes	Yes	Yes	Yes	Yes
Mr John Harrison	Yes	Yes	Yes	Yes	No	No
Dr Lesley MacLeod	Yes	Yes	Yes	Yes	No	Yes
Associate Professor Daryl McPhee	Yes	Yes	Yes	Yes	Yes	Yes
Mr John Susman	Yes	Yes	Yes	Yes	Yes	Yes
Dr Patrick Hone (Executive Director)	Yes	Yes	Yes	Yes	Yes	Yes
Mr John Wilson (Company Secretary) *	Yes	Yes	No	Yes	Yes	Yes
Cheryl Cole (Company Secretary) *			Yes			

n/a: Signifies the Committee member was not eligible to attend the meeting (either they had not yet been appointed or their tenure had ended).

* Cheryl Cole (FRDC's Manager Corporate Services) acted on John Wilson's behalf for this meeting.

Board committee

The Board had one committee operating during the year. The Finance, Audit and Risk Management committee comprises at least two non-executive directors. It provides a forum for the effective communication between the Board and the external and internal auditors. It also oversees the FRDC Risk Management Framework.

TABLE 19: ATTENDANCE BY DIRECTORS, INDEPENDENT MEMBER, OBSERVER AND BUSINESS DEVELOPMENT MANAGER AT FINANCE, AUDIT AND RISK MANAGEMENT COMMITTEE MEETINGS

Date	23/08/16	21/11/16	16/02/17 (t/c)
Ms Renata Brooks (Committee Chair)	Yes	Yes	Yes
Professor Colin Buxton (Member)	Yes	Yes	Yes
Dr Lesley MacLeod (Member)	Yes	Yes	Yes
Ms Christine Feldmanis (Independent Member)	Yes	Yes	Yes
Dr Patrick Hone (Executive Director)	Yes	Yes	Yes
Mr John Wilson (Company Secretary)	Yes	No	Yes
The Hon. Ron Boswell	n/a	Yes	Yes

t/c: Teleconference.

n/a: Signifies the Committee member was not eligible to attend the meeting (either they had not yet been appointed or their tenure had ended).

Record of meetings

Minutes of each meeting are kept and agreed to by the Board. The Executive 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 Executive 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	2016–17	2017–18	2018–19	2019–20	2020–21
Remuneration and allowances to non-executive directors and independent committee members	\$330,010	\$347,000	\$361,000	\$375,000	\$390,000
Selection Committee expenses and liabilities	–	60,000	10,000	–	–

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.

2016–17 AUDITOR-GENERAL'S REPORT





INDEPENDENT AUDITOR'S REPORT

To the Minister for Agriculture and Water Resources

Opinion

In my opinion, the financial statements of the Fisheries Research and Development Corporation for the year ended 30 June 2017:

- (a) comply with Australian Accounting Standards – Reduced Disclosure Requirements and the *Public Governance, Performance and Accountability (Financial Reporting) Rule 2015*; and
- (b) present fairly the financial position of the Fisheries Research and Development Corporation as at 30 June 2017 and its financial performance and cash flows for the year then ended.

The financial statements of the Fisheries Research and Development Corporation, which I have audited, comprise the following statements as at 30 June 2017 and for the year then ended:

- Statement by the Accountable Authority, Executive Director and Chief Financial Officer;
- Statement of Comprehensive Income;
- Statement of Financial Position;
- Statement of Changes in Equity;
- Cash Flow Statement; and
- Notes to the financial statements, comprising a Summary of Significant Accounting Policies and other explanatory information.

Basis for Opinion

I conducted my audit in accordance with the Australian National Audit Office Auditing Standards, which incorporate the Australian Auditing Standards. My responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of my report. I am independent of the Fisheries Research and Development Corporation in accordance with the relevant ethical requirements for financial statement audits conducted by the Auditor-General and his delegates. These include the relevant independence requirements of the Accounting Professional and Ethical Standards Board's APES 110 *Code of Ethics for Professional Accountants* to the extent that they are not in conflict with the *Auditor-General Act 1997* (the Code). I have also fulfilled my other responsibilities in accordance with the Code. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Other Information

The Accountable Authority is responsible for the other information. The other information comprises the information included in the annual report for the year ended 30 June 2017 but does not include the financial statements and my auditor's report thereon.

My opinion on the financial statements does not cover the other information and accordingly I do not express any form of assurance conclusion thereon.

In connection with my audit of the financial statements, my responsibility is to read the other information identified above and, in doing so, consider whether the other information is materially inconsistent with the financial statements or my knowledge obtained in the audit, or otherwise appears to be materially misstated.

If, based on the work I have performed, I conclude that there is a material misstatement of this other information, I am required to report that fact. I have nothing to report in this regard.

Accountable Authority's Responsibility for the Financial Statements

As the Accountable Authority of the Fisheries Research and Development Corporation the Directors are responsible under the *Public Governance, Performance and Accountability Act 2013* for the preparation and fair presentation of annual financial statements that comply with Australian Accounting Standards – Reduced Disclosure Requirements and the rules made under that Act. The Directors are also responsible for such internal

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control as they determine is necessary to enable the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Directors are responsible for assessing the Fisheries Research and Development Corporation's ability to continue as a going concern, taking into account whether the entity's operations will cease as a result of an administrative restructuring or for any other reason. The Directors are also responsible for disclosing matters related to going concern as applicable and using the going concern basis of accounting unless the assessment indicates that it is not appropriate.

Auditor's Responsibilities for the Audit of the Financial Statements

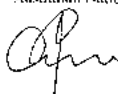
My objective is to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the Australian National Audit Office Auditing Standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with the Australian National Audit Office Auditing Standards, I exercise professional judgement and maintain professional scepticism throughout the audit. I also:

- identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control;
- obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control;
- evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Accountable Authority;
- conclude on the appropriateness of the Accountable Authority's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the entity's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the entity to cease to continue as a going concern; and
- evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

I communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

Australian National Audit Office



Peter Ken

Executive Director

Delegate of the Auditor-General

Canberra

17 August 2017

FINANCIAL STATEMENTS FOR THE YEAR ENDED 30 JUNE 2017



CONTENTS

Certification

Statement by the Accountable Authority, Executive Director and Chief Financial Officer	120
--	-----

Primary financial statement

Statement of Comprehensive Income	121
Statement of Financial Position	122
Statement of Changes in Equity	123
Cash Flow Statement	124

Overview

Objectives of the FRDC	125
------------------------	-----

Notes to the financial statements

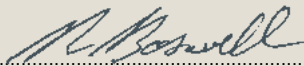
1. Departmental financial performance	
1.1 Expenses	126
1.2 Own-source revenue and revenue from Australian Government	130
2. Departmental financial position	
2.1 Financial assets	133
2.2 Non-financial assets	134
2.3 Payables	137
3. People and relationships	
3.1 Employee provisions	138
3.2 Key management personnel remuneration	139
3.3 Annual remuneration ranges paid to key management personnel	139
3.4 Related party disclosures	140
4. Financial instruments and fair value measurement	
4.1 Financial instruments	142
4.2 Fair value measurement	143
5. Budgetary reports and explanations of major variances	
5.1 Departmental budgetary reports	144


STATEMENT BY THE ACCOUNTABLE AUTHORITY, EXECUTIVE DIRECTOR AND CHIEF FINANCIAL OFFICER


In our opinion, the attached financial statements for the period ended 30 June 2017 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.

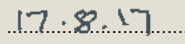
In our opinion, at the date of this statement, there are reasonable grounds to believe that the FRDC will be able to pay its debts as and when they fall due.

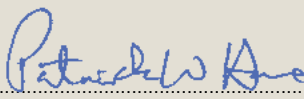
This statement is made in accordance with a resolution of the directors.

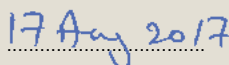
Signed 
The Hon. Ronald Boswell
Chair
Accountable Authority

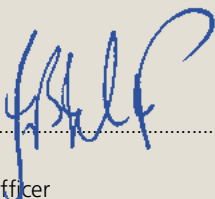

Date


Signed 
Renata Brooks
Deputy Chair
Chair Finance, Audit and Risk Management Committee


Date

Signed 
Dr Patrick Hone
Executive Director


Date

Signed 
John Wilson
Chief Financial Officer


Date

Statement of Comprehensive Income

FOR THE PERIOD ENDED 30 JUNE 2017

		2016–17	2015–16
	Notes	\$	\$
NET COST OF SERVICES			
Expenses			
Employee benefits	1.1A	2,978,541	2,339,836
Suppliers	1.1B	1,693,807	1,264,515
Projects	1.1C	24,413,514	24,575,116
Depreciation and amortisation	2.2A	175,962	152,070
Losses from assets disposals	1.1D	1,921	–
Other expenses	1.1E	682	–
Total expenses		29,264,427	28,331,537
Own-source income			
Own-source revenue			
Sale of goods and rendering of services	1.2A	2,896	3,294
Interest	1.2B	330,233	299,127
Grants	1.2C	5,631,106	1,478,585
Contributions	1.2D	8,178,652	7,447,060
Other revenue	1.2E	1,423,092	840,041
Total own-source revenue		15,565,979	10,068,107
Total own-source income		15,565,979	10,068,107
Net cost of services		13,698,448	18,263,430
Revenue from the Australian Government	1.2F	21,755,390	20,049,663
Surplus attributable to the Australian Government		8,056,942	1,786,233
OTHER COMPREHENSIVE INCOME			
Items not subject to subsequent reclassification to net cost of services			
Changes in asset revaluation surplus		134,327	31,060
Total other comprehensive income		134,327	31,060
Total comprehensive income attributable to the Australian Government		8,191,269	1,817,293

The above statement should be read in conjunction with the accompanying notes.

Statement of Financial Position

AS AT 30 JUNE 2017

		2016–17	2015–16
	Notes	\$	\$
ASSETS			
Financial assets			
Cash and cash equivalents	2.1A	12,613,592	5,955,696
Trade and other receivables	2.1B	7,559,515	5,922,459
Other investments	2.1C	5,001	5,001
Total financial assets		20,178,108	11,883,156
Non-financial assets			
Property, plant and equipment	2.2A	154,700	48,140
Intangibles	2.2A	812,464	876,653
Inventories	2.2B	–	11,933
Other non-financial assets	2.2C	33,129	11,969
Total non-financial assets		1,000,293	948,695
Total assets		21,178,401	12,831,851
LIABILITIES			
Payables			
Suppliers and other payables	2.3A	180,572	132,652
Projects	2.3B	138,162	175,000
Other payables	2.3C	153,722	–
Total payables		472,456	307,652
Provisions			
Employee provisions	3.1A	981,427	990,950
Total provisions		981,427	990,950
Total liabilities		1,453,883	1,298,602
Net assets		19,724,518	11,533,249
EQUITY			
Asset revaluation reserves		410,774	276,447
Retained earnings		19,313,744	11,256,802
Total equity		19,724,518	11,533,249

The above statement should be read in conjunction with the accompanying notes.

Statement of Changes in Equity

FOR THE PERIOD ENDED 30 JUNE 2017

	2016-17	2015-16
	\$	\$
RETAINED EARNINGS		
Opening balance		
Balance carried forward from previous period	11,256,802	9,470,569
Adjusted opening balance	11,256,802	9,470,569
Comprehensive income		
Surplus for the period	8,056,942	1,786,233
Total comprehensive income	8,056,942	1,786,233
Closing balance as at 30 June	19,313,744	11,256,802
ASSET REVALUATION RESERVE		
Opening balance		
Balance carried forward from previous period	276,447	245,387
Adjusted opening balance	276,447	245,387
Comprehensive income		
Other comprehensive income	134,327	31,060
Total comprehensive income	134,327	31,060
Closing balance as at 30 June	410,774	276,447
TOTAL EQUITY		
Opening balance		
Balance carried forward from previous period	11,533,249	9,715,956
Adjusted opening balance	11,533,249	9,715,956
Comprehensive income		
Surplus for the period	8,056,942	1,786,233
Other comprehensive income	134,327	31,060
Total comprehensive income	8,191,269	1,817,293
Closing balance as at 30 June	19,724,518	11,533,249

The above statement should be read in conjunction with the accompanying notes.

Cash Flow Statement

FOR THE PERIOD ENDED 30 JUNE 2017

		2016–17	2015–16
	Notes	\$	\$
OPERATING ACTIVITIES			
Cash received			
Receipts from the Australian Government		19,537,372	21,661,159
Contributions		8,918,230	9,288,514
Grants		5,631,106	1,478,585
Interest		320,457	289,582
Net GST received		2,312,791	1,192,799
Other		1,568,297	927,339
Total cash received		38,288,253	34,837,978
Cash used			
Employees		(2,988,064)	(2,213,316)
Suppliers		(1,817,634)	(1,450,134)
Projects expenditure		(26,892,454)	(28,268,559)
Total cash used		(31,698,152)	(31,932,009)
Net cash from operating activities		6,590,101	2,905,969
INVESTING ACTIVITIES			
Cash used			
Purchase of property, plant and equipment		(36,867)	–
Purchase of intangibles		(49,060)	(133,537)
Total cash used		(85,927)	(133,537)
Net cash used by investing activities		(85,927)	(133,537)
FINANCING ACTIVITIES			
Cash received			
Other		153,722	–
Total cash received		153,722	–
Net cash from financing activities		153,722	–
Net increase in cash held		6,657,896	2,772,432
Cash and cash equivalents at the beginning of the reporting period		5,955,696	3,183,264
Cash and cash equivalents at the end of the reporting period	2.1A	12,613,592	5,955,696

The above statement should be read in conjunction with the accompanying notes.

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 objectives of the FRDC are to plan and invest in fisheries research, development and extension (RD&E) activities and in related marketing activities.

As a national organisation with strong linkages to industry, managers, and researchers the FRDC has a fundamental role in providing leadership and coordination. The FRDC achieves this through establishing strong relationships, and putting in place mechanisms to identify and address priorities with industry and government stakeholders. In addition, the FRDC monitors and evaluates the adoption of RD&E and marketing outputs to better inform future decisions.

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 Parliament 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) for reporting periods ending on or after 1 July 2015, and
- b) Australian Accounting Standards and Interpretations 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 Australian Accounting Standard requirements

No accounting standard has been adopted earlier than the application date as stated in the standard.

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; Executive Director; and Chief Financial Officer; and are applicable to the current reporting period, did not have a material impact, and are not expected to have a future material impact, on the FRDC's financial statements.

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; Executive Director; and Chief Financial Officer; and are applicable to the future reporting period, are not expected to have a future material impact on the FRDC's financial statements.

Taxation

The FRDC is exempt from all forms of taxation except fringe benefits tax (FBT), payroll tax and the goods and services tax (GST).

Events after the reporting period

No reportable events have occurred after the Statement of Financial Position date.

Financial performance

Note 1.1: Expenses

Note 1.1A: Employee benefits

	2016–17	2015–16
	\$	\$
Wages and salaries	2,167,909	1,589,367
Superannuation		
Defined contribution plans	217,615	149,529
Defined benefit plans	326,673	325,786
Leave and other entitlements	266,344	275,154
Total employee benefits	2,978,541	2,339,836

Accounting policy

Accounting policies for employee related expenses are contained at note 3.1A.

Note 1.1B: Suppliers

	2016–17	2015–16
	\$	\$
Goods and services supplied or rendered		
Agency staff	10,956	–
Annual report	22,586	25,760
Asset purchases less than \$5,000	92,056	91,188
Audit fees	32,000	32,000
Cost of goods sold	1,319	865
Loss on inventory write off	10,614	–
External service providers	444,622	195,977
Insurance	31,075	31,144
Information technology	383,334	309,451
Joint research and development corporation (RDC) activities	39,239	45,733
Legal	19,696	22,515
Media monitoring and releases	25,723	26,461
Office supplies	30,713	27,692
Photographs	11,072	1,450
Postage and couriers	3,759	2,579
Property	47,185	30,721
Recruitment/director selection costs	14,430	29,979
Representation	19,459	42,441
Representative organisations consultation	18,792	6,053
Telecommunications	34,719	26,604
Training	77,490	33,435
Travel	135,632	98,664
Other	26,431	36,953
Total goods and services supplied or rendered	1,532,902	1,117,665
Other suppliers		
Operating lease rental in connection with		
External parties		
Operating lease rentals ¹	142,356	131,503
Workers compensation expenses	18,549	15,347
Total other suppliers	160,905	146,850
Total suppliers	1,693,807	1,264,515

Footnotes are on following page.

NOTE 1.1B: SUPPLIERS (CONTINUED)

1 Operating lease commitments

Canberra office

Operating leases included were effectively non-cancellable. 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 2020. Lease payments are subject to a 3% annual increase in accordance with the lease agreement.

Adelaide office

The lease for the office accommodation at Wine Australia, corner Botanic and Hackney Road Adelaide, South Australia commenced 31 March 2016 with an annual right of renewal until 30 March 2021. The current lease term expires 30 March 2018. Lease payments are subject to the annual increase in accordance with upwards movements in the consumer price index.

Port Stephens office

Resources received free of charge

The Department of Industry New South Wales provides FRDC with office space at the Port Stephens Fisheries Institute, Nelson Bay, free of charge for three FRDC staff members working on the National Carp Control Plan. The monetary value cannot be reliably determined and therefore not included in the operating lease commitment schedule.

	2016–17	2015–16
	\$	\$
Commitments for minimum lease payments in relation to non-cancellable operating leases are payable as follows:		
Within 1 year	150,023	138,012
Between 1 to 5 years	280,464	11,501
Total operating lease commitments	430,487	149,513

Note: Leasing commitments are GST inclusive.

Accounting policy

Operating lease payments are expensed on a straight-line basis, which is representative of the pattern of benefits derived from the leased assets.

Note 1.1C: Projects

	2016–17	2015–16
	\$	\$
Australian Government entities (related parties)	2,871,397	3,103,870
State and territory governments	6,662,560	7,854,081
Universities and educational bodies	5,378,032	5,096,439
Cooperative research centres	289,273	2,639,325
Research development corporations	6,823	—
Industry (commercial, recreational and Indigenous)	6,086,941	4,877,367
Overseas research entities	14,165	103,033
Private providers	3,104,323	901,001
Total projects	24,413,514	24,575,116

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.

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 agreement, it would only be liable to compensate the research partner for any reasonable costs in respect 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.

	2016–17	2015–16
	\$	\$
Project commitments are payable as follows:		
Within 1 year	30,563,129	23,028,633
Between 1 to 5 years	14,670,917	9,690,708
Over five years	110,000	–
Total project commitments	45,344,046	32,719,341

Note: Project commitments are GST inclusive.

Note 1.1D: Losses from asset disposals

	2016–17	2015–16
	\$	\$
Property, plant and equipment:		
Carrying value of assets disposed of	1,921	–
Total losses from assets disposals	1,921	–

Note 1.1E: Other expenses

	2016–17	2015–16
	\$	\$
Bad debts written off ¹	682	–
Total other expenses	682	–

¹ Bad debts written off stem from one entity that had undertaken to contribute to FRDC projects, but found itself unable to do so.

Note 1.2: Own-source income

Own-source revenue

Note 1.2A: Sale of goods

	2016–17	2015–16
	\$	\$
Sale of goods		
Sale of goods	2,896	3,294
Total sale of goods	2,896	3,294

Accounting policy

Revenue from the sale of goods is recognised when:

- a) the risks and rewards of ownership have been transferred to the buyer, and
- b) the entity retains no managerial involvement or effective control over the goods.

The stage of completion of contracts at the reporting date is determined by reference to the proportion that costs incurred to date bear to the estimated total costs of the transaction.

Receivables for goods, which have 30 day terms, are recognised at the nominal amounts due less any impairment allowance account. Collectability of debts is reviewed at the end of the reporting period. Allowances are made when collectability of the debt is no longer probable.

Note 1.2B: Interest

	2016–17	2015–16
	\$	\$
Deposits	330,233	299,127
Total interest	330,233	299,127

Accounting policy

Interest revenue is recognised using the effective interest method.

Note 1.2C: Grants

	2016–17	2015–16
	\$	\$
Australian Government		
Department of Agriculture and Water Resources ¹	5,631,106	1,478,585
Total grants	5,631,106	1,478,585

1 RD&E funding from Department of Agriculture and Water Resources (refer Note 3.4B). moved under table

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:

- the FRDC obtains control of the grant or the right to receive the grant,
- it is probable that the economic benefits comprising the grant will flow to the FRDC, and
- the amount of the grant can be reliably measured.

Note 1.2D: Contributions

	2016–17	2015–16
	\$	\$
Fisheries		
Australian Prawn Farmers Association	177,197	161,515
Australian Fisheries Management Authority	1,020,511	895,073
Australian Capital Territory	11,273	32,781
New South Wales	587,307	687,798
Northern Territory	178,541	195,011
Queensland	648,682	655,115
South Australia	1,359,264	929,518
Tasmania	2,420,251	2,081,468
Victoria	333,726	404,118
Western Australia	1,441,900	1,404,663
Total contributions	8,178,652	7,447,060

Accounting policy

Contributions are recognised when:

- the FRDC obtains control of the contribution or the right to receive the contribution,
- it is probable that the economic benefits comprising the contribution will flow to the FRDC, and
- the amount of the contribution can be reliably measured.

Note 1.2E: Other revenue

	2016–17	2015–16
	\$	\$
Project funds received	1,140,100	330,498
Project refunds of prior years expenditure	142,714	509,543
Other ¹	140,278	–
Total other revenue	1,423,092	840,041

1 On 1 June 2017 the Seafood CRC Board, as part of its wind up process, resolved, in accordance with its constitution, to transfer its remaining funds to the FRDC. Included in Note 1.2E: Other, is an amount of \$140,191 that transferred to FRDC on 29 June 2017.

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

	2016–17	2015–16
	\$	\$
Department of Agriculture and Water Resources		
Corporate Commonwealth entity payment item of 0.50% of AGVP ¹	14,503,595	13,566,775
Matching of industry contributions ²	7,251,795	6,482,888
Total revenue from the Australian Government	21,755,390	20,049,663

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's contributions (up to 0.25% of AGVP) by the Australian Government.

Accounting policy

Revenue from the Australian Government

Funding received or receivable from non-corporate Commonwealth entities (appropriated to the non-corporate Commonwealth entity as a corporate Commonwealth entity payment item for payment to this entity paid by special appropriation) is recognised as revenue from the Australian 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

	2016–17	2015–16
	\$	\$
Cash on hand or on deposit	12,613,592	5,955,696
Total cash and cash equivalents	12,613,592	5,955,696

Note 2.1B: Trade and other receivables

	2016–17	2015–16
	\$	\$
Goods and services receivables in connection with		
Goods and services	1,725,371	1,694,341
Total goods and services receivables	1,725,371	1,694,341
Department of Agriculture and Water Resources		
Receivables	5,789,758	3,571,740
Total receivables from Department of Agriculture and Water Resources	5,789,758	3,571,740
Other receivables		
GST receivable from the Australian Taxation Office	44,386	656,378
Total other receivables	44,386	656,378
Total trade and other receivables	7,559,515	5,922,459
Trade and other receivables are expected to be recovered		
No more than 12 months	7,559,515	5,922,459
Total trade and other receivables	7,559,515	5,922,459
Trade and other receivables aged as follows		
Not overdue	7,352,975	5,642,734
Overdue by		
0 to 30 days	142,475	84,097
31 to 60 days	–	173,628
61 to 90 days	–	–
More than 90 days	64,065	22,000
Total trade and other receivables	7,559,515	5,922,459

Credit terms for goods and services are within 30 days (2015–16: 30 days).

Accounting policy

Trade receivables, loans and other receivables that have fixed or determinable payments and that are not quoted in an active market are classified as 'loans and receivables'. Loans and receivables are measured at amortised cost using the effective interest method less impairment.

Note 2.1C: Other investments

	2016–17	2015–16
	\$	\$
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	5,001
Total other investments	5,001	5,001

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, plant and equipment	Intangibles (computer software)	Total
	\$	\$	\$
As at 1 July 2016			
Gross book value	48,140	1,115,963	1,164,103
Accumulated depreciation and amortisation	–	(239,310)	(239,310)
Total as at 1 July 2016	48,140	876,653	924,793
Additions			
Purchase	36,867	–	36,867
Internally developed	–	49,060	49,060
Revaluations recognised in other comprehensive income	134,327	–	134,327
Depreciation and amortisation	(62,713)	(113,249)	(175,962)
Disposals	(1,921)	–	(1,921)
Total as at 30 June 2017	154,700	812,464	967,164
Total as at 30 June 2017 represented by			
Gross book value	154,700	1,165,023	1,319,723
Accumulated depreciation and amortisation	–	(352,559)	(352,559)
Total as at 30 June 2017	154,700	812,464	967,164

Revaluations of non-financial assets

On 30 June 2017, Australian Valuation Solutions conducted a revaluation of plant and equipment. A revaluation increment of \$134,327 for 2016–17 (2015–16: \$31,060) was credited 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 property, plant and equipment.

No property, 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).

Revaluations

Following initial recognition at cost, property, plant and equipment 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:

	2016–17	2015–16
Property, plant and equipment	3 to 5 years	3 to 5 years
Leasehold improvements	Lease term	Lease term

Impairment

All assets were assessed for impairment at 30 June 2017. 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 (2015–16: 10 years).

All software assets were assessed for indications of impairment as at 30 June 2017.

Note 2.2B: Inventories

	2016–17	2015–16
	\$	\$
Inventories held for sale		
Finished goods	–	11,933
Total inventories	–	11,933

During the period the sum of \$1,319 of inventory held for sale was recognised as an expense (2015–16: \$865).

Inventories (fish posters) were initially recognised at cost and as at 30 June 2017 were written off as they are now obsolete.

Accounting policy

Inventories held for sale are valued at the lower of cost and net realisable value.

Inventories acquired at no cost, or nominal consideration, are initially measured at current replacement cost at the date of acquisition.

Note 2.2C: Other non-financial assets

	2016–17	2015–16
	\$	\$
Prepayments	33,129	11,969
Total other non-financial assets	33,129	11,969

No indicators of impairment were found for other non-financial assets.

Note 2.3: Payables

Note 2.3A: Suppliers and other payables

	2016–17	2015–16
	\$	\$
Trade creditors and accruals	108,001	73,748
FBT payable	1,568	1,568
PAYG payable	71,003	57,336
Total suppliers and other payables	180,572	132,652
Suppliers and other payables expected to be settled		
No more than 12 months	180,572	132,652
Total suppliers	180,572	132,652

Settlement is usually made within 30 days.

Note 2.3B: Projects

	2016–17	2015–16
	\$	\$
Australian Government entities (related parties)	–	175,000
State and territory governments	127,452	–
Other	10,710	–
Total projects	138,162	175,000

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.

Note 2.3C: Other payables

	2016–17	2015–16
	\$	\$
Other ¹	153,722	–
Total other payables	153,722	–

¹ On 1 June 2017 the Seafood CRC Board, as part of its wind up process, resolved, in accordance with its constitution, to transfer to the FRDC the 'Love Australian Prawn' campaign funds it held in trust on behalf of the Australian Council of Prawn Fisheries (ACPF) and the Australian Prawn Farmers Association (APFA). An amount of \$153,722 was transferred from the Seafood CRC to FRDC on 29 June 2017. This amount is held on behalf of ACPF and APFA by the FRDC.

People and relationships

Note 3.1: Provisions

Note 3.1A: Employee provisions

	2016–17	2015–16
	\$	\$
Leave	981,427	990,950
Total employee provisions	981,427	990,950
Employee provisions that could be settled		
No more than 12 months	961,525	984,271
More than 12 months	19,902	6,679
Total employee provisions	981,427	990,950

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 is a defined contribution scheme.

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, executive director and three senior managers. Key management personnel remuneration is reported in the table below:

	2016–17	2015–16
	\$	\$
Short-term employee benefits	1,111,700	1,050,685
Post-employment benefits	241,234	225,966
Other long-term employee benefits	118,398	116,076
Total key management personnel remuneration expenses	1,471,332	1,392,727

The total number of key management personnel that are included in the above table is 12 (2015–16: 15), made up of:

- six non-executive directors
- one non-executive director (Chair) appointed 1 September 2016
- one non-executive director retired 31 August 2016
- one executive director
- three senior managers.

Note 3.3: Annual total remuneration ranges (including superannuation) paid to key management personnel and the independent Finance Audit and Risk Management Committee member¹

	2016–17	2015–16
Nil to \$39,999 ¹	8	11
\$40,000 to \$69,999	1	1
\$180,000 to \$239,999	2	2
\$270,000 to \$299,999	1	1
\$300,000 to \$329,999	0	1
\$330,000 to \$359,999	1	0
Total number of senior management personnel	13	16

¹ Independent Member Finance, Audit and Risk Management

Ms Feldmanis is paid under a consultancy agreement; and is included in Note 3.3 Annual remuneration ranges, but is not included in Note 3.2 Key management personnel remuneration.

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, executive director and three senior managers and other Australian Government entities.

The non-executive directors and the Executive Director of the FRDC during the year were:

The Hon. Ronald Boswell	Chair (Appointed 1 September 2016)
Ms Renata Brooks	Director (Deputy Chair) (Chair Finance, Audit and Risk Management Committee)
Professor Colin D. Buxton	Director (Member Finance, Audit and Risk Management Committee)
Mr John Harrison	Director
Dr Patrick Hone	Executive Director
Dr Lesley MacLeod	Director (Member Finance, Audit and Risk Management Committee)
Associate Professor Daryl McPhee	Director
Mr John Susman	Director
Ms Christine Feldmanis ¹	Independent Member Finance, Audit and Risk Management Committee
The Hon. Harry Woods	Chair (Retired 31 August 2016)

¹ Independent Member Finance, Audit and Risk Management

Ms Feldmanis is paid under a consultancy agreement; and is included in Note 3.3 Annual remuneration ranges, but is not included in Note 3.2 Key management personnel remuneration.

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 have attributed to them all the transactions of that entity with the FRDC. Typically, the FRDC will not transact with all the entities for which a director has made such a declaration.

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.

Transactions with related parties

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.

The following transactions with related parties occurred during the financial year.

Director	Organisation and position held	Nature of interest	Expenditure paid to entity	Income received from entity
			\$	\$
Ms R. Brooks	NSW Department of Industry <i>Consultant</i>	Research projects or work undertaken by the organisation	–	64,350
	Australian Fisheries Management Authority <i>Commissioner</i>	Research projects or work undertaken by the organisation	138,600	229,985
	Department of Fisheries WA <i>Consultant</i>	Research projects or work undertaken by the organisation	177,299	–
Professor C. D. Buxton	Seafood CRC Company Ltd <i>Director</i>	Research projects or work undertaken by the organisation	318,529	539,878
	Colin Buxton & Associates <i>Director</i>	Research projects or work undertaken by the organisation	26,500	–
	Southern Rock Lobster Ltd <i>Chair</i>	Research projects or work undertaken by the organisation	306,774	229
	Institute for Marine and Antarctic Studies (IMAS) University of Tasmania <i>Adjunct Professor</i>	Research projects or work undertaken by the organisation	2,790,761	–
Mr J. Harrison	Western Australian Fishing Industry Council <i>CEO</i>	Research projects or work undertaken by the organisation	115,493	225
Dr P. Hone	Seafood CRC Company Ltd <i>Director</i>	Research projects or work undertaken by the organisation	318,529	539,878
Mr J. Wilson	Australian Rural Leadership Foundation <i>Governor member</i>	Research projects or work undertaken by the organisation	5,500	–

All transactions were conducted under normal terms and conditions and include GST.

Note 3.4B: Other related party disclosures

Department of Agriculture and Water Resources

The FRDC has a Research & Development Funding Head Agreement with the Department of Agriculture and Water Resources under which it manages the suite of activities detailed below:

- ▶ National Carp Control Plan
- ▶ Pacific Oyster Mortality Syndrome—resistant oyster breeding for a sustainable Pacific Oyster Industry in Australia
- ▶ Rural R&D for Profit: Growing a profitable, innovative and collaborative Australian Yellowtail Kingfish aquaculture industry: bringing white fish to the market
- ▶ Non-tariff measures
- ▶ Facilitating the development of a central Australian fishing vessel database
- ▶ National Social and Economic Survey of Recreational Fishers
- ▶ Variation to Aquaplan 2014–2019.

The FRDC recognised in 2016–17: \$5,631,106; (2015–16: \$1,478,585) (refer Note 1.2C: Grants).

Financial instrument and fair value measurements

Note 4.1: Financial instruments

Note 4.1A: Categories of financial instruments

	2016–17	2015–16
	\$	\$
Financial assets		
Loans and receivables		
Cash and cash equivalents	12,613,592	5,955,696
Trade and other receivables	1,725,371	1,694,341
Other investments	5,001	5,001
Total loans and receivables	14,343,964	7,655,038
Total financial assets	14,343,964	7,655,038
Financial liabilities		
Other financial liabilities		
Suppliers and other payables	108,001	73,748
Projects	138,162	175,000
Other payables	153,722	–
Total other financial liabilities	399,885	248,748
Total financial liabilities	399,885	248,748

Accounting policy

Financial assets

The FRDC classifies its financial assets in the following category:

- a) loans and receivables.

Loans and receivables

Trade receivables, loans and other receivables are classified as 'loans and receivables' and recorded at face value less any impairment. Trade and other receivables are recognised where the FRDC becomes party to a contract and has a legal right to receive cash. Loans and receivables are assessed for impairment at the end of each reporting period. Allowances are made when collectability of the debt is no longer probable. Trade receivables are derecognised on payment.

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'.

Note 4.1B: Net gain or loss from financial assets

	2016–17	2015–16
	\$	\$
Loans and receivables		
Interest revenue (Note 1.2B)	330,233	299,127
Net gain from loans and receivables	330,233	299,127

Note 4.2: Fair value measurement

Accounting policy

FRDC engaged the service of the Australian Valuation Solutions (AVS) to conduct an asset revaluation of all non-financial assets as at 30 June 2017. An annual assessment is undertaken to determine whether the carrying amount of the assets is materially different from the fair value. Comprehensive valuations carried out at least once every three years with the previous desktop valuation conducted at 30 June 2016. AVS 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 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 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	
	2016–17	2015–16
	\$	\$
Non-financial assets		
Leasehold improvements	136,950	30,380
Plant and equipment	17,750	17,760
Total non-financial assets	154,700	48,140

The FRDC did not measure any non-financial assets at fair value on a non-recurring basis as at 30 June 2017.

On 30 June 2017, Australian Valuation Solutions conducted a revaluation of plant and equipment. The table above summarises the results of the valuation at fair value. A revaluation increment was credited to the asset revaluation reserve by asset class and included in the equity section of the Statement of Financial Position. Refer Note: 2.2A.

Budgetary reports and explanations of major variances

Note 5.1: Budgetary reports and explanations of major variances

The following tables provide a comparison of the original budget as presented in the 2016–17 Portfolio Budget Statements (PBS) to the 2016–17 final outcome as presented in accordance with Australian Accounting Standards for the FRDC. The budget is not audited.



Note 5.1A: Departmental budgetary reports

Statement of Comprehensive Income

FOR THE PERIOD ENDED 30 JUNE 2017

	Actual	Portfolio Budget Statements 2016–17 estimate	
	(A)	(B)	(C) = A–B
		Original ¹	Variance ²
	2016–17	2016–17	2016–17
	\$	\$	\$
NET COST OF SERVICES			
Expenses			
Employee benefits	2,978,541	3,200,000	(221,459)
Suppliers	1,693,807	1,520,000	173,807
Projects	24,413,514	23,000,000	1,413,514
Depreciation and amortisation	175,962	231,000	(55,038)
Losses from assets disposals	1,921	–	1,921
Other expenses	682	–	682
Total expenses	29,264,427	27,951,000	1,313,427
Own-source income			
Own-source revenue			
Sale of goods and rendering of services	2,896	3,000	(104)
Interest	330,233	225,000	105,233
Grants	5,631,106	400,000	5,231,106
Contributions	8,178,652	5,722,000	2,456,652
Other revenue	1,423,092	1,002,000	421,092
Total own-source revenue	15,565,979	7,352,000	8,213,979
Total own-source income	15,565,979	7,352,000	8,213,979
Net cost of services	13,698,448	20,599,000	6,900,552
Revenue from the Australian Government	21,755,390	21,431,000	324,390
Surplus attributable to the Australian Government	8,056,942	832,000	7,224,942
OTHER COMPREHENSIVE INCOME			
Items not subject to subsequent reclassification to net cost of services			
Changes in asset revaluation surplus	134,327	–	134,327
Total other comprehensive income	134,327	–	134,327
Total comprehensive income/(loss) attributable to the Australian Government	8,191,269	832,000	7,359,269

1 The FRDC's original budgeted financial statement presented to Parliament in respect of the reporting period in the 2016–17 Portfolio Budget Statements.

2 Between the actual and original budgeted amounts for 2016–17. Explanations of major variances are provided in Note 5.1B.

Statement of Financial Position

AS AT 30 JUNE 2017

	Actual	Portfolio Budget Statements 2016–17 estimate	
	(A)	(B)	(C) = A–B
		Original ¹	Variance ²
	2016–17	2016–17	2016–17
	\$	\$	\$
ASSETS			
Financial assets			
Cash and cash equivalents	12,613,592	7,602,000	5,011,592
Trade and other receivables	7,559,515	3,041,000	4,518,515
Other investments	5,001	5,000	1
Total financial assets	20,178,108	10,648,000	9,530,108
Non-financial assets			
Property, plant and equipment	154,700	46,000	108,700
Intangibles	812,464	1,227,000	(414,536)
Inventories	–	9,000	(9,000)
Other non-financial assets	33,129	–	33,129
Total non-financial assets	1,000,293	1,282,000	(281,707)
Total assets	21,178,401	11,930,000	9,248,401
LIABILITIES			
Payables			
Suppliers and other payables	180,572	174,000	6,572
Projects	138,162	201,000	(62,838)
Other payables	153,722	85,000	68,722
Total payables	472,456	460,000	12,456
Provisions			
Employee provisions	981,427	883,000	98,427
Total provisions	981,427	883,000	98,427
Total liabilities	1,453,883	1,343,000	110,883
Net assets	19,724,518	10,587,000	9,137,518
EQUITY			
Asset revaluation reserves	410,774	244,000	166,774
Retained earnings	19,313,744	10,343,000	8,970,744
Total equity	19,724,518	10,587,000	9,137,518

1 The FRDC's original budgeted financial statement presented to Parliament in respect of the reporting period in the 2016–17 Portfolio Budget Statements.

2 Between the actual and original budgeted amounts for 2016–17. Explanations of major variances are provided in Note 5.1B.

Statement of Changes in Equity

FOR THE PERIOD ENDED 30 JUNE 2017

	Actual	Portfolio Budget Statements 2016–17 estimate	
	(A)	(B)	(C) = A – B
		Original ¹	Variance ²
	2016–17	2016–17	2016–17
	\$	\$	\$
RETAINED EARNINGS			
Opening balance			
Balance carried forward from previous period	11,256,802	9,511,000	1,745,802
Adjusted opening balance	11,256,802	9,511,000	1,745,802
Comprehensive income			
Surplus/(deficit) for the period	8,056,942	832,000	7,224,942
Total comprehensive income	8,056,942	832,000	7,224,942
Closing balance as at 30 June 2017	19,313,744	10,343,000	8,970,744
ASSET REVALUATION RESERVE			
Opening balance			
Balance carried forward from previous period	276,447	244,000	32,447
Adjusted opening balance	276,447	244,000	32,447
Comprehensive income			
Other comprehensive income	134,327	–	134,327
Total comprehensive income	134,327	–	134,327
Closing balance as at 30 June 2017	410,774	244,000	166,774
TOTAL EQUITY			
Opening balance			
Balance carried forward from previous period	11,533,249	9,755,000	1,778,249
Adjusted opening balance	11,533,249	9,755,000	1,778,249
Comprehensive income			
Surplus/(deficit) for the period	8,056,942	832,000	7,224,942
Other comprehensive income	134,327	–	134,327
Total comprehensive income	8,191,269	832,000	7,359,269
Closing balance as at 30 June 2017	19,724,518	10,587,000	9,137,518

¹ The FRDC's original budgeted financial statement presented to Parliament in respect of the reporting period in the 2016–17 Portfolio Budget Statements.

² Between the actual and original budgeted amounts for 2016–17. Explanations of major variances are provided in Note 5.1B.

Cash Flow Statement

FOR THE PERIOD ENDED 30 JUNE 2017

	Actual	Portfolio Budget Statements 2016–17 estimate	
	(A)	(B)	(C)= A–B
		Original ¹	Variance ²
	2016–17	2016–17	2016–17
	\$	\$	\$
OPERATING ACTIVITIES			
Cash received			
Goods and services	–	11,000	(11,000)
Receipts from the Australian Government	19,537,372	20,331,000	(793,628)
Contributions	8,918,230	10,002,000	(1,083,770)
Grants	5,631,106	–	5,631,106
Interest	320,457	225,000	95,457
Net GST received	2,312,791	–	2,312,791
Other	1,568,297	–	1,568,297
Total cash received	38,288,253	30,569,000	7,719,253
Cash used			
Employees	(2,988,064)	(3,200,000)	211,936
Suppliers	(1,817,634)	(1,436,000)	(381,634)
Projects expenditure	(26,892,454)	(23,000,000)	(3,892,454)
Total cash used	(31,698,152)	(27,636,000)	(4,062,152)
Net cash from operating activities	6,590,101	2,933,000	3,657,101
INVESTING ACTIVITIES			
Cash used			
Purchase of property, plant and equipment	(36,867)	(50,000)	13,133
Purchase of intangibles	(49,060)	(500,000)	450,940
Total cash used	(85,927)	(550,000)	464,073
Net cash used by investing activities	(85,927)	(550,000)	464,073
Net increase in cash held	6,657,896	2,383,000	4,274,896
Cash and cash equivalents at the beginning of the reporting period	5,955,696	5,219,000	736,696
Cash and cash equivalents at the end of the reporting period	12,613,592	7,602,000	5,011,592

1 The FRDC's original budgeted financial statement presented to Parliament in respect of the reporting period in the 2016–17 Portfolio Budget Statements.

2 Between the actual and original budgeted amounts for 2016–17. Explanations of major variances are provided in Note 5.1B.

Note 5.1B: Departmental major budget variances for 2016–17

Explanations of major variances

The explanation for major variances in 2016–17 is detailed below.

Affected statement (and line items)	Variances against all affected statements
<ul style="list-style-type: none"> ▶ Statement of Comprehensive Income (Expenses) ▶ Cash Flow Statement (Cash used) 	<ul style="list-style-type: none"> ▶ Employee benefits costs were lower than budget due to changes to leave provision discount rates, and additional leave taken by staff resulting in a decrease to employment costs. ▶ Suppliers expenses were higher than budget due to consultancy fees for external service providers. ▶ Project expenses were higher than budget due to additional Research, Development and Extension (RD&E) investment, and the timing of completion for project deliverables which can vary during the year.
<ul style="list-style-type: none"> ▶ Statement of Comprehensive Income (Own-source revenue) ▶ Statement of Financial Position (Financial assets—Cash and cash equivalents) ▶ Cash Flow Statement (Cash received) 	<ul style="list-style-type: none"> ▶ Grants increased due to the Department of Agriculture and Water Resources providing FRDC with funding grants for various project activities totalling \$5,631,106 (refer Note 1.2C), which were not forecast in the budget. ▶ Contributions and other revenue increased due to new research projects that included increased third-party contributions to the project. ▶ Revenue from Australian Government increased due to the greater than expected increase in the Gross Value Production determination.
<ul style="list-style-type: none"> ▶ Statement of Financial Position (Financial assets) ▶ Cash Flow Statement (Cash received) ▶ Statement of Financial Position (Asset revaluation reserves) 	<ul style="list-style-type: none"> ▶ Trade and other receivables increased due to the timing of the Department of Agriculture and Water Resources Gross Value Production determination, resulting in delayed special appropriation payments. ▶ Property, plant and equipment increased due to a revaluation of the assets under a new property leasing agreement that extended the lease for a further three years. ▶ Intangibles were lower due to slower development of the FRDC's project management software

APPENDICES



APPENDIX A: THE FRDC'S PRINCIPAL REVENUE BASE

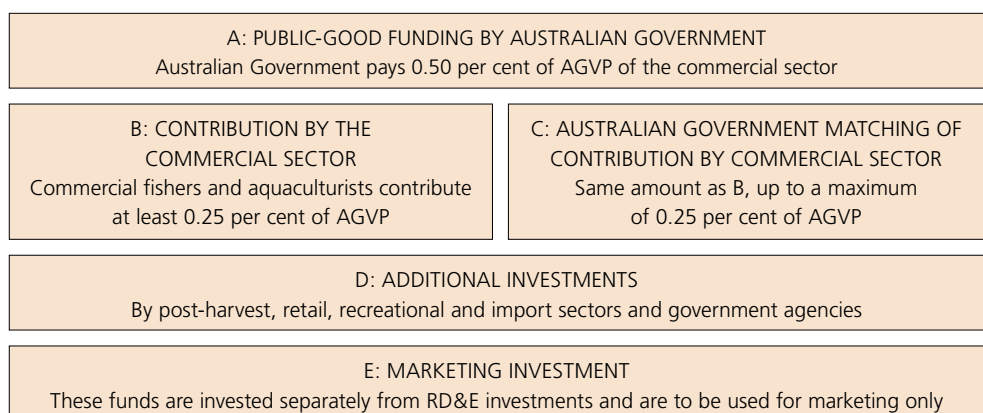
As stipulated in the PIRD Act, and shown in Figure 5, the FRDC's primary revenue source is based on:

- 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 ii.

Details of all FRDC revenue (including investments, royalties, and sales of products, information and services) are in the financial statements starting on page 118.

FIGURE 5: PROPORTIONS OF THE FRDC'S PRINCIPAL REVENUE BASE



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 contribute 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 3 on pages 26–27, the FRDC's five R&D 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 Water Resources 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 and Water Resources, 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 and Water Resources. 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 Executive Director) in relation to matters not provided for by the PIRD Act,
- ▶ appointing the Chairperson,
- ▶ appointing directors, other than the Chairperson and Executive 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 Executive Director.

Additional powers under the PGPA Act relating to corporate governance and reporting are available from the Minister for Agriculture and Water Resources.

Exercise of ministerial powers during 2016–17 is described on page 103.



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 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 will work closely with the Minister for Agriculture and Water Resources, the Assistant Minister to the Minister and the Department of Agriculture and Water Resources 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 1: FRDC's framework for integrating legislative, government and industry priorities (page iii).

The following tables summarise the total expenditure allocated against each set of priorities within the 2016–17 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

RD&E Priorities	Total expenditure	
	\$	%
Adoption of R&D	2,831,253	13
Advanced technology	6,460,796	29
Biosecurity	3,186,033	15
Soil, water and managing natural resources	9,546,897	43
Total	22,024,979	100

STRATEGIC RESEARCH PRIORITIES

	Total expenditure	
	\$	%
Advanced manufacturing	3,157,782	14
Cybersecurity	46,910	0
Energy	54,772	0
Environmental change	1,556,024	7
Food	7,844,736	33
Health	1,506,567	6
Resources	1,555,722	7
Soil and water	7,766,737	33
Transport	41,849	0
Total	23,531,102	100

Not all projects align to the priorities. Figures in these tables have been rounded, hence totals may not agree with component 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 17 of this annual report; its structure and functions and legislation under which it is established are described in Appendices A to C.

DOCUMENTS AVAILABLE FOR INSPECTION

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 *
<i>FISH</i> magazine	File, publications, iPad and FRDC website *
Administration	Files, unpublished documents
Mailing lists	Database

* 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.



ABBREVIATIONS AND ACRONYMS



AASB	Australian Accounting Standards Board
ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
ACPF	Australian Council of Prawn Fisheries
AFMF	Australian Fisheries Management Forum
AGVP	average gross value of production
AOP	annual operational plan
APFA	Australian Prawn Farmers Association
AWA™	Australian Wild Abalone™ (AWATM)
CRC	cooperative research centre
CRC-P	Cooperative Research Centre Project
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAWR	Australian Government Department of Agriculture and Water Resources
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
FOI Act	<i>Freedom of Information Act 1982</i>
FRDC	Fisheries Research and Development Corporation
GVP	gross value of production
GST	goods and services tax
IPA	Industry Partnership Agreement
ISO	International Organization for Standardisation
ICT	information and communications technology
m	million
MP	member of parliament
NSW	New South Wales
PAYG	pay as you go
PGPA Act	<i>Public Governance, Performance and Accountability Act 2013</i>
PhD	Doctor of Philosophy
PIRD Act	<i>Primary Industries Research and Development Act 1989</i>
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
SBT	Southern Bluefin Tuna
WHS Act	<i>Work Health and Safety Act 2011</i>

INDICES



COMPLIANCE INDEX

This index shows the page numbers on which the FRDC has reported on matters specified in Australian Government legislation and policies.

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.

TABLE 20: PRIMARY INDUSTRIES RESEARCH AND DEVELOPMENT ACT 1989 (PIRD ACT)

Section	Title	Comply	Page
Section 10	R&D corporation is a body corporate etc.	Yes	152–153
Section 11	Functions	Yes	153
Section 12	Powers	Yes	153–154
Section 19	R&D plans	Yes	13–14, 18, 25–26
Section 20	Approval of R&D plans	Yes	25
Section 21	Variation of R&D plans	Yes	25
Section 24	Consultation	Yes	18, 22–24
Section 25	Annual operational plans	Yes	v, 15–16
Section 27	Compliance with R&D plans and annual operational plans	Yes	101
Section 28	Annual report	Yes	101
Section 29	Accountability to representative organisations	Yes	18
Section 33	Expenditure of money of R&D corporations	Yes	i–iv, 114–149
	Spending must be in accordance with funding agreement	Yes	19
Section 33A	R&D money must not be spent on marketing	Yes	93, 114–149
Section 34	Commonwealth to be paid levy expenses from R&D corporation	Yes	22, 114–149
Section 35	Commonwealth to be reimbursed for refunds of levy	Yes	114–149
Section 40	Separate accounting records	—	
Section 47	Times and places of meetings	Yes	112–113
Section 53	Minutes	Yes	113
Section 76	Duties	Yes	107
Section 87	Employees	Yes	19, 105
Section 143	Minister may give directions	Yes	103

TABLE 21: SECTION 17BE: CONTENTS OF ANNUAL REPORT

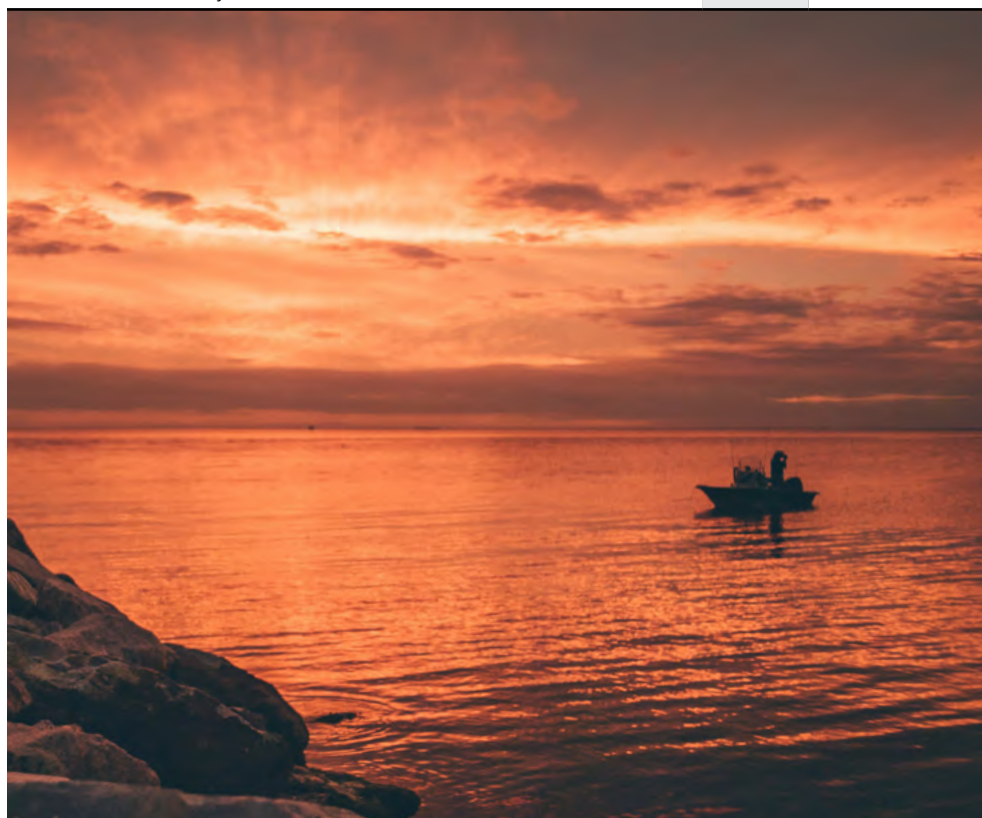
The annual report for a corporate Commonwealth entity for a reporting period must include the following.

		Comply	Page
(a)	details of the legislation establishing the body,	Yes	152–154
(b)	both of the following:		
	(i) a summary of the objects and functions of the entity as set out in the legislation,	Yes	28–29, 152–154
	(ii) the purposes of the entity as included in the entity's corporate plan for the period,	Yes	v, 15–17, 152–154
(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	17
(d)	any directions given to the entity by a Minister under an Act or instrument during the period,	Yes	103
(e)	any government policy orders that applied in relation to the entity during the period under section 22 of the Act,	Yes	104
(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 non-compliance,	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–vii, throughout
(h)	a statement of any significant issue reported to the responsible Minister under paragraph 19(1)(e) of the Act that relates to non-compliance 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 non-compliance,	n/a	—
(j)	information on the accountable authority, or each member of the accountable authority, of the entity during the period, including:	Yes	108–111
	(i) the name of the accountable authority or member, and	Yes	108–111
	(ii) the qualifications of the accountable authority or member, and	Yes	108–111
	(iii) the experience of the accountable authority or member, and	Yes	108–111
	(iv) for a member—the number of meetings of the accountable authority attended by the member during the period, and	Yes	112–113
	(v) for a member—whether the member is an executive member or non-executive member,	Yes	108–111
(k)	an outline of the organisational structure of the entity (including any subsidiaries of the entity),	Yes	19
(l)	an outline of the location (whether or not in Australia) of major activities or facilities of the entity,	Yes	173
(m)	information in relation to the main corporate governance practices used by the entity during the period,	Yes	100–106, 107–113, 115–117

		Comply	Page
(n)	the decision-making process undertaken by the accountable authority for making a decision if:		
	(i) 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	Yes	18, 102–103
	(ii) the entity, and the other Commonwealth entity or the company, are related entities, and	Yes	18, 102–103
	(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),	Yes	103
(o)	if the annual report includes information under paragraph (n):		
	(i) if there is only one transaction—the value of the transaction, and	n/a	—
	(ii) if there is more than one transaction—the number of transactions and the aggregate of value of the transactions,	Yes	103
(p)	any significant activities and changes that affected the operations or structure of the entity during the period,	Yes	v–vii, 5–11
(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	104
(r)	particulars of any report on the entity given during the period by:		
	(i) 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	Yes	115–117
	(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	113
(u)	an index identifying where the requirements of this section and section 17BF (if applicable) are to be found.	Yes	163–166

TABLE 22: GOVERNMENT POLICY AND ASSOCIATED REPORTING REQUIREMENTS

Section	Comply	Page
Australian Government Cost Recovery Policy	Yes	104
Australian Government Foreign Exchange Risk Management Guidelines	Yes	104
Australian Government priorities	Yes	28–29, 157
▶ Rural Research Priorities		
▶ Strategic Research Priorities		
Australian Government Commonwealth Procurement Rules	Yes	104
Australian Government Commonwealth Property Management Framework	Yes	104
Australian Government Protective Security Policy Framework (PSPF)	Yes	104
Australian Government Public Sector Workplace Bargaining Policy	Yes	104
Comcover Risk Benchmarking Survey	Yes	102
<i>Commonwealth Disability Discrimination Act 1992</i> (National Disability Strategy 2010–2020)	Yes	19
Commonwealth Fraud Framework 2014	Yes	101–102
<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Section 16A)	Yes	58–63
<i>Freedom of Information Act 1982</i> , quarterly and annual lodgements	Yes	104, 158–159
National Code of Practice for the Construction Industry and the Commonwealth's Implementation Guidelines	—	
OLSC [Office of Legal Services Coordination] Legal Expenditure annual return	Yes	103
<i>Work Health and Safety Act 2011</i>	Yes	105



ALPHABETICAL INDEX

A

Abalone,
 Blacklip (*Haliotis rubra*), 78
 commercial stock, 89
 disease (*Perkinsus olseni*), 46
 rebuilding populations, 89
 value of, 20, 89
 virus in, 78
 wild, 51, 77, 89, 93
 see also Australian Abalone Growers
 Abalone Council of Australia, 9, 23, 51, 93
 Adelaide, SA, 41
 FRDC, new staff in, 21
 stakeholders workshop, 9
 Agricultural Senior Officials Committee, 27
 Agrtrans Research, 87
 algal blooms, 52
 Antarctic,
 proposed FRDC IPA, 23
 Division, 61
 Studies, Institute, 55
 'Appetite for Excellence', 81–82
 apps, 66
 Aquafin CRC, 42
 aquaculture,
 Australasian 2010–14, 90
 community perception of, 37
 environmental impacts, 6
 FRDC research priority, 41
 high-value species, 14
 in northern Australia, 14
 increase in, 20, 38, 40
 National Aquaculture Council, 18, 22
 octopus, FRDC project, 44–46
 oxygen concentrator (project 2008-339), 75
 World Aquaculture Conference, 43
 see also Yellowtail Kingfish
 Aquatic Animal Health & Biosecurity Subprogram (AAHBS),
 14, 44, 46, 89
 Assistant Minister for Agriculture and Water Resources,
 81, 157
 Assistant Minister to Deputy Prime Minister, 93
 Association of Southeast Asian Nations (ASEAN), 94
 Atlantic Salmon (*Salmo salar*)
 caviar, 76
 farming, 6, 20, 41, 63, 78
 hypoxia, 78
 Macquarie Harbour, Tas (project 2012-047), 62–63
 Australasian Aquaculture 2010–14 (project 2009-303), 90
 Australian Abalone Growers Association (AAGA), 23, 50
 Australian Agribusiness Leadership Program, 77
 Australian Aquatic Animal Health & Vaccine Centre, 52
 Australian Barramundi Farmers Association (ABFA), 23, 50
 Australian Bureau of Agricultural & Resources Economics
 (ABARES), 75
 Australian Bureau of Statistics, 9, 94
 Australian Council of Prawn Fisheries (ACPF), 23, 51, 60,
 102

Australian Fish Names Standard, see Fish Names Standard
 Australian Fisheries Management Authority (AFMA),
 23–24, 35
 Australian Fisheries Management Forum (AFMF), 24
 Australian Fisheries Management Standards, 13
 Australian Government
 funding, 13–14, 151
 Science and Research Priorities, 157
 Australian Institute of Aboriginal & Torres Strait Islander
 Studies (AIATSIS), 47
 Australian Marine Capture Fisheries, 63
 Australian Marine Sciences Association (AMSA), 78
 Australian Prawn Farmers Association (APFA), 9, 22, 51,
 77, 93
 Australian Recreational and Sport Fishing Industry
 Confederation Inc., see Recfish
 Australian Rural Leadership
 Foundation (project 2016-408), 77
 Program (project 2012/400), 66, 67–68, 76
 Australian Seafood Co-products (ASCo), 102
 Australian Seafood CRC, see Seafood CRC
 Australian Seafood Industries Pty Ltd, 5, 56
 Australian Southern Bluefin Tuna Industry Association
 (ASBTIA), 23, 51
 Australian Wild Abalone TM (AWA™)
 proposed marketing levy, 93
 supply chain, 89
 awards, 75–80
 AMSA, 78
 Fish and Chip, 6, 54
 Seafood Industry, 6, 54
 Science and Innovation, 45, 75

B

Banana Prawn (*Penaeus merguensis*), 96
 Barramundi, 75
 benthic pelagic interactions, 62–63, 89
 biomarkers, 42
 biosecurity, vi
 FRDC Subprogram, 14
 Board of FRDC, 107
 Chair, 8, 12, 109
 Deputy Chair, 109
 directors, 29, 107–111, 113
 induction workshop, 107
 duty of, 18
 Executive Director, 12, 111
 finance committee, 112
 independent member, 111
 meetings and attendance, 112
 planning by, 25
 remuneration policy, 113
 bursaries, 45, 52
 'Business Nous', 46
 bycatch
 policy, vi
 processing of (project 2015-204), 39
 reduction of (project 2016-057), 60–61
 workshop, 51

C

cages, in aquaculture, 78
carp, common, 7
 control of, 7, 13, 60
 herpes virus in (*Cyprinid herpesvirus*), 7, 60
Channel 10 television, 82
chefs, 81–82
China
 exports to, 20
 free trade agreement, vi
 marketing to, 89
 trade with, 94
Clean Seas, aquaculture, 41
climate change, 58
Comcare Australia, 105
Comcover, 102
commercial fishers, 18
 growth of, 20
commercialisation, 11
Common Language Group (project 2012-500), 72–73, 90
Commonwealth of Australia
 bycatch policy, vi
 CRCs, 5
 FRDC RAC, Chair, 23
 harvest strategy, vi
 industry contributions, ii
 Risk Management Policy, 102
 Statutory Funding Agreement, 87
see also Departments
Commonwealth Fisheries Association Inc., 22
Commonwealth Scientific and Industrial Research
 Organisation, see CSIRO
community
 coastal NSW (project 2014-301), 71
 conflict, 73
 perceptions survey (project 2011-514), 34, 36–37
 support for fisheries, 69
conferences
 ABARES, 75
 AMSA, 78
 Indigenous presentations at, 27
 ‘Outlook’, 24
 Sciences Outlook, vi
 Seafood Directions, 54
 World Aquaculture, 43
 World Recreational Fishing, 45
Cotton RDC, 11
Council of Rural R&D Corporations (CRRDC), 24, 85, 87
cost-benefit analyses, 62, 67, 72, 85
crabs
 in Fish Names list, 96
 mud crab, Torres Strait, 38
 Red Claw, 81
CRC (cooperative research centres), 5, 24
CSIRO, 24, 27, 39, 70

D

databases
 Australian Fish Names Standard, 95–96
 FRDC, 97
 trade, 38
Deckhand app, 66
Department of Agriculture and Water Resources (DAWR),
 vi, 60, 93
 amendment to PIRD Act, 9
 funding agreement with, 22
 levies area, 93
 research partner, 24

Department of Environment & Energy, 23, 60, 61
Department of Finance, 85
Department of Industry, Innovation & Science, 5, 60
Department of Industry Skills & Regional Development, 56
Department of Primary Industries & Regions, 56
Disability Discrimination Act, 19
‘discard ban’, 60
discards, processing of (project 2015-204), 39

E

East Coast Trawl, 89
Eastern School Whiting, 65–66
eCatch data system, 66
economic targets (project 2015-202), 64
E-FISH News, 98
Environment Protection and Biodiversity Conservation Act
 1999 (EPBC Act), 58–59, 156
ENVision Environmental Consulting, 71
Europe
 marketing in, 76
 Landing Obligation, 60
 trade with, 94
exhibitions, 47, 48
exports, 9, 20, 65, 94

F

feed ingredients, in aquaculture, 42
filleting, automated, 66
Fish and Chip Awards, 54
FISH magazine, 81, 98
Fish Names Standard, 12, 14, 95–96
 committee, 96
fish stocks, status of, see SAFs
Fishing & Aquaculture Climate Change Program, 58
Fishing line—Determination of breaking load AS440-1997,
 95
Fishfiles website, 99
fishmeal, 42
Food Focus Australia, 72
food service sector, communicating with, 98
FRDC
 accountability, 101
 accreditation as SDO, 95
 Agribusiness Scholarship, 79–80, 90
 audit 2016–17, 102
 awards sponsorship, 75, 77–80
 Board, see Board of FRDC
 budget 2017–18, 15–16
 collaboration fund, 48
 communication, 97–98
 consultants, 86, 103
 contracts, 102
 coordination program (SSERP), 9, 14, 44, 69
 Cost Allocation Policy, 19
 database, 97
 disability policy, 19
 EEO, 19
 enabling legislation, 152
 energy efficiency, 104
 ethical behaviour, 19
 evaluation of projects, 87–91
 financial statements, 119–149
 freedom of information, 104, 158–159
 functions, 153
 Funding Agreement, 19
 governance, corporate, 19, 107
 government policy, 104, 157

FRDC (continued)

- history, 12
- ICT, 97
- industrial democracy, 19
- industry partners (IPAs), iii–iv, 21, 23, 47, 50–52, 99, 102
- infrastructure services, 12
- investment, i–ii, 18, 25, 62–63, 67–68, 72–73, 79–80, 91
- framework, 32
- liabilities to staff, 113
- ministerial directions, 103
- national priorities
 - 1. sustainability, 33–37
 - 2. productivity & profitability, 38–39
 - 3. aquaculture development 40–43
- national RD&E infrastructure 44–56
- objects of, 153
- performance indicators, 101
- portfolio minister, 17, 152, 154
- priorities, framework for integration, 28–29
- project summaries, 35–37, 54–56, 58, 60–63, 65–68, 70–73, 75–80, 81–84
- publications, 81, 98
- quality system, 101
- RACs, iv, 8, 18, 21, 22–23, 53–54, 99
- RD&D programs
 - 1: Environment, 58–63
 - 2: Industry, 64–68
 - 3: Communities, 69–73
 - 4: People 74–80
 - 5: Adoption, 81–84
- RD&E plans, 25–26, 45–46
 - 2015–20, 12, 13–14, 87
- reporting requirements, 155–156
- research partners, 24
- revenue base, 151
- risk management, 101–102
- security, policy framework, 104
- staff, 19, 21, 102, 105
- stakeholders, workshops with 9, 45, 69
- statutory powers of, 153
- subprograms, 8, 9, 14, 44, 45, 46, 69
- triple bottom line, 63, 68, 73, 80, 84
- vision, 17
- websites, 7, 19, 36, 97, 99
- work health and safety, 105

free trade agreements, vi, 94

Future Oysters CRC-Project (CRC-P), 5, 54, 56

G

- gillnetting, 55
- governance training, 52
- Great Australian Bight Fishing Industry Association, 39
- Great Australian Bight Trawl Sector (GABTS), 39
- Green Camel aquaponics, 75
- greenhouse gas emissions, 58

H

- Habitat Strategy & Action Plan, 14
- harvest strategy, national, 64
- health,
 - of aquatic animals, 27, 42, 46, 52, 56, 62–63
 - of habitat and environment, 27
 - of FRDC staff, 105
- herpes virus
 - in abalone, 78
 - in carp, 7, 60
- Hong Kong, exports to, 20
- Human Dimensions Subprogram, 9, 14, 45, 69
- Huon Aquaculture Group, 41–43, 55, 76, 78

I

- Indigenous Australians,
 - at conferences, 47
 - business opportunities for, 14
 - development scholarship (project 2008/326.36), 57
 - fisheries governance, 64
 - fishing values (project 2015–205), 47
- Indigenous Fishing FRDC Subprogram, 14, 46
- Indigenous Reference Group (IRG), 18, 22, 44, 46–47
- Institute for Marine and Antarctic Studies (IMAS), 55
- intellectual property, 11

J

- Jack Mackerel, spawning survey, 89
- Japan,
 - exports to, 20
 - trade with, 94

K

- K4P see Yellowtail Kingfish
- Korea, Republic of, trade with, vi, 94

L

- Lakes Entrance Fishermen's Co-operative Ltd, 65–66
- leadership programs, 45, 49, 74, 77, 80
- 'Love Australian Prawns' campaign, 51
- Low Impact Fuel Efficient (LIFE) prawn trawls (project 2016–057), 58, 60–61

M

- Macquarie Harbour, Tas (project 2012–047), 6, 62–63, 89
- Marine Aquaculture Research Lease, 4 3
- marine parks, vi
- marine resources, management of, 90
- marketing
 - levy, 9, 93
 - 'luxury' seafood (project 2016–407), 76
- Maugean Skate (*Zearaja maugeana*), 6, 45–46, 89
- Minister for Agriculture and Water Resources, 7, 8, 17, 23, 60, 101, 157
- Murray Cod, 13, 40
- Murray–Darling Basin, 13

N

- National Aquaculture Council, 18, 21
- National Carp Control Plan, 7, 13, 60
- National Disability Strategy 2010–2020, 19
- National Fish and Chip Awards, 6, 54
- National Fish Habitat Strategy & Action Plan, 14
- National Fishing and Aquaculture RD&E Strategy 2016, 9 2015–20, 27
- National Harvest Strategy Guidelines, 64
- National Primary Industries RD&E Framework, 9, 27
- National Seafood Industry Alliance (NSIA), 18, 21
- National Seafood Industry Awards, 6, 54
- National Seafood Industry Leadership Program (NSILP), 45 2016 results (project 2014–407), 49
- New South Wales (NSW)
 - aquaculture in, 43
 - Broughton Island, 43
 - Cabbage Tree Island, 43
 - Department of Primary Industries (DPI), 41–43, 56, 71
 - FRDC RAC, 23, 51, 53
 - industry contributions, ii
 - Port Stephens, 42–43
 - Providence Bay, 43
 - Sydney Fish Market, 71
 - Western Sydney, 75

Northern Territory
 Aboriginal community development, 46
 FRDC RAC, 23, 53
 industry contributions, ii
 Roper to Robinson Rivers area, 46

Nuffield Australia Farming Scholarships, 45
 (project 2016-407), 76, 77

O
 octopus (*O. tetricus*), WA (project 2010-200), 67–68, 89
 oil and gas industry, 7
 Orange Roughy, 36
 'Outlook' conference, 23
 overfishing, 10, 36
 oysters,
 CRC-P, Future Oysters, 5, 51, 56
 disease, 56
 easy open, 14
 value of, 20
 see also Pacific, Sydney
 Oysters Australia (OA), 5, 23, 51, 56

P
 Pacific Oyster (*Crassostrea gigantica*), 56
 Mortality Syndrome (POMS), vi, 46, 54, 56, 89, 90
 Pacific Reef Fisheries, Qld, 77
 Patagonian Toothfish (*Dissostichus eleginoides*), 61
 Pearl Consortium, 23, 52
 pearls, value of, 20
 People Development Coordination Program, 14
 performance analysis, 64
 PIRD Act, 17, 19, 25, 152
 amendment to, 9, 93
 PIRSA, 45, 66
 POMS, see Pacific Oyster
 Port Stephens Fisheries Institute, 42
 prawns
 aquaculture, 20, 77
 Black Tiger (*Penaeus monodon*), 5
 farmed, industry contribution, ii
 trawls, low fuel (project 2016-057), 58, 60–61
 value of, 20
Primary Industries Research & Development Act 1989, see
 PIRD Act
 priorities, government
 national strategic, iii, 28, 157
 rural research, 157
 processing, post-harvest, 14
 productivity and profitability, 20, 27, 38
 Profit, Rural R&D program for, 41
 protected species, vi
Public Governance, Performance and Accountability Act
2013 (PGPA Act), 17, 19

Q
 quality control for science (project 2014-009), 35
 Queensland (Qld)
 biosecurity, vi, 5
 Department of Agriculture and Fisheries (DAF), 5
 FRDC RAC, 23, 53
 hospitality tour in, 81
 industry contributions, ii
 inshore fisheries value (project 2013-301), 70
 Movement Control Area, 5
 Seafood Marketing Symposium, vi
 White Spot, vi, 5
 Queensland Coral Reef Fin Fish Fishery, 89
 Queensland Sustainable Fisheries Strategy, 53

R
 RACs, see FRDC
 Real Time Data, software company, 66
 RD&E priorities, 22–23, 25, 48, 69, 157
 RDCs, rural, 24, 27, 86
 Recfish Australia, 18, 22
 Recfishing Research Subprogram, 8, 14, 44, 45
 Chair and committee, 8
 recreational fishing, social and economic contribution of,
 14, 45
 refrigeration for fishing vessels, 90
 Regional Comprehensive Economic Partnership, 94
 Research Advisory Committees (RACs), see FRDC Research
 Providers' Network, 27
 Roberts Limited, 86
 rock lobster,
 in Fish Names list, 96
 marketing to China, 89
 value of, 20
Rural Research and Development Legislation Amendment
Bill 2013, 93
 Rural R&D for Profit, 41

S
 SafeFish, 12, 14, 51
 SAFs, 10, 12, 13, 44, 81, 89
 project 2015-034, 35–36
 salmonids
 aquaculture, 20, 52
 value of, 20
 sardines
 spawning survey, 89
 value of, 20
 scholarships
 FRDC, 79–80, 90
 Nuffield, 45, 76
 seabirds, vi
 Seafood CRC, 41–42, 89, 90
 history (project 2014-714), 83–84
 Seafood Directions Conference 2017, 54
 'Seafood Escape' TV show, 82
 Seafood Industry Australia (SIA), vi, 18, 22
 Seafood Services Australia (SSA), 72
 Seafood Trade Advisory Group, 51
 seals, fur, vi
 security of access, 27
 seismic surveys, 7
 Select Oyster Company, 56
 Shark Fishery, 89
 sharks, vi
 Siphon oxygen concentrator, 75
 social licence, 63
 social media, 49, 99
 Social Science and Economics Research Coordination
 Program (SSERCP), 9, 44, 69
 South Australia (SA)
 Department of Primary Industries and Regions SA,
 see PIRSA
 FRDC RAC, 23, 51, 53
 Great Australian Bight, 39
 industry contributions, ii
 Rock Lobster fishers, 66
 West Beach, 41
 South Australian Aquatic Science Centre, 41
 South Australian R&D Institute (SARDI), 41, 56

Southern & Eastern Scafish, 89
 Southern Ocean, 61
 Southern Rock Lobster, SA, 66
 Southern Rocklobster Ltd (SRL), 23, 52
 stakeholders, 18, 21
 annual workshop, 9
 Common Language Group, 72–73, 90
 reporting to, 87, 98
 Standards Australia, 95
 Standards Development Organisation (SDO), 95
 statistics, fishing industry, 20
 stock status, see SAFs
 sustainability, 10, 27, 37, 42, 59, 73, 90
 Sydney Rock Oysters, 56

T

Tactical Research Fund, 89
 tagging, acoustic, 55
 Tasmania (Tas)
 Bathurst Harbour, 55
 environmental impact of aquaculture, 6
 FRDC RAC, 23, 51, 54
 Indigenous fisheries, 46
 industry contributions, ii
 Maugean Skate, 55
 Macquarie Harbour, 55, 62–63, 89
 Minister for Fisheries, 29
 Tasmanian Salmonid Growers Association (TSGA), 23, 52
 Tassal aquaculture, 55
 threatened, endangered & protected (TEP) species, 78–79
 Toothfish,
 Antarctic, in Fish Names list, 96
 Patagonian, 61
 Torres Strait Islands, finfish, 38
 Torres Strait Regional Authority, 38
 tourism, 70, 71
 trade
 advisory group, 38
 database, 38
 free trade agreements, vi, 94
 statistics, 9, 94
 TRAIL leadership program, 77
 trans-Pacific partnership, trade with, 94
 trout, aquaculture, 6
 Tuna, value of, 20
 TV show (project 2016-501), 82

U

United Kingdom, marketing in, 76
 United States, exports to, 20
 universities, 24, 27, 44
 Adelaide, SA, 56
 Flinders, SA, 56
 James Cook, Qld, 70
 Macquarie, NSW, 56
 Melbourne, Vic, 75
 Newcastle, NSW, 56
 Sunshine Coast, Qld, 56
 Sydney, NSW, 75, 78
 Tasmania, 56, 62–63, 69, 78
 Technology, Sydney (UTS), 56, 71
 Technology, Qld (QUT), 70
 Wollongong, NSW, 71
 Urangan Fisheries, 81
 urchins, limiting spread of, 89

V

vaccines, for industry, 52
 videos, 43, 50, 99
 Victoria (Vic)
 FRDC RAC, 23, 54
 industry contributions, ii
 Lakes Entrance Co-op, 85–86
 RAC, 54
 Vietnam, exports to, 20
 virus
 herpes simplex, 78
 carp herpes (*Cyprinid herpesvirus*), 7
 White Spot Syndrome (WSSV), 5

W

waste utilisation, post-harvest, 14
 processing of (project 2015-204), 39
 wastewater, 75
 'Wave to Plate', 46
 websites, 7, 19, 36, 43, 99
 Western Australia (WA)
 aquaculture in, 43
 Department of Fisheries, 67
 FRDC RAC, 23, 51, 54
 Fremantle, 68
 Geraldton, 43, 68
 industry contributions, ii
 Kimberley coast, 43
 lobster, 68
 octopus fishery (project 2010-200), 67–68
 Western Australian Fishing Industry Council (WAFIC), 77
 Western Research Institute, NSW, 71
 Western Rock Lobster Council (WRLC), 23, 52
 whales, vi, 58
 White Spot
 Disease (WSD), vi, 5, 9, 93
 Syndrome Virus (WSSV), 5, 46, 51
 Whiting, Eastern School, 65–66
 wild-catch, 10
 community perceptions, 71
 improved performance, 65
 increase in, 20, 33–34
 research on, 35
 sustainability of, 37
Working Together, RD&E strategy, 27
 workshops
 bycatch, 51
 Low Impact Fuel, 58, 60–61
 Rural.XO microhacks, 11
 stakeholders, Adelaide, 9, 45, 69
 Toothfish, 61
 World Health Assembly, 63
 World Recreational Fishing Conference, 45
 Wooden Boat Festival, 49
Writing our history, 83, 90

XYZ

Yellowtail Kingfish (*Serioli lalandi*), 14, 40
 aquaculture, FRDC project, 41–43
 Yield Technology Solutions, 56
 Young Science and Innovation Awards, 45

PUBLICATIONS AND OTHER INFORMATION

The following information is available from the FRDC	Printed	Website
The RD&E plan (<i>Knowledge for fishing and aquaculture into the future: The FRDC's research, development and extension plan 2015–20</i>), 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
Non-technical summaries of all final reports of FRDC projects.	—	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

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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.

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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.

