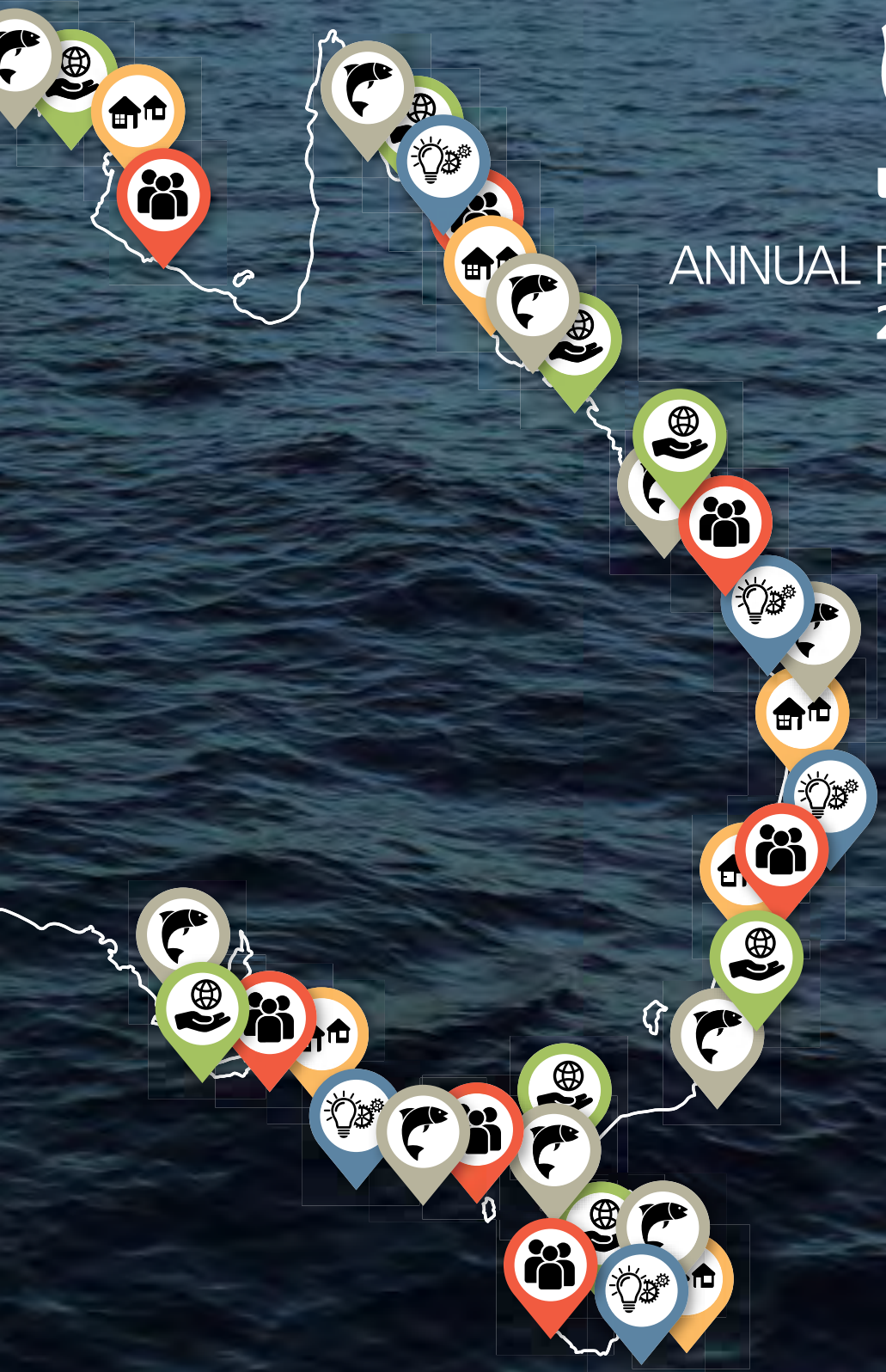




FRDC

ANNUAL REPORT 2015–16



Key events in 2015–16

1. FRDC's five-year Research, Development and Extension Plan 2015–20 was launched.
2. The gross value of production of the Australian fishing industry climbs to \$2.71 billion.
3. National Fishing and Aquaculture RD&E Strategy 2015–20 finalised under FRDC stewardship.
4. FRDC assists oyster and prawn farmers with two biosecurity and disease outbreaks with expertise and funding.
5. Twenty-five new leaders finalise FRDC-sponsored training programs.
6. The Western Australian Octopus Fishery transitions to a full fishery, based on FRDC research
7. National Marine Science Plan is completed and launched.
8. FRDC organisational restructure underway, including opening of the first FRDC regional office in Adelaide and new jurisdictional Research Advisory Committees.
9. FRDC assists Australia–New Zealand bid to win the rights to host the 2020 World Fisheries Congress.
10. FRDC retains ISO 9001:2008 accreditation.



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 126.

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, 41.
- Outcomes by recent and current projects are in the research and development (R&D) programs reporting starting on page 53 (Environment), page 56 (Industry), page 60 (Communities), page 63 (People) and page 67 (Adoption).
- Performance reporting for the Management and accountability program starts on page 104.
- Financial contributions by industry and governments are listed on pages iii and 138–139.
- Coverage of corporate governance information is in the section starting on page 112.
- The financial statements start on page 126.

2015–16 achievements through investment

Five years at a glance

TABLE 1: FINANCIAL INDICATORS OF R&D INVESTMENT

Expenditure	2011–12	2012–13	2013–14	2014–15	2015–16	Spending target %	Variance % [note 1]
	\$m	\$m	\$m	\$m	\$m		
Total expenditure	29.68	25.69	27.56	28.16	28.33		
Total of R&D projects	25.98	22.14	22.87	24.85	24.58	100.00	
R&D Program 1 (Environment)	11.80	8.25	10.20	10.44	8.68	40.00	– 4.69 ↓
R&D Program 2 (Industry)	9.47	9.57	8.33	10.09	11.54	40.00	+6.95 ↑
R&D Program 3 (Communities)	0.47	0.74	0.75	0.83	0.86	2.00	+1.50 ↑
R&D Program 4 (People)	2.12	1.80	1.94	1.49	1.54	10.00	–3.73 ↓
R&D Program 5 (Adoption)	2.12	1.78	1.65	2.00	1.95	8.00	–0.07 ↓
Management and accountability	3.70	3.55	4.69 ⁽¹⁾	3.31	3.76		

1. This figure is the variance between the program's percentage of total R&D projects expenditure 2015–16 in relation to the spending target.

TABLE 2: INCOME

	2011–12	2012–13	2013–14	2014–15	2015–16
	\$m	\$m	\$m	\$m	\$m
Total income	25.42	25.98	26.89	31.75	30.12
Industry contributions	7.70	7.98	8.46	8.57	8.29
Total government contributions	16.63	17.23	17.93	18.71	20.05
Project funds from other parties	0.46	0.48	0.17	4.27	1.48
Other revenue	0.63	0.29	0.33	0.20	0.30
Maximum matchable (government) contribution ⁽²⁾	5.56	5.83	5.99	6.25	6.78
Actual government matching	5.51	5.57	5.96	6.22	6.48

1. In 2013–14, FRDC had a \$1.2 million write down of assets which increased the cost of Management and accountability.
2. Government funding and maximum matchable contribution (the maximum amount to which the Australian Government will match industry contributions) are detailed on page 163.

TABLE 3: PROJECTS

	2011–12	2012–13	2013–14	2014–15	2015–16
Number of approved new projects	146	123	94	105	116
Total number of active projects under management	483	476	428	394	415
Number of final reports completed	136	109	128	155	133

TABLE 4: PROJECT LENGTH—AVERAGE COST PER PROJECT

Duration	Total investment \$m	No. of projects	Average total project value \$
Long	5.65	73	356,461
Medium	12.29	154	316,293
Short	6.63	164	101,789
Total	24.58	391	

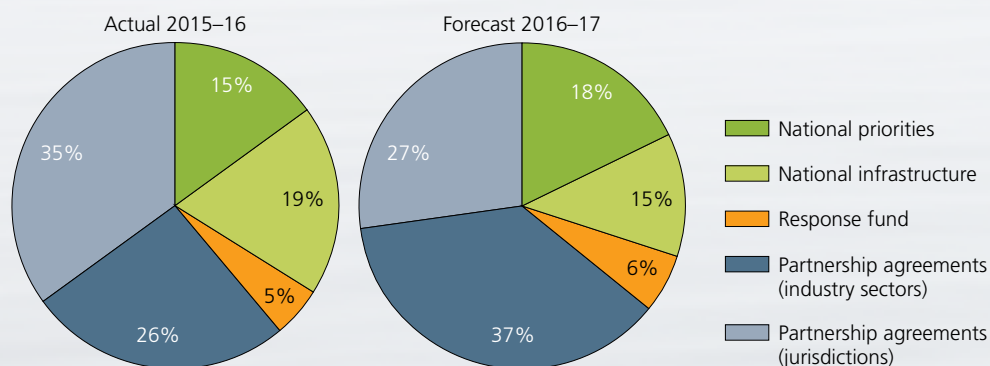
The FRDC balanced research investment approach

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 5: EXPENDITURE BY INVESTMENT AREA

	2015–16	Actual	Budget	Variance
			2015–16	
	\$m	as %	as %	%
National priorities	3,624,031	15	10	5
Priority 1	1,522,955			
Priority 2	323,389			
Priority 3	1,777,687			
National infrastructure	4,681,629	19	14	5
Partnership agreements (industry sectors)	6,403,378	26	32	-6
Partnership agreements (jurisdictions)	8,717,948	35	36	-1
Response fund	1,133,799	5	6	-1
Incentive fund	14,331	0	2	-2
Total activities expenditure	24,575,116	100	100	0

FIGURE 1: RD&E BUDGET ACTUAL EXPENDITURE 2015–16 VERSUS FORECAST EXPENDITURE 2016–17

Summary of contributions

TABLE 6: CONTRIBUTIONS, MAXIMUM MATCHABLE CONTRIBUTIONS BY THE AUSTRALIAN GOVERNMENT AND RETURN ON INVESTMENT, 2015–16

Jurisdiction— by year	A	B	C	D	E		F
	Maximum matchable contribution (\$) [note 1]	Actual contribution amounts (\$) [note 2]	Per cent of matchable amounts (%)	Distribution of FRDC spend by state (\$) [note 3]	Return on contribution (D / B) [note 4]		
					2015–16	5 years	
Australian farmed prawns [5]	195,570	194,044	99	63,823	0.33	1.44	
Commonwealth [6]	1,105,143	1,121,900	102	3,345,611	2.98	3.26	
New South Wales	350,925	687,798	196	2,587,972	3.76	3.48	
Northern Territory	130,138	195,011	150	954,925	4.90	3.25	
Queensland	541,793	655,115	121	1,766,078	2.70	4.51	
South Australia	1,010,628	923,648	91	4,287,678	4.64	2.92	
Tasmania	2,019,730	2,087,974	103	6,676,145	3.20	2.48	
Victoria	220,323	404,116	183	1,563,132	3.87	3.82	
Western Australia	1,404,713	1,404,664	100	2,654,775	1.89	2.88	

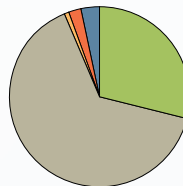
1. Maximum matchable contribution is the maximum amount to which the Australian Government will match industry contributions in accordance with the criteria detailed on page 163.
2. Actual amounts contributed from the commercial and recreational sectors, research partners and government. It is important 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. 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.
4. Ratios in column F are derived from the distribution of FRDC spend (column D) for 2015–16 and the previous four years.
5. The Australian Prawn Farmers Association has unspent funds in its 2015–16 allocation.
6. There are timing issues in some jurisdictions therefore matching may not occur in the year in which the invoice is raised.



Industry Partnership Agreement investment by program 2015–16

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.

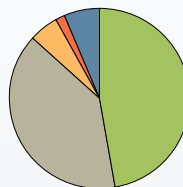
Program	\$	%
Environment	1,852,482	28.93
Industry	4,158,527	64.95
Communities	47,120	00.73
People	147,312	02.30
Adoption	197,935	03.09
Industry Partnership Agreements total	6,403,376	100.00



Research Advisory Committee investment by program 2015–16

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.

Program	\$	%
Environment	4,118,311	47.24
Industry	3,445,674	39.52
Communities	469,531	05.39
People	139,018	01.59
Adoption	545,410	06.26
Research Advisory Committees total	8,717,944	100.00





Australian Government

Fisheries Research and Development Corporation

25 September 2016

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 2016.

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 15) 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 2015–16 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, 129 and 138–139), outputs from research and development against the performance measures published on page 126 of the *2015–16 Portfolio Budget Statements 2015–16, Budget Related Paper No. 1.1, Agriculture Portfolio* (pages 105) and the *FRDC Annual Operational Plan* (pages 23–25 and 30). 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 70–90). Future priorities and planned budgets against the key activities are covered on pages 11–31.

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 seafood industry councils, recreation fishing bodies, peak bodies, fisheries managers, science providers and the Australian Government Department of Agriculture and Water Resources. Work has also been undertaken to improve engagement with Indigenous communities across the country. The focus FRDC places on maintaining partnerships has contributed to the strong performance of the Corporation during the year. Further analysis of the operating environment is contained in the directors' review of operations (pages 4–10).

This was particularly important as this was the first year for our (new) RD&E Plan 2015–20 that brought a change in direction to FRDC's priorities and also saw the implementation of a new business model with the opening of its first regional office in Adelaide in April 2016. New staff were employed to oversee the delivery of key services including delivery of the *Status of Australian Fish Stocks Reports* and regional Research Advisory Committees.

There was strong financial growth in the Australian fishing industry that saw the gross value of production rise to \$2.71 billion for the first time after spending several years plateaued at around \$2.2 billion. This was driven by solid production for a number of sectors, the value of the Australian dollar, lower fuel prices and expanding markets arising from new free trade agreements. It is important to note that not all sectors did as well, with some inshore fisheries continuing to operate in a difficult social environment.

During the year FRDC's new and emerging aquaculture opportunities program started to see results with two new fish farming sites (New South Wales and Western Australia) coming on line. These sites will see significant growth in production volumes and capacity, enabling up to a tenfold increase in non-salmonid finfish aquaculture of temperate species. The Commonwealth continued to develop a National Aquaculture Strategy to which the FRDC has provided supporting data. Other aquaculture sectors, namely prawns, abalone and Barramundi also started work during the year on increasing capacity and production in 2016–17.

Perception of the fishing industry (along with other primary industries) remains a key priority. The community's perception of the fishing industry overall increased slightly, however their rating of the commercial fishing sector fell to the lowest level (less than one in four support) in the five years of monitoring in FRDC perception surveys.

Access to marine resources also continued to be a major issue affecting the operating environment through the year with a number of stakeholder groups looking for control of and access to certain areas. This has led to conflict and changes in policy and management of a number of fisheries around Australia. This trend is likely to continue in the short term with new marine park boundaries due to be released in latter half of 2016.

In addition, management of oil and gas exploration and in particular seismic testing across Australia and its interaction with the fishing and aquaculture industry remained a contentious and topical issue.

Marine mammals was a priority research area during the year. This was driven to a large extent by the *Geelong Star* and a boom in the population of New Zealand fur seals into the Lower Lakes and Coorong system. FRDC has funded a range of work to assist in this issue, but which will also contribute to finalising the Guidelines for Harvest Strategy and Bycatch.

Two major disease outbreaks occurred during the year (Pacific Oyster Mortality Syndrome in Tasmania and a disease with similarities to *Penaeus Monodon* Mortality Syndrome that affected Tiger Prawns in the Bundaberg region of Queensland) which have led to a re-prioritisation of funding and a heightened level of awareness and biosecurity around aquaculture facilities.

The cost of production and management of fisheries remain an issue for all producers, despite the Australian dollar and price of fuel remaining low. Some respite does appear on the horizon with the Productivity Commission Inquiry into Fisheries and Aquaculture and a number of other reforms looking at streamlining regulations for the industry.

Portfolio Budget Statement performance measures	Targets 2015–16	Results
Projects focus on the FRDC Board's assessment of priority research and development issues.	95%	All projects aligned to FRDC and stakeholder priority areas, see pages 30–90.
Projects are assessed as meeting high standards/peer review requirements for improvements in performance and likely adoption.	95%	Achieved, see pages 30–90.
Maintain ISO 9001:2008 accreditation.	1	Accreditation maintained, see page 106.
Submit planning and reporting documents in accordance with legislative and Australian Government requirements and timeframes.	100%	Achieved: All documents submitted within time frames, see page 107.
Implement best practice governance arrangements to promote transparency, good business performance and unqualified audits.	100%	Achieved: FRDC received a clear audit, see pages 123 and 125.
Demonstrate the benefits of RD&E investments by positive benefit cost analysis results.	100%	Achieved: A benefit cost analysis of some 202 projects returned a benefit of 2.6 to 1, see pages 70–90.
Perception of the commercial fishing industry increased from 30% to 36% by 2020.	31%	Results of the 2015 survey found that the community's perception of the commercial fishing sector as sustainable had decreased to just 24%. At the broader level, the rating for all fishing and aquaculture was 40%.
Volume of aquaculture rises to more than 100,000 tonnes (t).	85,000 t	Aquaculture production rose to 91,000 tonnes, see page 41.
The value of Australia's fishing and aquaculture increases by 20% (\$2.4 billion to \$2.8 billion).	\$2.4 b	Gross value of production determination for 2015–16 increased to \$2.713 billion (b).
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.	2000 t	Exact volumes of the key species (Cobia, groupers, Murray Cod, Yellowtail Kingfish) are not able to be included in this annual report due to privacy requirements of the small number of companies involved.

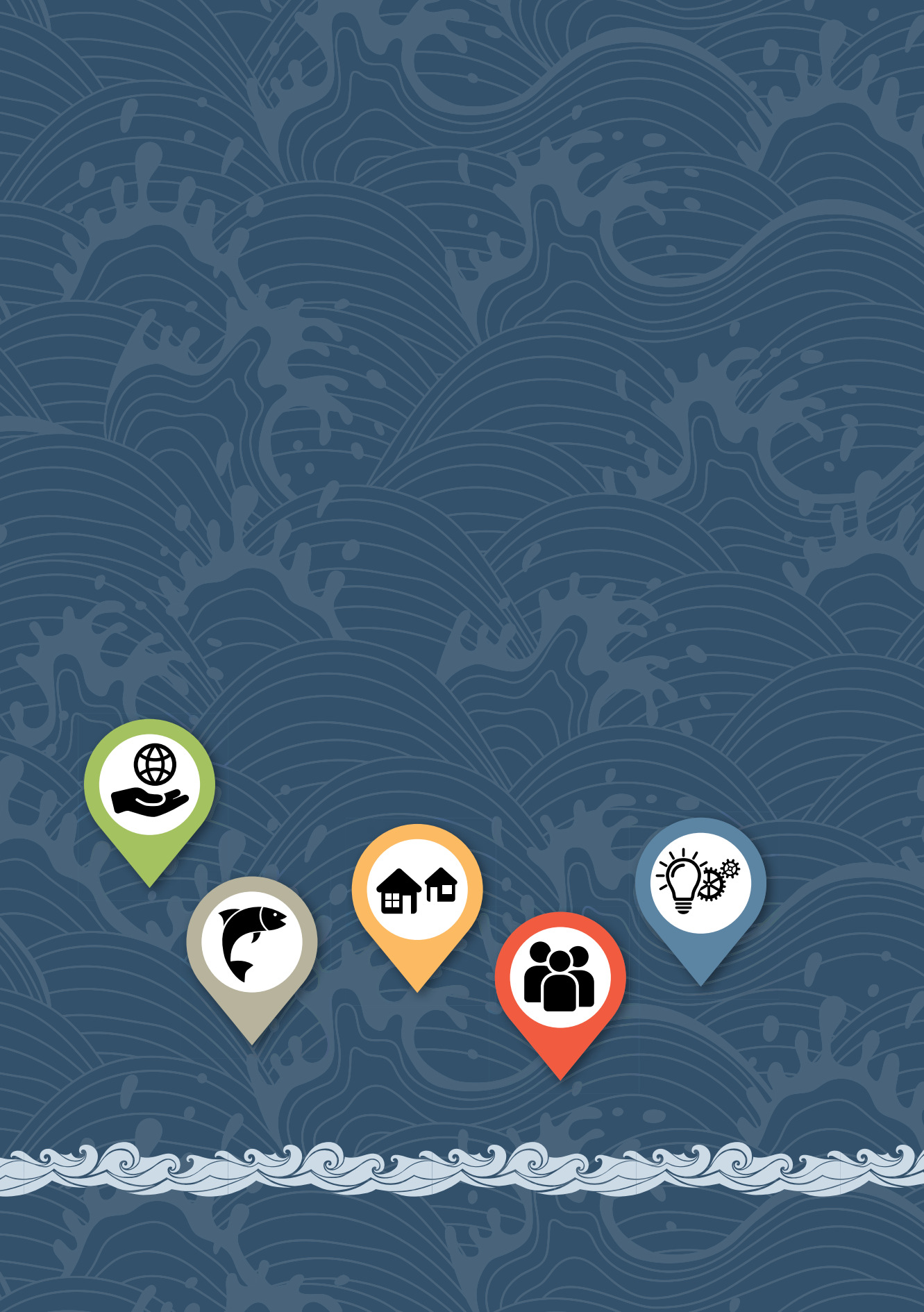
The directors' review of operations (pages 4–10) provides further detail on events and activities that impacted the FRDC during the year.

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. Harry Woods
Chair





FRDC

**ANNUAL REPORT
2015–16**



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



THE YEAR IN REVIEW

External environment—looking out

Ministerial arrangement changes

On 20 September 2015, the Prime Minister announced changes to several ministerial portfolios that included moving Water Resources to the Department of Agriculture, under Deputy Prime Minister the Hon. Barnaby Joyce MP. Senator the Hon. Anne Ruston was appointed Assistant Minister for Agriculture and Water Resources and given responsibility for fisheries and aquaculture.

Fisheries ministers meeting

Ministers and senior officials from the federal, state and Northern Territory governments met on 29 April 2016 in Melbourne for the Australian Fisheries Ministers' Meeting. Senator Ruston chaired the meeting. The FRDC provided input to the meeting for a number of key agenda items including the National Fishing and Aquaculture RD&E Strategy, biosecurity, Indigenous fishing and a proposed national recreational survey.

National Fishing and Aquaculture RD&E Strategy 2015–20

The governance committee that oversees the implementation of the RD&E Strategy met in Canberra in early April 2016. The strategy document is now finalised, and is being implemented by its signatories. A major element of this document is the role each partner will undertake, with respect to 'lead' or 'support' in the various areas of RD&E covered by the Strategy.

The governance committee will continue to meet and oversee the implementation of the Strategy. The Chair of the governance committee has been given to the Chair of the Australian Fisheries Management Forum, currently Mr Ian Curnow from the Northern Territory Department of Primary Industry and Fisheries. The FRDC will continue to provide secretariat support to the committee.

Australian fisheries communication strategy

The Australian Government Department of Agriculture and Water Resources (DAWR) has undertaken a project aimed at improving public understanding of the seafood industry and fisheries management.

The FRDC provided input and advice throughout the process up to the launch by the Assistant Minister Senator Ruston at the Seafood Directions conference in Perth, in October. This included assisting with market research that will lead to a better understanding of community attitudes towards fisheries management, aquaculture and the seafood industry. The FRDC also helped to refine key messages and create appropriate materials to communicate those messages.

The FRDC will continue to assist both the department and industry undertake communication activities in this area.

Aquatic biosecurity

Over the course of the year there were a number of biosecurity and disease issues. They included an outbreak of Pacific Oyster Mortality Syndrome (POMS) in Tasmania, and a disease similar to *Penaeus Monodon* Mortality Syndrome that affected Tiger Prawn farms in the Bundaberg region of Queensland.

POMS

The first POMS event in Australia occurred in late 2010, when high mortalities occurred in two estuaries in New South Wales (Botany Bay and Port Jackson) and subsequently in the Hawkesbury estuary. In January 2016, the disease was identified in Tasmania, and by the end of February 2016 there were six marine growing areas confirmed as POMS infected. This is a major issue as Tasmanian hatcheries supply around 90 per cent of Australia's Pacific Oyster spat to the industries in South Australia and New South Wales.

The FRDC provided emergency funds to Oysters Australia to:

- support a national approach to developing a response plan,
- rescue the latest generation of all existing genetic oyster family lines,
- assess the survival rate of brood stock of all Australian Seafood Industry (ASI) oyster family lines located in areas exposed to the POMS virus and develop an application for a Cooperative Research Centre-Project (CRC-P).

Deputy Prime Minister and Minister for Agriculture and Water Resources, the Hon. Barnaby Joyce, announced a further \$1.47 million to deliver critical measures to manage, contain and understand the incursion of POMS in Tasmania.

On 22 June 2016, the Australian Government announced the Oyster CRC-P application had been successful. The \$3 million of funding will leverage an additional \$8 million of industry and partnership funding to rebuild and grow Australia's oyster industry, and develop collaboration between industry and researchers nationally.

Mortalities in Queensland farmed prawns

In early 2016 mortalities were observed on three prawn farms in the Bundaberg area. Biosecurity Queensland began investigations with the assistance of the Australian Prawn Farmers Association. Subsequent testing by Biosecurity Queensland and the Australian Animal Health Laboratory in Geelong identified a disease condition in prawns called hepatopancreatitis which affects farmed Tiger Prawns. FRDC has funded research into the extent of the pathogen occurrence, and to better understand the epidemiology of the outbreak.

The Aquatic Consultative Committee on Emergency Animal Diseases met several times in early 2016 to consider this issue. As part of its discussions, the committee put together a surveillance working group who are developing a draft surveillance plan. The first phase of the plan proposes further testing to determine the cause of the disease and ongoing monitoring continues.

Rural R&D for Profit programme

The Rural Research and Development (R&D) for Profit programme boosts funding to the rural research and development corporations (RDCs). The program funds nationally coordinated, strategic research to improve farm-gate productivity and profitability and deliver real outcomes for Australian farmers. The program encourages collaboration and partnerships between research and industry. To be eligible for funding applicants must partner with one or more researchers and/or RDC, including funding bodies and producer groups. It is also important because it provides a mechanism that facilitates partnerships between RDCs and stakeholders wanting to undertake R&D.

Round two of the Rural R&D for Profit programme was launched by the Hon. Barnaby Joyce on 23 September 2015.

On 6 June 2016, the Hon. Senator Anne Ruston announced that a \$236,275 FRDC-sponsored project to investigate the use and commercialisation of an automated oyster opening system was successful under round two of the program.

Collaboration with RDCs

FRDC continues to take a proactive role in working with the other RDCs. Key to this has been participation in cross-RDC meetings, including the Council of Rural Research and Development Corporations (CRRDC), and meetings of business, communication and research program managers. FRDC has taken a leading role on the CRRDC Evaluation and Performance Working Group which looks to evolve the National Evaluation Strategy and undertake a cross-RDC assessment. The FRDC has partnered with a number of other RDCs to invest and participate in various Rural R&D for Profit programme projects. The FRDC has also contributed substantially to the CRRDC's communication strategy, providing expertise to develop case studies, online resources and videos.

Community perceptions survey

Sustainability remains an ongoing challenge and key area of focus for the FRDC and Australian fishing and aquaculture. All stakeholders, including government, continue to invest time and resources into improving sustainability. In parallel, efforts are directed at ensuring the broader Australian community is informed about and engaged with progress in achieving sustainability. The level of awareness and engagement remains an important 'marker' of success.

Since 2011, FRDC has commissioned a biennial survey to gauge community perceptions about the achievements and ongoing investment being made by fishing and aquaculture in achieving long-term sustainability. The most recent survey was conducted between 13–19 August 2015 with 1507 surveys being completed.

Community perceptions of the sustainability of the Australian fishing industry commercial wild-catch sector dropped from 30 per cent to 24 per cent. Taking into account a broader grouping of fishing and aquaculture to include recreational, Indigenous and aquaculture, the community's rating is 40 per cent.

Parliamentary inquiries

Over the year the FRDC provided input into the following inquiries in relation to fishing and aquaculture:

- Productivity Commission inquiry into regulation of the Australian marine fisheries and aquaculture sectors,
- Inquiry into opportunities for expanding the aquaculture industry in northern Australia,
- Inquiry into large-capacity fishing vessels operating in Australia's marine jurisdiction.
- National Research Infrastructure Capability Issues Paper.

National Marine Science Plan launch

The Hon. Ian Macfarlane, Minister for Industry and Science and the National Marine Science Committee, launched the National Marine Science Plan (NMSP) on 11 August 2015 at Parliament House.

The NMSP draws together the knowledge and experience of over 23 marine research organisations including the FRDC, universities, government departments and more than 500 scientists.

It outlines the science needed to provide the knowledge, technology and innovation cornerstones that will grow a sustainable 'blue' economy. Our oceans have a very large number of stakeholders, particularly if those Australians who expect their coasts and oceans to be healthy and productive are included.

THE YEAR IN REVIEW

Internal environment—looking in

FRDC Board

The current FRDC Board was appointed by Deputy Prime Minister and Minister for Agriculture and Water Resources the Hon. Barnaby Joyce, effective 1 September 2015.

Renata Brooks was reappointed, with the new directors being Colin Buxton, John Harrison, Lesley MacLeod, Daryl McPhee and John Susman. The Hon. Harry Woods (Chair) and Patrick Hone (Executive Director) continued in their roles and Renata Brooks was appointed as Deputy Chair.

The FRDC ran an induction program for the newly appointed directors on 6–7 October 2015 which covered key issues including corporate governance, risk, finance and FRDC policies and procedures.

Outgoing directors

Four Board members—Brett McCallum, Peter O'Brien, Bruce Mapstone and Heather Brayford ended their terms. The Chair, other directors and staff would like to thank them for their work and guidance.

FRDC's new outcome statement embraces marketing

Minister of Finance Senator the Hon. Mathias Cormann approved a change to the FRDC's outcome statement on 15 March 2016 to incorporate changes to the *Primary Industries Research and Development Act 1989* (PIRD Act), allowing RDCs to fund marketing activities, as well as placing a greater emphasis on extension and adoption activities. The new outcome statement is:

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

FRDC's RD&E Plan launch and implementation

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.

This Plan signifies a quantum change in how FRDC invests in RD&E. There will be a focus on the fewer key priorities that have been identified by our stakeholders. **Lead, collaborate** and **partner** are the core principles that will drive how the Plan is implemented.

Nationally, FRDC will work with **lead** bodies to deliver three national research priorities.

1. Ensuring that Australian fishing and aquaculture products are sustainable and acknowledged to be so.
2. Improving productivity and profitability of fishing and aquaculture.
3. Developing new and emerging aquaculture growth opportunities.

The FRDC will encourage its regional and sector partners to **collaborate** wherever possible. Importantly, FRDC is committed to continuing its support for people development, the Indigenous Reference Group, Recfish Research and key services including the Australian Fish Names Standard and SafeFish.

Partnering will involve devolving decision making to jurisdictions and sectors to allow them greater ownership of their investment. Jointly with its partners the FRDC will support subprograms, infrastructure and services.



FRDC organisational restructure

In line with the launch of the Plan, informed by reviews commissioned internally, and following consultation with stakeholders, the FRDC has changed its business model.

The FRDC opened its first regional office in Adelaide in April 2016, while maintaining an office in Canberra. New staff have been employed who are responsible for overseeing the internalisation and delivery of key services including delivery of the *Status of Australian Fish Stocks Reports* (SAFS) and Research Advisory Committees.

The Hon. Barnaby Joyce and Senator Anne Ruston announced the new regional office in a media release on 10 February 2016.

Research Advisory Committees

In October 2014, the FRDC commissioned a review of jurisdictional Fisheries Research Advisory Bodies (FRABs) to identify better practice and better outcomes; and how to improve the efficiency and effectiveness of the network. Based on the review and consultations with stakeholders, the FRDC is now directly managing the FRABs—now called Research Advisory Committees (RACs)—to achieve more direct regional engagement and visibility.

This new arrangement will provide RACs with greater autonomy and flexibility but also address accountability gaps. Three new staff members (Adelaide based) have been employed to oversee the eight jurisdictional RACs.

Industry Partnership Agreements

Industry Partnership Agreements (IPAs) are a growing part of the FRDC's business. They provide individual sectors with greater certainty of long-term investment against their RD&E plans. During the year, two new IPAs were signed with the Australian Council of Prawn Fisheries and the Australian Abalone Growers Association.

Funding agreement with DAWR

The FRDC and DAWR signed a funding agreement on 28 May 2015. The completion of the first year of this agreement has been reported to the department and is covered in this annual report. The FRDC has met the expectations of this agreement, going further by providing input into a number of planning and operational reviews and updates that include the *Public Governance, Performance and Accountability Act 2013* (PGPA Act), and the Department of Finance's Annual Reporting Review. A copy of the funding agreement is available at http://frdc.com.au/about_frdc/corporate-documents/Pages/default.aspx.

Status of Australian Fish Stocks Reports

Public perception of fishing and aquaculture, coupled with political influence, has been a major concern of fishing and aquaculture RD&E and management in recent times. FRDC sees a clear role to communicate reliable scientific knowledge to the community on the status and standard of Australia's fishing and aquaculture resources, management and practices in an accessible, engaging and trustworthy form.

To do this the FRDC continues to oversee the management and development of the *Status of Australian Fish Stocks Reports* (SAFS), available at www.fish.gov.au. The reports bring together available biological, catch and effort information to determine the status of Australia's wild-catch fish stocks against a nationally agreed reporting framework, and provide a resource to inform the general public, policy makers and industry on the sustainability of marine stocks.

In 2015 the FRDC decided to manage SAFS internally. Staff member Dr Carolyn Stewardson has taken on this role. Dr Stewardson will work with agencies from across Australia to see 83 species included in the 2016 reports, up from 68 in 2014. This will see the coverage of the reports increase to more than 90 per cent of the annual catch and value of Australian wild-catch fisheries.

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.

The dedication and passion of FRDC staff provides is critical to the FRDC's 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 2015

On 1 September 2016, the Hon. Ron Boswell was appointed Chair of the FRDC Board. The Hon Harry Woods retires as FRDC Chair after six years. The FRDC Board and staff thank him for his service.

PRIORITIES FOR 2016–17

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 Plan: lead, collaborate and partner. Under these approaches RD&E planning, prioritisation and funding will occur in the following ways.

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 with a national focus by focusing on three national priority areas.

Australian fishing and aquaculture products are sustainable and acknowledged to be so

Key activities in 2016–17 include:

- publishing and communicating results in the 2016 *Status of Australian Fish Stocks Reports*,
- developing methods to reduce the number of undefined species in the Reports,
- progressing the development of a national bycatch reporting framework,
- undertaking new forms of communication with stakeholders and end users (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.

Improved productivity and profitability of fishing and aquaculture

Key activities in 2016–17 include:

- progressing the development of the 'easy open oyster',
- building on the outputs and structures in post-harvest processing established by the Seafood CRC,
- decreasing the number of underutilised species,
- further improving the use of post-harvest waste,
- 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.

Development of new and emerging aquaculture growth opportunities

Key activities in 2016–17 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.

The FRDC will continue to lead on national RD&E infrastructure that addresses whole-of-industry and community priorities. This consists of the:

- Indigenous Fishing Subprogram,
- Recfishing Research Subprogram,
- Aquatic Animal Health and Biosecurity Subprogram,
- Social Science and Economics Research Coordination Program,
- People Development Coordination Program.

The FRDC will also deliver key services in the national interest to its stakeholders with current ongoing activities including:

- SafeFish,
- Fish Names Standard.

Collaborate

The FRDC will provide mechanisms and incentives for industry and Research Advisory Committees partnership agreements to leverage their funding and work together with other sectors, jurisdictions or institutions where there is alignment with priorities at the national level. Incentive funding will be linked and reported through national priorities partner and program funding.

Partner

As part of its new RD&E Plan, the FRDC has given greater responsibility for direction and prioritisation to end users via industry and Research Advisory Committees partnership agreements. Funding for this RD&E comes from industry contributions, the matching contribution from the Australian Government, and additional funding from the jurisdictions.

FORECAST ANNUAL OPERATIONAL PLAN BUDGET 2016–17

Financial targets 2016–17

FRDC FINANCIAL INCOME AND EXPENDITURE PLANNING 2015–20

	2016–17	2017–18	2018–19	2019–20
REVENUE	\$m	\$m	\$m	\$m
Revenue from Australian Government*	21.43	21.83	22.23	22.95
Contributions	6.12	7.55	7.80	8.10
Other	1.23	2.06	2.26	2.26
Total revenue	28.78	31.44	32.29	32.95

* Predicted revenue from government includes a Commonwealth contribution under the PIRD Act and levies collected from industry by DAWR for RD&E activities.

	2016–17	2017–18	2018–19	2019–20
EXPENDITURE	\$m	\$m	\$m	\$m
Total programs expenditure	23.00	25.25	25.65	26.01
Management and accountability	4.95	5.77	6.16	6.36
Total expenditure	27.95	31.02	31.81	32.37

RD&E PLAN BUDGET

	2016–17	2017–18*	2018–19*	2019–20*
PROGRAMS	%	%	%	%
Environment	40	40	40	40
Industry	40	40	40	40
Communities	2	2	2	2
People	10	10	10	10
Adoption	8	8	8	8
Total programs expenditure	100	100	100	100

	2016–17	2017–18*	2018–19*	2019–20*
ACTIVITIES	%	%	%	%
National priorities	18	18	18	18
National infrastructure	12	12	12	12
Response fund	6	6	6	6
Partnership agreements (industry sectors)	37	37	37	37
Partnership agreements (jurisdictions)	27	27	27	27
Total activities expenditure	100	100	100	100

* Note: From year to year the percentages may vary depending on changes in priorities and funding of different sized projects in order to meet the FRDC's balanced portfolio of long/short and big/small.



THE CORPORATION

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.

Stakeholders

FRDC works with a diverse and geographically dispersed group of stakeholders and the four main sectors (aquaculture, commercial fishing, Indigenous fishing and recreational fishing). The sectors are not mutually exclusive. For example, Indigenous fishers may participate in customary fishing, conduct aquaculture and commercial fishing, and fish recreationally.

Portfolio minister

The portfolio Minister for Agriculture and Water Resources is the Hon. Barnaby Joyce MP. Senator the Hon. Richard Colbeck was Parliamentary Secretary to the Minister until 21 September 2015. Senator the Hon. Anne Ruston was appointed as the Assistant Minister from 21 September.

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 who operate in Commonwealth fisheries),
- National Aquaculture Council (representing the aquaculture industry).

The FRDC involves the Indigenous Reference Group in all representational organisation activities.

Investment strategy

The FRDC works to achieve an overall balance of:

- investment across the FRDC's RD&E priority and program areas,
- short- and long-term projects,
- low- and high-risk 'blue sky' projects,
- strategic and adaptive research needs,
- meeting region-specific needs,
- national, jurisdictional and sector-focused projects.

RD&E investments in these areas are regularly assessed to ensure the FRDC maintains a balanced portfolio that meets the short- and long-term needs of its stakeholders, including the Australian Government and the Australian community.

The investment 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 balanced portfolio 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–ii.

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.

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 113) appointed for their expertise and is led by an executive director who manages the day-to-day operations of the organisation.

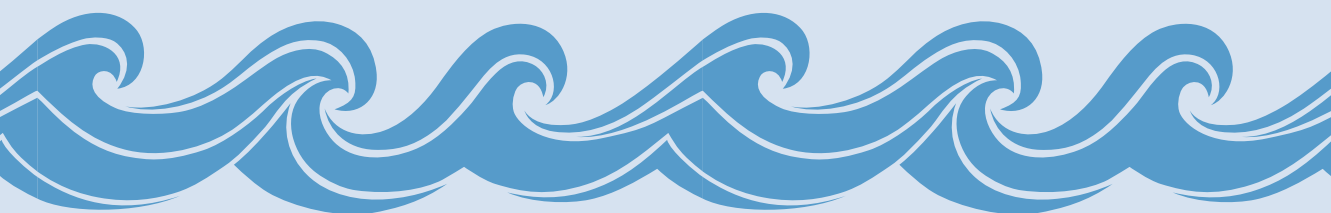
In 2015–16, the FRDC conducted its operations with 13.6 full-time-equivalent staff spread among 19 people). FRDC's staff are its most important resource, and are key to the Corporation's ongoing success. In addition to core staff, at any given point more than 1000 people work on FRDC projects around Australia. This includes approximately 250 principal investigators, 450 co-investigators, 200 project officers, 80 administration staff and 50 financial staff.

FRDC people as at 30 June 2016

FRDC Board	
The Hon. Harry Woods	Chair
Ms Renata Brooks	Deputy Chair
Professor Colin Buxton	Director
Mr John Harrison	Director
Dr Lesley MacLeod	Director
Professor Daryl McPhee	Director
Mr John Susman	Director
Dr Patrick Hone	Executive Director
Ms Heather Brayford *	Director
Dr Bruce Mapstone *	Director
Mr Brett McCallum *	Director
Dr Peter O'Brien *	Director

* Term ended 30 August 2015.

FRDC staff	
Mr John Wilson	Business Development Manager
Ms Cheryl Cole	Manager Corporate Services
Ms Steph Cooper-Vassalakis (part time)	Office Administrator
Ms Phillipa Nott (part time)	Office Administrator
Ms Irene Stefanou (part time)	Office Administrator
Mr Crispian Ashby	Programs Manager
Ms Annette Lyons	Projects Manager—Finance
Ms Skye Barrett	Projects Manager—Research
Mr Joshua Fielding	Projects Manager—Research
Mr Wayne Hutchinson (part time)	Projects Manager—Research
Dr Christopher Izzo	Projects Manager—Research
Ms Jo-Anne Ruscoe	Projects Manager—Research
Dr Carolyn Stewardson	Projects Manager—Research
Ms Nicole Stubing	Projects Graduate
Ms Alison Connolly (part time)	Projects Officer
Ms Leah Fergusson (part time)	Projects Officer
Mr Peter Horvat	Manager—Communications, Trade and Marketing
Ms Annabel Boyer	Communications Officer
Ms Ilaria Catizone (part time)	Communications Science Writer



New staff members

On 12 May 2015 the Minister for Agriculture, the Hon. Barnaby Joyce wrote to the FRDC requesting it consider relocating its office and staff to a regional base and, if possible, to co-locate with a regional university. He also requested the FRDC consult with its industry representatives to gain their views.

The Board commenced stakeholder consultation and a rigorous due diligence process to inform the decision and in February 2016 a regional office in Adelaide was opened at the National Wine Centre of Australia.

Wayne Hutchinson started with the FRDC in February 2016 as project manager (research), overseeing research undertaken under IPAs with the Australian Southern Bluefin Tuna Industry Association, the Australian Prawn Farmers Association, the Australian Abalone Growers Association and the Australian Barramundi Farmers Association. He has an extensive background in aquaculture and holds a Masters of Applied Science in aquaculture (research) from the University of Tasmania. His research has primarily addressed hatchery-related issues ranging from egg supply through to fingerling production of a range of local marine finfish species including snapper, King George Whiting, Yellowtail Kingfish, Mulloway and Southern Bluefin Tuna.

Alison Connelly and **Leah Fergusson** job-share the role of projects officer at FRDC Adelaide, helping manage funded projects from conception to completion, while also coordinating meetings of the RACs that approve these projects. They are an experienced job-sharing team, having had a similar work arrangement at the Seafood CRC where they worked for seven and five years, respectively. Alison has previous experience in events management and during Leah's time at the Seafood CRC she obtained a diploma in management.

Nicole Stubing joins the FRDC on a six-month cadetship in her first position in industry after graduating from the University of Adelaide with a Bachelor of Science in natural resources (honours). Nicole already has a solid network of contacts within the fishing and aquaculture sectors and research community of South Australia, which she acquired while working with the South Australian Research and Development Institute (SARDI) and the oyster industry as part of her honours year.

Skye Barrett joins the FRDC Adelaide office as a full-time project officer (research) and will work closely with the New South Wales, Queensland, Northern Territory and Western Australian RACs to manage projects from each jurisdiction. She has a family background in the South Australian commercial fisheries sector and holds a Bachelor of Science in marine biology (honours) as well as a graduate certificate in economics. She has been employed at SARDI as a research officer, working predominantly in the wild fisheries program since 2010.

From left: Christopher Izzo, Nicole Stubing, Skye Barrett, Leah Fergusson, Alison Connelly and Annabel Boyer. Inset Wayne Hutchinson



Christopher Izzo also joins the FRDC Adelaide office as a full-time project manager (research) and will work with the Commonwealth, South Australian, Tasmanian and Victorian RACs to manage projects in these jurisdictions. Chris has a diverse research background in fisheries and fish biology. He has a doctorate from the University of Adelaide and has worked on various commercial species ranging from cockles to sharks.

The Canberra office has also had a change, with **Annabel Boyer** joining as the new communication officer. Annabel has an extensive background in journalism and before taking on the role at the FRDC, spent two years in Mongolia working with a small not-for-profit organisation on a project to investigate that country's media companies. This was an opportunity to experiment with different methods of information collection in a newly democratic country and it also gave Annabel an interest in research and getting a picture of the world through statistical analysis.

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 2016, of the FRDC's staff of 13.6 full time-equivalent positions spread among 19 people, six 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.

The Australian fishing industry statistics

Commercial fisheries value of production rose by 4 per cent to \$2.5 billion, driven by a 10 per cent increase in the value of wild-caught fisheries products.

Export earnings from Australian fisheries and aquaculture products (edible and non-edible) increased by 11 per cent (\$129 million) to \$1.3 billion.



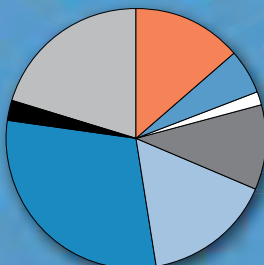
\$586 million



Rock lobster became the largest species group produced by value, rising by 33 per cent (\$147 million) to \$586 million. This was a result of a 32 per cent increase in the average unit price. The export value of rock lobster rose by 32 per cent, mirroring the rise in production.

SHARES IN GROSS VALUE OF FISHERIES AND AQUACULTURE PRODUCTION, BY JURISDICTION, 2013–14

- Commonwealth 14%
- New South Wales 6%
- Northern Territory 2%
- Queensland 11%
- South Australia 16%
- Tasmania 30%
- Victoria 3%
- Western Australia 20%



AQUACULTURE PRODUCTION VALUE DECLINED. Salmonid production value continued to increase (up by \$25 million). This was offset by a decline in the production of aquaculture tuna (down by \$29 million).



TOP FIVE WILD-CATCH AND AQUACULTURE SPECIES GROUPS, BY VOLUME AND VALUE, 2013–14 ANNUAL PER CENT CHANGE

TOP

5

Species	Volume	Species	Value
Salmonids	41,846 tonnes (↓ 3%)	Rock lobster	\$586 million (↑ 33%)
Australian sardine	35,867 tonnes (↓ 7%)	Salmonids	\$543 million (↑ 5%)
Prawns	24,902 tonnes (↑ 18%)	Prawns	\$337 million (↑ 22%)
Oyster	11,402 tonnes (↓ 8%)	Abalone	\$165 million (↓ 7%)
Tuna	10,688 tonnes (↑ 1%)	Tuna	\$147 million (↓ 17%)

TOP FIVE EDIBLE AND NON-EDIBLE EXPORTS, BY DESTINATION AND VALUE, 2013–14 ANNUAL PER CENT CHANGE

TOP

5

Destination	Value	Species	Value
Vietnam	\$566 million (↑ 92%)	Rock lobster	\$590 million (↑ 32%)
Hong Kong	\$283 million (↓ 24%)	Abalone	\$170 million (↓ 9%)
Japan	\$219 million (↓ 19%)	Pearls	\$144 million (↓ 5%)
United States	\$41 million (↑ 6%)	Tuna	\$136 million (↓ 17%)
China	\$40 million (↓ 16%)	Prawns	\$101 million (↑ 95%)

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 FRABs as Research Advisory Committees, and the affirmation and signing of two new Industry Partnership Agreements.

Consultation with representative organisations

The FRDC has four representative organisations with which it consulted during 2015–16.

- 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 section 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 up to \$15,000 to facilitate consultation in 2015–16, payments are only made to reimburse costs when they are associated with this consultation (\$6,052.67 exclusive GST) in 2015–16.

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 levy organisations

The FRDC administers a research and development levy on behalf of the Australian Prawn Farmers Association (APFA). The levy is collected by the Department of Agriculture and Water Resources who charge an administration cost for doing so.

The FRDC's investments in prawn farming research and development is mostly driven by the APFA's 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 FRDC in ensuring its 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	\$194,043	\$180,000
FRDC expenditure on projects	\$230,582	\$157,576	\$150,294	\$63,822	\$300,000

* Approximate investment in coming year.

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 FRABs which have served the FRDC well since its inception.

The RAC chairs in 2015–16 were as follows.

Commonwealth	Ian Cartwright	South Australia	Rory McEwan
New South Wales	Peter Dundas-Smith	Tasmania	Ian Cartwright
Northern Territory	Bryan McDonald	Victoria	Peter Rankin
Queensland	James Fogarty	Western Australia	Alex Ogg

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. 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. To facilitate this 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. Most significant of these include environmental change, evaluation of RD&E, and the 'Appetite for Excellence' primary producer's tour—a chef, waiter and restaurateur competition. Not only is the FRDC partnering with other RDCs at the project level, but it is also working more broadly to collaborate in functional areas. The FRDC continues to attend meetings of the Council of Rural Research and Development Corporations (CRRDC), as well as meetings of executive directors, business managers and communications managers. In conjunction with other RDCs, the FRDC has assisted in coordinating sponsorship and participate 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 and 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 300 active projects under management. The key research partners are:

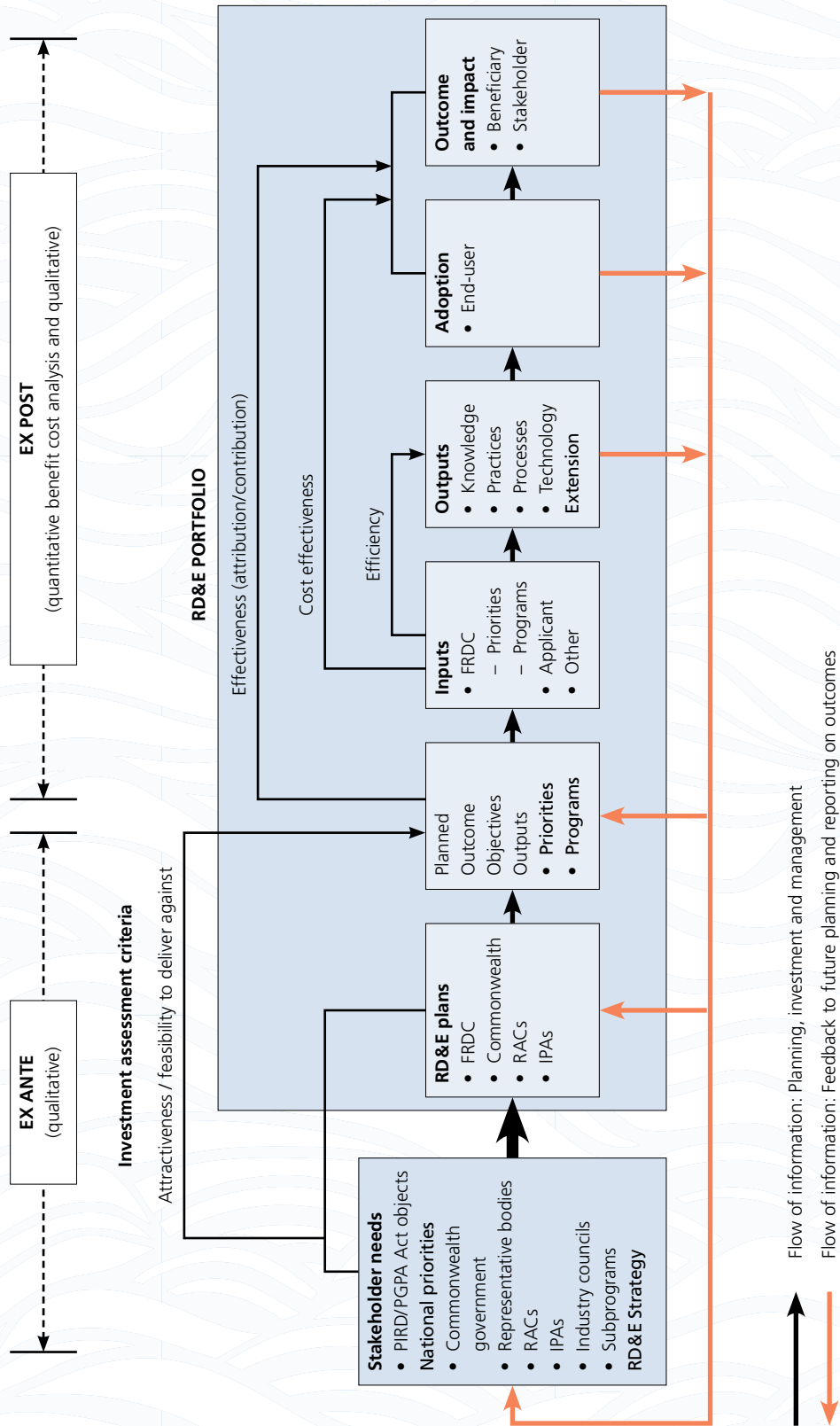
- fishing and aquaculture industry,
- Department of Agriculture and Water Resources,
- Australian Fisheries Management Authority,
- state/territory fisheries research centres,
- Commonwealth Scientific and Industrial Research Organisation (CSIRO),
- universities,
- cooperative research centres (CRCs),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

Aligning RD&E priorities

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 page 28)—further strengthening the link between activity investment and outcomes.

FIGURE 2: FRDC RD&E MONITORING AND EVALUATION FRAMEWORK



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.



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. *Working Together: The National Fishing and Aquaculture RD&E Strategy* was endorsed by Primary Industries Ministers on 23 April 2010 (see <http://www.npirdef.org/>). Implementation of this Strategy has been led by the Strategy Governance Committee and supported through a Research Providers Network.

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.

Working with all stakeholders, the FRDC (as secretariat and member) and the Governance Committee has now completed its review and revision. The next iteration builds on the platform established by the original 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.

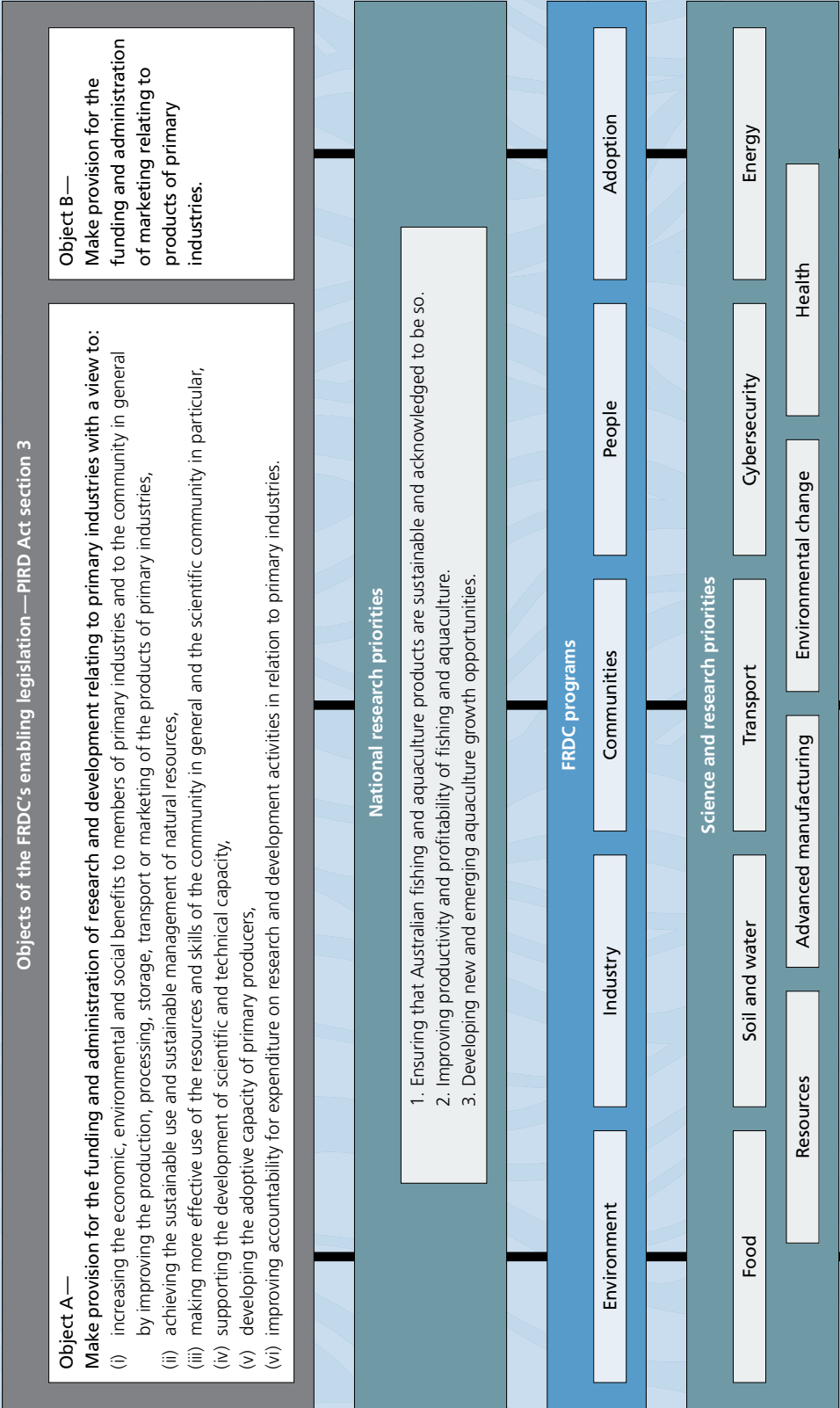
There are six 'goals' in the Strategy, each with a number of priority areas. The goals are:

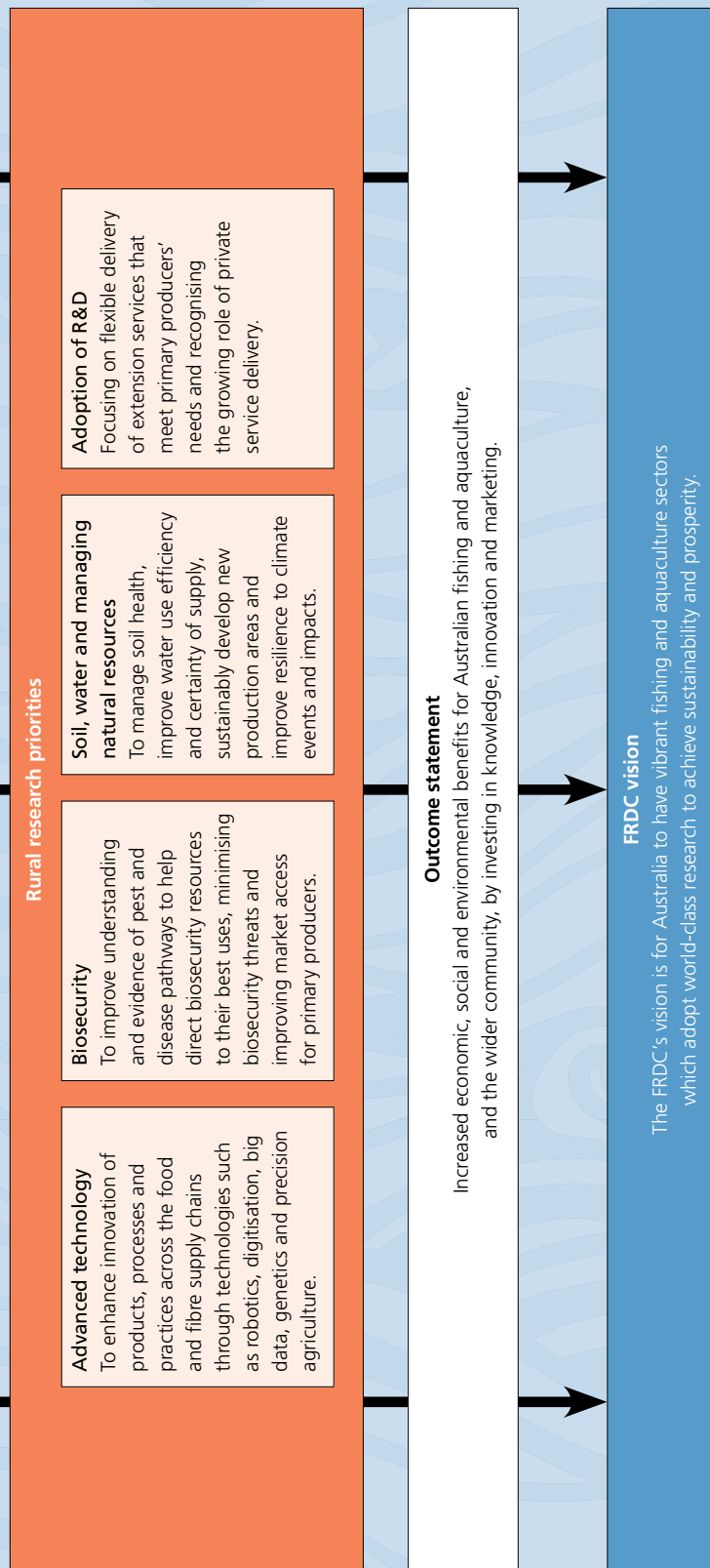
- Australia's fisheries and aquaculture sectors are well managed, and acknowledged to be, ecologically sustainable.
- Security of access to, and allocation of, fishing and aquaculture resources is improved.
- Benefits and value from fisheries and aquaculture resources (productivity and profitability) 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

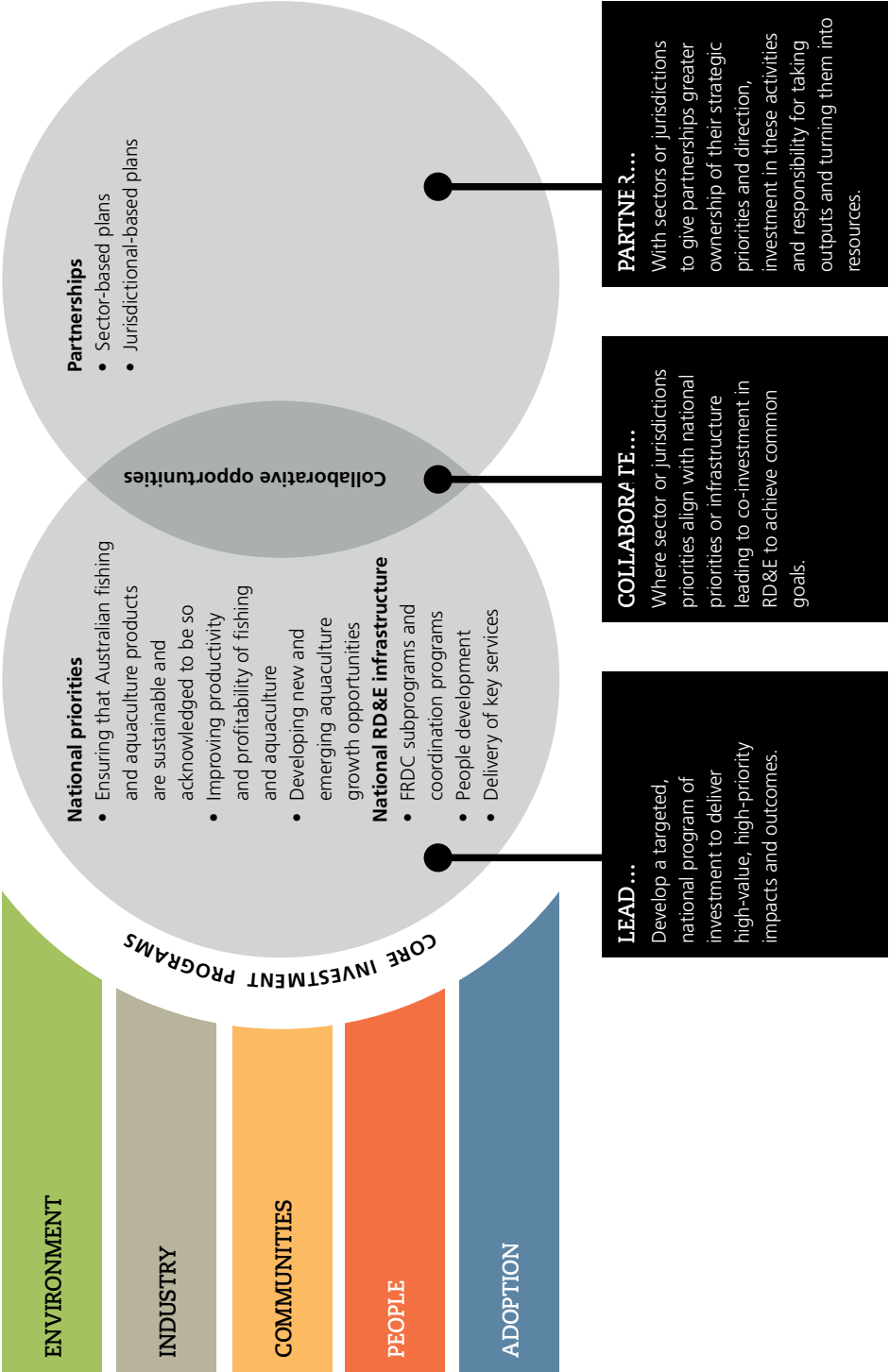
To show where each project or activity story in this section of the annual report sits within the FRDC’s investment framework, it has been coded into the grid shown below. The grid shows the national priorities, infrastructure, collaboration or partnerships and FRDC’s foundation programs. The purpose 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 *Status of Australian Fish Stocks 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

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



FRDC NATIONAL PRIORITIES

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 2015–16, there was \$1.52 million or around 6 per cent of the total R&D investment for this priority. This is around 4.69 per cent below the annual operational plan (AOP) forecast budget.

Priority area activities	Portfolio Budget Statement (PBS) target 2015–16	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.	Improve the positive perception of the commercial fishing industry to 31% approval rating.	The most recent survey undertaken by FRDC shows that community perceptions of the sustainability of the Australian fishing industry commercial wild-catch sector dropped from 30% to 24%. Taking into account of broader grouping of fishing and aquaculture to include recreational, Indigenous and aquaculture, the community's rating is 40%.

Tables that follow highlight first year progress towards achieving the RD&E Plan deliverables. These are expected to be completed or implemented throughout the five years of the Plan. In the tables showing the status of those deliverables, the colour:

-  dark grey means that activity has been completed (there are none at this stage),
-  green means that activity is on track for completion,
-  orange means that activity is underway,
-  red means that work is yet to start.

The RD&E Plan 2015–20 is available on the FRDC website—www.frdc.com.au

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

Output	Status	Comment
Increase number of species in the SAFS Reports	Green	The 2016 SAFS Reports will contain approximately 83 species and it is anticipated that the target of 200 species in FRDC's RD&E Plan will be achieved by 2020 through initiatives such as equivalence.
Reduce undefined species in the SAFS Reports	Orange	Work on reducing the percentage of undefined species has begun with a number of experts providing advice on methodology. There is considerable activity occurring in this area aligned with the Marine Stewardship Council and FRDC is hoping to minimise duplication.
Increased knowledge of how community values align with those of the fishing and aquaculture sectors	Orange	No new projects initiated in 2015–16. However, qualitative community perception research was completed in September 2015.
Fisheries management standard or technical standard	Orange	Project initiated to develop the standard. A key focus will be to ensure the scope of the project remains closely focused on the objective.
Responsible fisheries management scheme for small-scale fisheries	Orange	FRDC continues to work with the Global Sustainable Seafood Initiative, the Sea Fish Industry Authority (Seafish) based in the United Kingdom and similar organisations to see where we can utilise methods of others to implement a scheme. However, no specific projects have yet begun.
Bycatch performance metrics	Orange	First stage nearing completion which will inform a second stage with further investment likely.
Community net benefit metrics	Orange	No projects initiated in 2015–16. Work to develop an application and framework to quantify community net benefits (socioeconomic) was commenced.
Expand capacity to connect with consumers and markets to understand perceptions and tell the story	Orange	Development of a new ICT system is one of the first steps in developing consumer-facing information gateways. In this area are also opportunities for telling the 'story of seafood' via media such as television.
RD&E to address barriers to aquaculture development	Orange	Audit about to begin to conduct this work, should be completed by late 2016 with work plan to follow with plan for funding of the life of subprogram to be established by early-mid 2017.
Annual operational plan: Production of new aquaculture species increases by 2000 tonnes	Orange	Fisheries production statistics for 2015–16 have not yet been completed so progress against outputs cannot be quantified. However, two Yellowtail Kingfish aquaculture developments in Western Australia and New South Wales will add to tonnages. Once fully operational these sites will see significant input into meeting the 2000 tonne target.

Project activity during the year

More species to expand key fish stocks reports

FRDC research code: 2015-034

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

The SAFS Reports have become widely recognised as a key source of information on the sustainability of key commercial fish species, and the third edition of the reports, to be published in December 2016, will include an additional 15 species. This will bring to 83 the total number of species or species complexes included. 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 aim is to make up-to-date information about key commercial stocks easily accessible to the general public as well as policy makers and industry. The FRDC has taken on the management of the third edition with FRDC's Dr Carolyn Stewardson coordinating the project.

The reports underpin the FRDC's national priority of ensuring that Australian fishing and aquaculture products are sustainable and acknowledged to be so. The FRDC's RD&E Plan 2015–20 also includes several specific performance targets to further improve the reports, as part of its strategy to ensure information on the performance and value of Australia's fisheries is readily available. These include increasing the number of species reported on to more than 200 by 2020.

The RD&E Plan also aims to reduce the number of species classified as 'undefined' from 30 per cent of those in the 2014 edition to less than 10 per cent of stocks reported on by 2020. Undefined stocks are those for which there is limited or possibly conflicting information, which makes an assessment of sustainability difficult, although these stocks are not necessarily 'at risk'. The SAFS Reports are also expected to contribute to the FRDC's target of increasing positive perceptions of commercial fishing from 28 per cent in 2016 to 40 per cent by 2020 as measured through independently commissioned FRDC stakeholder surveys.

Ongoing consultation

The SAFS Reports advisory group held its first meeting under the FRDC's new management structure in December 2015 and FRDC staff met with the SAFS Reports author teams in each fishery jurisdiction in February 2016 to discuss the production process. Approximately 90 authors are involved in producing the reports. It has been a priority for the FRDC to meet and discuss this year's production process. In March and April the SAFS Reports advisory group held workshops in Melbourne to discuss future reports. Key topics included how to address the issue of undefined stocks, and the possibility of incorporating 'equivalence' recognition with other sustainability classification systems.

To increase the efficiency of the SAFS Reports production and publication process, the FRDC is developing a dynamic web platform. A long-term aim of the web platform is to allow for ongoing updates of stock status information as they become available in different jurisdictions. An important aspect of the SAFS Reports is the use of robust evidence-based science. Each species chapter undergoes independent peer review. PDFs of references or links to the relevant journals will be publicly available to demonstrate the credentials of the agreed stock status for each species. A scientific paper has also been published in the journal *Fisheries Research* entitled 'Multijurisdictional fisheries performance reporting: How Australia's nationally standardised approach to assessing stock status compares'. All jurisdictions have contributed to the paper.

For further information: Carolyn Stewardson, carolyn.stewardson@frdc.com.au

Insights into community perceptions of the fishing industry on sustainability

FRDC research code: 2011-514

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

A key priority area identified in FRDC's RD&E Plan is that the percentage of the community who perceive the commercial fishing industry as sustainable increases from 28 to 40 per cent by 2020. In 2015 the FRDC commissioned the third survey of community perceptions of the sustainability of the Australian fishing industry from market research agency Intuitive Solutions. While the 2015 results are tracked against those from 2011 and 2013, this survey provides a baseline for the FRDC to measure changes in community perception over the life of its current RD&E Plan.

The online survey was undertaken between 13 to 19 August 2015 with a nationally representative sample of randomly selected adult Australians (aged 18 years and over). In total, 1507 surveys were completed. The aim of the research is to track a range of measures but most importantly whether the Australian community perceived the commercial seafood industry to be sustainable.



For the purposes of this research, sustainability was defined as ‘the industry having the necessary practices and policies in place that ensure the future of fish species and the marine environment while at the same time providing sufficient supply of fish for commercial and recreational fishing needs’.

Only 24 per cent of respondents perceive the commercial fishing industry to be sustainable in contrast to 72 per cent and 63 per cent of respondents who perceive that farm fishing and recreational fishing are sustainable. This result provides a clear incentive for the priority identified in the FRDC’s RD&E Plan. More generally there has been no improvement made on the proportion of Australians who think the industry (across all sectors), is sustainable. Over the last two years there has been a statistically significant decline in the proportion of Australians who believe the industry is sustainable (38 per cent down from 42 per cent).

There are signals that the community is hopeful, if not confident that the industry can be sustainable. Among those people who were uncertain or did not believe the industry was sustainable, there were sufficient signals to indicate that there is an anticipation the industry can and will move to a stronger position around sustainability with the survey indicating, among these groups that 77 per cent were hopeful that it could be sustainable; however fewer than 33 per cent reported that they were confident that it could be.

The survey also identified demographic differences across the Australian community in the perception of the sustainability of the fishing industry. This gives FRDC valuable insight with which to pursue this.

Knowledge and awareness of the efforts being made

The results point to a low level of familiarity with how Australian fisheries are managed. Consistent with this most within the community reported they were unaware of the efforts both government and the industry are making around sustainability.

Where respondents were familiar with management of the industry, they were significantly more likely to believe the fishing industry was sustainable. This suggests that efforts to drive community awareness of the work being done and how fisheries are managed should continue. This presents as a challenge for industry to provide sufficiently compelling advice and education around its sustainability credentials.

How the fishing industry benchmarks against other countries and industries

People continue to believe Australia’s fishing industry is more sustainable than other countries. Two in three (66 per cent), reported that the Australian fishing industry and their practices are ahead of those of other countries.

Australians continue to hold differing views on sustainability across the various rural sectors. Again in the 2015 research, the eggs sector was seen to be the benchmark in the sustainability space. In contrast perceptions of sustainability in the fishing industry and in particular the commercial fishing industry were much lower than that of other sectors.

However, looking across all data from the last study, the public’s perception of sustainability has dropped for the other primary producing sectors as well. This suggests that the issues are not isolated to the fishing industry but are rather a wider issue around community perception and understanding of sustainability.

For further information: www.frdc.com.au

IMPROVED PRODUCTIVITY AND PROFITABILITY

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 2015–16, there was \$11.54 million or around 46.95 per cent of the total R&D investment for this program. This is 6.95 per cent above the AOP forecast budget.

Priority area activities	PBS target 2015–16	Achievement
RD&E to support an increase in the gross value of production of Australia's fishing and aquaculture resources	Volume of aquaculture rises to 85,000 tonnes.	Aquaculture production rose to 91,000 tonnes at the beginning of 2015–16 according to ABARES fisheries statistics.
Understand the quantity of potential production from Australia's fishing and aquaculture resources	The gross value of production is increased to \$2.4 billion.	Gross value of production determination for 2015–16 increased to \$2.713 billion.

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

Output	Status	Comment
Supply chain efficiencies	Orange	No projects directly initiated via this priority. However, work is underway funded through RAC and IPA investment. Key areas include traceability.
Sustainable and profitable use of underutilised and undervalued species	Orange	Work is building on the outputs from Seafood CRC research, RAC and IPA investment. Included in this has been the development of a database of underutilised species and further research on extending the value from a number of these species.
New technology solutions to improve productivity and profitability	Orange	No projects directly initiated this priority. However, work is underway funded through the RAC and IPA investment. Key areas include refrigeration technology, new processing techniques to extract value from catch.
Habitat rehabilitation	Orange	Significant project funded under the Recreational Fishing Research Subprogram developing capacity with the recreational fishing sector to become more engaged in habitat rehabilitation programs in each jurisdiction.
Support for the social contribution (including understanding this)	Orange	Work to begin soon on developing relevant measures of the social contribution which can be applied to all sectors.

Project activity during the year

Gas options to help prawns keep cool

FRDC research code: 2013-227

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

New refrigeration technology has increased processing speeds, freezer capacity and keeps prawns in the best possible condition from the moment of harvest. A custom design shows what is possible as the industry faces the challenge of finding new, environmentally acceptable refrigerants to keep freezers working safely and efficiently in difficult conditions.

The industry-led project to design a standard-setting refrigeration system for the Northern Prawn Fishery (NPF) using the new generation of refrigerants has won the 2015 Queensland Seafood Industry Award for research, development and extension. The project generated ground-breaking technology, with a prototype design that meets the specific needs of the NPF although it can be easily adapted to other tropical fishing vessels.

The project aimed to develop a new technical standard and evaporator design, which will be owned by the industry and made available to other vessel operators and refrigeration contractors. Project partners including the FRDC and the NPF have made reports and manuals of the refrigeration prototype available to the broader industry. The project was led by the Seafood CRC, following an FRDC-funded assessment of options for replacement refrigerants. Refrigeration systems are expensive, costing \$500,000 or more, and represent a major capital investment. With systems on many vessels now at the end of their design life the move to new fitted vessels and new refrigeration systems will be a major generational change for the industry.

For further information: Michael O'Brien, Tropic Ocean Prawns, michael.obrien@bigpond.com; Peter Brodribb, Expert Group, 0400 120 995



THE REFITTED PLANT ROOM ON BOARD THE GULF BOUNTY.

New Spencer Gulf modelling to manage activities

FRDC research code: 2011-205

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

Modelling of the Spencer Gulf ecosystem is helping to identify how changes to one aspect of the ecosystem affect others. Since 2012, several South Australian research teams have been working collaboratively to develop modelling systems capable of investigating the complex interactions of human and marine life. Biophysical studies have also provided a management tool for ecosystem carrying capacity. This allows government managers to assess the impact of existing and proposed expansions of aquaculture. The extension of this tool to incorporate other aspects of the ecosystem studies will help inform integrated marine management—a means of dealing with competing and conflicting interests. The ultimate aim of this research is to provide resource managers and stakeholders with independent and credible information about the likely effects of different management options.

The FRDC's contribution to understanding the Spencer Gulf, has focused primarily on developing models that can be used to assess how changes to fishing and aquaculture might influence components of the ecosystem. The project coupled several different models to assess how fishing and aquaculture can interact with each other and affect broader ecosystem structure and function. It illustrates the value of an approach that combines several different models, thus approaching some of the actual complexity that is present in the Spencer Gulf itself, making it an accurate and useful tool for managing the health of fisheries there. The modelling addressed three potential 'what-if' scenarios around increases in finfish aquaculture, Australian Sardine catch and Western King Prawn effort and catch.

For further information: Bronwyn Gillanders, University of Adelaide, 08 8313 6235

Octopus fishery development

FRDC research code: 2010-200

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

Innovation has been crucial in developing a viable fishery and market for Australian octopus. During the past few years the FRDC has supported research for development and management to evaluate the potential capacity of the new fishery.

Research has provided a detailed picture of the stock structure and harvest potential for octopus across large expanses of the Western Australian coastline. It has also provided a foundation for the biology and population dynamics of the Gloomy Octopus, which will help ensure the ecological and economic sustainability of the fishery.

The Developing Octopus Fishery was set up in 2001 and in 2015 was reclassified as 'interim managed' under the Western Australian Octopus Fishery Interim Management Plan, which limits the type and amount of gear used by commercial operators.

The fishery is now open and indications are that in due course it could achieve 630–1000 tonnes annually. The expansion of the fishery has also provided employment opportunities with a larger fleet and the establishment of a processing plant in Geraldton, Western Australia.

For further information: Ross Cammilleri, 08 9314 1615, ross@occotech.com.au

DEVELOPMENT OF 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 2015–16, there was \$1.78 million (about 7 per cent of the total R&D investment) invested in R&D activities for this priority.

Priority area activities	PBS target 2015–16	Achievement
There are two or more emerging aquaculture opportunities/species for which RD&E has identified clear opportunities and technologies for good production and profitability growth	Production of new aquaculture species increases by 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 privacy requirements of the small number of companies involved. It is expected in 2016–17 volumes will be able to be reported as two new companies will commence production.

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

Output	Status	Comment
A national strategy for the growth of aquaculture subsectors	Green	Committee for subprogram established and \$3 million of R&D for project allocated.
RD&E to address barriers to aquaculture development	Orange	Audit about to begin to conduct this work which should be completed by late 2016 with work plan to follow. Funding plan for the life of the subprogram to be established by early-mid 2017.
AOP: Production of new aquaculture species increases by 2000 tonnes	Orange	Significant work has been undertaken in Western Australia and New South Wales to open new aquaculture lease sites for finfish production. While there have been some delays in the finalisation of the leases it is estimated that the two will start commercial production in 2016–17.

Project activity during the year



Collaboration maximises new aquaculture opportunities

FRDC research codes: 2016-200 and 2014-246

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

Several research projects already underway will link into a new FRDC subprogram to maximise new and emerging aquaculture opportunities. These include a \$6 million project on nutrition, health and feeding strategies for Yellowtail Kingfish funded through the Rural R&D for Profit programme, which was announced in 2015. This major project also links to other Yellowtail Kingfish research in New South Wales and Western Australia. The New and Emerging Aquaculture Opportunities (NEAO) subprogram has been established as part of the FRDC's RD&E Plan 2015–20. One of its aims is to establish a project for Northern Australian fish species similar to the one underway for Yellowtail Kingfish. This could include Barramundi, Cobia or tropical groupers, building on growing demand for white-fleshed fish.

There has been a lot of work done previously on some of the species and further research is already underway in Queensland investigating the development of Cobia aquaculture. The subprogram committee will also consider how shellfish and Indigenous interests can be included in the northern development initiative.

The establishment committee is chaired by the FRDC and includes representatives from the Rural Industries R&D Corporation, the Australian Centre for International Agricultural Research and the Australian Fisheries Managers Forum aquaculture subcommittee. These groups all have a stake in new and emerging aquaculture. The establishment committee held its first meeting in February 2016, following a broader planning meeting in November 2015.

The audit of existing research is expected to be the first new task undertaken to direct the future research priorities and focus of the NEAO subprogram. It will review previously conducted RD&E on aquaculture for species that have not seen the growth in production that might have been expected and this will help to map factors that contribute to the success or failure of new species. The audit will have two phases. The first is a data summary of past projects including information on what was done and why, and the development of a risk matrix, including information such as markets, regulatory systems, access to farming areas and political support. The second phase will consist of several case studies to conduct detailed audits based on the data summary conducted in phase one. The audit data will make it easier to identify what research has already been done for different aquaculture species in Australia and the decision matrix will help decide what research to fund through the subprogram.

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

Early parasite detection research wins science award

FRDC research code: 2008-339

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

Molecular detection of parasites based on water sampling offers an early warning system for fish farmers. Detecting disease in aquaculture is challenging because fish cannot tell you when they are starting to feel unwell, even when they are seriously ill. As a result, an outbreak of disease is often not detected until it is too late and infection has run rampant through a whole fish population. This is the challenge that veterinarian and PhD candidate Giana Bastos Gomes is hoping to meet. Her research recently won both the 2016 Minister and FRDC Science and Innovation Award for Young People in Agriculture, Fisheries and Forestry, presented by Deputy Prime Minister Barnaby Joyce.

Molecular tools

About 40 per cent of global aquaculture production is lost each year to disease. Giana is interested in how to improve early detection of disease in aquaculture by using molecular tools that can pick up low levels of pathogens in the water before any infection begins to manifest in farmed fish. The initial focus of her research is saltwater ich (also known as white spot), which is an insidious saltwater fish disease that affects Barramundi. It presents as white dots on the fish's skin and gills. In its early stages animals demonstrate skin irritation and difficulty breathing but without any white dots visible. When the infection progresses, the white dots grow in size and spread across the fish's body. The animals stop eating and eventually they die. One of the issues is that symptoms are often only detected once it is too late.

Preventive action

Instead of waiting until animals get sick, water which contains genetic material is collected. Molecular markers are then used to help to tag and amplify DNA from the ciliate parasite in water samples. The amount of this parasite's genetic material present indicates the risk level for the farm. It can also be combined with other information about the conditions at the time of sampling, such as oxygen levels and water temperature, to provide clues about other factors influencing the risk of infection. With early detection, aquaculture farms can implement interventions such as exchanging water, new diet protocols, or chemical or ultraviolet treatments to get rid of the parasite before it spreads through the entire fish farm. Giana is also keen to expand the approach to other aquaculture species, both freshwater and saltwater, and to other diseases caused by bacteria and viruses.

For further information: [Giana Bastos Gomes, gianabg@hotmail.com](mailto:gianabg@hotmail.com)



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 2015–16, there was \$4.68 million (about 19 per cent of the total R&D investment) invested in R&D activities for this priority.

Strategies

- Continue to invest in leadership capacity building.
- Co-invest with partners in other areas of capacity building.
- Invest with universities in students to study marine science-specific topics relevant to FRDC 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.

Activity	Output	Status	Comment
Aquatic Animal Health and Biosecurity Subprogram (AAHBS)	Maintain the AAHBS, ensure adequate investment in risk areas and ensure this expert group is used by FRDC stakeholders when required	Green	The AAHBS continues to be a very valuable expert group. The budget in this area is fully utilised and AAHBS relevant projects continue to be put to this group by other stakeholders for input. Management will work with the group to develop a more strategic focus into the future. It is proposed that the budget for this subprogram is increased by \$100,000 per annum to meet increased need.
	Recfishing Research	Green	Recfishing research continues to operate as an effective subprogram and the FRDC has budgeted investment for this subprogram to (at least) 2020.
	Work with the Recfishing Research Subprogram to deliver on their identified RD&E needs	Green	There are a number of active research projects under the subprogram and new priorities continue to be published seeking new projects.
	Invest in people development activities for this sector	Green	The subprogram continues to lead in investment in this area and is currently working to invest in relevant activities for jurisdictions as well as at the national level.
	Invest in RD&E to collect data on social and economic impacts of recreational fishing which is comparable with other sectors	Orange	The FRDC has been working with jurisdictions and research providers to develop a plan to undertake this research. FRDC will co-invest with DAWR to fund the research, which will commence in 2016/17.

Activity	Output	Status	Comment
People development	Continue to invest in leadership	Green	Continued investment in leadership development including the National Seafood Industry Leadership Program, Nuffield Scholarships and sponsoring participation in The Australian Rural Leadership Program
	Co-invest with partners on capacity building	Orange	No new projects were initiated in 2015–16. The FRDC continues to invest with partners on capacity building.
	Invest with universities in students to study marine science relevant to the FRDC	Orange	FRDC is developing a program to invest with Universities to have more students coming through with fishing and aquaculture relevant qualifications.
	Collect and analyse data to better understand training needs	Orange	Application developed to scope training needs of the jurisdictions and sectors to inform incentive program.
	Partner in development of research centres of excellence	Orange	The FRDC has invested in several research centres of excellence across Australia and will continue to seek opportunities in this area. A key partnership which started full operation this year was the Australian Aquatic Animal Health and Vaccine Centre.
Indigenous Fishing and Aquaculture Subprogram	Maintain this subprogram and ensure extension of this group's priorities to all FRDC stakeholders	Green	The Indigenous Reference Group continues to provide expert advice on a broad range of RD&E priorities and projects which is working towards meeting the aspirations of the Indigenous sector. Through their biennial workshop which was again held in 2016 they test their direction with a broad range of stakeholders. The forward work plan is well described with priorities being addressed each year.
Social Science and Economics Research Coordination Program (SSERCP)	Maintain the SSERCP and continue to encourage stakeholders to use this expert group to aid investment in this area	Orange	The SSERCP is now well known by almost all FRDC stakeholder groups and is widely used. However for some areas there is still a need to do more social and economic based R&D. To do this, management is proposing moving the coordination program to a subprogram with a dedicated budget as others.
Key services	Maintain FRDC's accreditation for standards development	Green	FRDC undertook and completed Accreditation Board for Standards Development Organisations assessment and maintained its accreditation.
	SafeFish	Green	FRDC has funded SafeFish until 2018. Activities include working with stakeholders to identify and deliver research that addresses key issues. This will see the "Hazards affecting Australia seafood 2014" paper updated.
	Supply trade and market access data	Orange	New trade portal established based on ABARES trade data. FRDC are investigating developing a real time market data portal for domestic sales.
	Maintain Australian fisheries statistics	Orange	New approach for Australian fisheries statistics being developed as part of overarching review of FRDC's market data strategy.

Project activity during the year

Quick action improves fish welfare

FRDC research code: 2012-508

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

A proactive approach to animal welfare has developed new fish handling strategies for recreational fishers. Ensuring the most humane treatment possible has been the aim of a working group, which includes commercial and recreational fishers, vets and animal welfare supporters, studying the issue of animal welfare for fish.

The Australian Animal Welfare Strategy (AAWS) recently delivered a report on animal welfare within the recreational fishing sector, which has taken a practical, evidence-based approach to minimising suffering—a term used in this context to mean stress—in recreationally caught fish. An estimated 3.5 million Australians enjoy recreational fishing each year, catching more than 71 million finfish annually.

In response to these growing welfare concerns, and as part of the Australian Government’s AAWS initiative, the Aquatic Animals Working Group was convened. When the AAWS was disbanded, the members of the group agreed to continue on a voluntary basis to complete a series of projects funded through the FRDC. In response to the growing interest in animal welfare, the Aquatic Animals Working Group has focused on how to treat the animals with respect, minimise unnecessary stress and maximise the outcome for the fisher. They applied several guiding principles towards this aim: that live fish should be handled in such a way as to avoid damage; that live fish not intended for capture should be returned to the water as quickly as possible; that capture methods should minimise the capture of unwanted species; and perhaps most importantly, captured fish should be killed as quickly and as humanely as possible after being caught.



A specific FRDC project trialled the guiding principles within the popular fishing tournament system in eastern Australia and received a very positive response from the recreational fishing groups involved. As part of the process, researchers evaluated practices from a welfare perspective at two major fishing events—the Tea Tree Snapper Competition and the Mulwala Classic—as well as on board several charter boat operations on the Great Barrier Reef, in the Northern Territory, and in estuarine and offshore Victorian waters. The initial survey of this competition was followed up by an educational campaign via presentations, mail outs, social media and online, which had a positive effect on the practices in the following year’s competition. The number of people killing the fish humanely by a blow to the head or spiking increased from 34 per cent to 43 per cent. Fish were also being killed more quickly when using these methods.

The recreational fishing sector is one of several aquatic-based sectors being explored from an animal welfare perspective as part of the Aquatic Animals Welfare Group initiative; others include commercial capture, and restaurants or retail outlets holding live fish and shellfish in aquariums. The initiative is also looking to develop specific education materials about humane methods of killing live fish, such as spiking the brain.

For further information: Dr Paul Hardy-Smith, 0404 121 996, paul@panaquatic.com; Brett McCallum, 0417 908 089, brett.mccallum@westnet.com.au

Value-adding to research perspectives

FRDC research code: 2015-300

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

Economic awareness and capability in Australia’s seafood sector is steadily increasing with the completion of more than a dozen PhD research projects and a new, ongoing advisory process for FRDC-funded research. More than five years ago the FRDC initiated the Building Economic Capability project under the leadership of Sarah Jennings at the University of Tasmania (UTAS) to address an identified skills gap in fisheries research and management.

The project initially helped fund 14 higher research degrees at UTAS, the Queensland University of Technology (QUT) and the University of Adelaide, which included both theoretical and applied economic research. Funding was later extended to support a further three PhD research projects that are now underway.

International comparison

In one of the initial PhD projects French researcher Sophie Gourguet compared the Bay of Biscay demersal mixed fishery with the Australian Northern Prawn Fishery. Her thesis looked at the trade-offs associated with balancing ecological, economic and social objectives to sustainably manage these fisheries. Both fisheries have direct and indirect effects on a range of marine species. Multiple fleets operate in the Bay of Biscay and catch a range of fish species.



Value for coastal communities

At QUT, Samantha Paredes investigated environmental offsets for marine and coastal developments for a Master of Business (research) (economics). Her research found that community members were willing to accept alternative offsets, provided the conservation value of the alternative was greater than the standard offset required. This research was part of the National Environmental Research Program's Marine Biodiversity Hub. After completing this work in 2015, Samantha has begun a PhD, also supported by the Building Economic Capability project, which has taken her in a new direction: commercial fishing. Her aim is to examine the value of local fisheries in their local communities as an industry and as a source of fresh seafood. She will also investigate the value of local seafood for tourism and will look at consumer preferences in coastal communities for local seafood as well as the preferences of tourists. This might help fishers to connect more effectively with markets in their local communities.

Continued focus

The legacy of the Building Economic Capability project includes the skills the participating researchers have developed, and ongoing efforts to incorporate resource economics into the management of the Australian seafood sector.

The FRDC has also established a Social Sciences and Economics Research Coordination Program to better integrate economics and the social sciences with the biological and physical sciences in the research it funds. The committee also reviews research proposals to assess whether the suggested methods are likely to provide the best outcomes for the research, or whether there are better alternatives.

Masterclass

As part of the Building Economic Capability project, a Future Harvest Masterclass in Fisheries Economics was also developed. The masterclass is designed for managers, researchers and fishers and begins with the core principles of economic thinking, building up to fisheries management, modelling and optimising harvest returns. First launched in 2010, the one-day masterclass has now been revised and will be offered again this year. It has also been developed as a self-paced online program, which will be available via the FRDC website.

For further information: Sarah Jennings, sarahjennings306@gmail.com; Emily Ogier, emily.ogier@utas.edu.au; Samantha Paredes, samantha.paredes@hdr.qut.edu.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 2015–16, there was \$0.01 million accessed from the collaboration pool (\$0.60 million) of funds for R&D activities for this priority.

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

Activity	Output	Status	Comment
Incentive Fund	Use these funds to encourage partners to invest in areas which still have a level of market failure such as people development, or the national priority areas	Red	<p>The first year of the new R&D plan saw significant changes in the approach taken by the FRDC for investment.</p> <p>Stakeholders readily understood the lead and partner approaches to investment, and focused on addressing key priorities primarily focusing on their sector or jurisdiction.</p> <p>The FRDC will put in place mechanisms to encourage stakeholders to work collaboratively on key issues and in areas of market failure in 2016–17.</p>



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 tables 4 and 5 on page ii). Project selection and approval while accepting recommendation from the groups remains the responsibility of the FRDC Board.

Industry Partnership Agreements

Principal inputs

During 2015–16, there was \$6.40 million (about 26 per cent of the total R&D investment) invested in R&D activities for this priority with sectors that have Industry Partnership Agreements (IPAs).

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

IPA with	Output	Status	Comment
Australian Abalone Growers Association (AAGA)	Maintain the IPA and work with the AAGA to develop their RD&E Plan	Green	This IPA was established in 2015. They are in the process of finalising their RD&E Plan and have started investing in priority areas.
Australian Barramundi Farmers Association (ABFA)	Maintain the IPA and work with ABFA to deliver on their identified priorities	Green	The ABFA have set clear priorities for their IPA. There is potential to expand the scope and link Barramundi to the federal Government's Northern Australia initiatives and also apply for future rounds of the Rural R&D for Profit programme.
Abalone Council Australia (ACA)	Maintain the IPA and work with ACA to deliver on their identified priorities	Orange	This IPA continues to operate and will be renewed in 2017. In the near future, ACA should undertake a planning process to update their RD&E Plan.
Abalone Council Australia (ACA)	Assist the ACA in moving the Australian Wild Abalone program from the Seafood CRC	Green	The FRDC has been actively working with the ACA to progress developing a marketing strategy which would allow the Australian Wild Abalone program to continue.
Australian Council of Prawn Fisheries (ACPF)	Develop this IPA and work with ACPF to develop their RD&E Plan	Green	The ACPF has established an IPA and is finalising its RD&E Plan. A management project has been worked on that includes elements of people development and communication
Australian Prawn Farmers Association (APFA)	Maintain this IPA and work with APFA to deliver on their identified priorities	Green	The APFA have clear R&D priorities for their IPA. There is potential to expand its scope and link prawn farmers with the federal Government's Northern Australia initiatives. APFA are also working towards developing a marketing levy.
Australian Southern Bluefin Tuna Industry Association (ASBTIA)	Maintain this IPA and work with ASBTIA to deliver on their identified priorities	Red	Over the past two years ASBTIA have not made their full 0.25% AGVP* contribution of R&D funding. This has been because returns from farmed fish have not achieved their anticipated returns. This has put pressure on the industry financially and as a result the planning and prioritisation of R&D has been slowed.

IPA with	Output	Status	Comment
Oysters Australia (OA)	Maintain this IPA and work with OA to deliver on their identified priorities	Green	Progressing the Cooperative Research Centre-Project and implementing its plan over the next three years has put this IPA into a good position to address issues associated with disease resistance, husbandry, selective breeding and opportunities for diversification.
Pearl Consortium (Pearls)	Maintain this IPA and work with Pearls to deliver on their identified priorities	Green	A new IPA is to be developed and progress is being made revising strategic directions that will be outlined in a new RD&E Plan.
Southern Rock Lobster Limited (SRL)	Maintain this IPA and work with SRL to deliver on their identified priorities	Green	A new IPA was signed in November 2015. The SRL continues to be a leading group investing in, and actively managing, R&D under this portfolio. They are currently slightly underinvested but are finalising a strategic planning process which will see funds committed over the next financial year.
Tasmanian Salmonid Growers Association (TSGA)	Maintain this IPA and work with TSGA and the individual entities to deliver on their identified priorities	Green	A new IPA was signed in February 2015 and provides greater flexibility for individual entities (enterprises) to contribute and access funding for RD&E specific to them. TSGA and individual entities conduct and deliver RD&E which continues to see this sector grow.
Western Rocklobster Council (WRLC)	Maintain this IPA and work with WRLC to deliver on their identified priorities	Red	An IPA and a RD&E Plan are already established. This IPA is relatively new and to date has made limited investment in their identified priority areas.

* AGVP: Average gross value of production.

RAC partnership agreements

Principal inputs

During 2015–16, there was \$8.71 million (about 35 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.

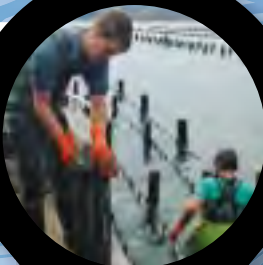
RAC with	Output	Status	Comment
COM, NSW, NT, QLD, SA, VIC, TAS, WA	Establish new RAC structure and produce new RD&E Plan	Orange	All RACs are now going through a new membership process and constructing new RD&E Plans in line with the FRDC RD&E Plan 2015–20.

OUTPUTS— ANALYSIS BY FRDC PROGRAMS

1



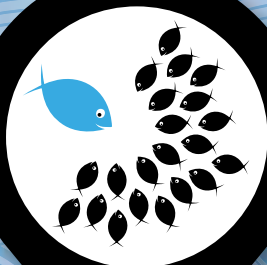
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3



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5



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 2015–16, there was \$8.68 million or around 35.51 per cent of the total R&D investment for this program. This is 4.69 per cent below the AOP forecast budget.

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

Farmers and fishers collaborate to save seagrass

FRDC research code: 2013-021

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

Farmers and fishers of Corner Inlet met for the first time in 2015 to discuss shared management of the local environment and to learn more about changes in the region's seagrass habitat. Corner Inlet is a 600-square-kilometre bay, 200 kilometres south-east of Melbourne in South Gippsland, surrounded by fertile farmland and Wilsons Promontory National Park. The inlet is listed as a wetland of international significance under the Ramsar Convention. It includes shallow intertidal mudflats that support extensive areas of mangroves, saltmarsh and seagrasses, and the third largest commercial bay and inlet fishery in Victoria. The surrounding area is prime dairy land, with Gippsland producing 22 per cent of Australia's milk. It is also home to many beef producers.

The workshop was held in response to a loss of seagrass habitat. The workshop brought fishers and farmers together to understand how they might work together to arrest the decline. While there was no clear evidence of what was causing the problem, it was likely that excessive nutrient and sediment in the water over many decades had affected the health of seagrasses.

For further information: John Ford, jford@unimelb.edu.au



SBT by the numbers

FRDC research code: 2012-022.20

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

As part of efforts to monitor and rebuild international stocks of Southern Bluefin Tuna (SBT), Australia has agreed to account for its recreational catch of the species. A new report from the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) outlines how this might be done.

With current spawning stock biomass estimated to be as low as 9 per cent of unfished levels, the migratory species is subject to an international rebuilding plan. This is led by the Commission for the Conservation of Southern Bluefin Tuna (CCSBT). Australia is a member of the CCSBT, which sets the international quotas for SBT.

In Australia, the Australian Fisheries Management Authority oversees domestic commercial fishing of SBT in line with the quota allocation from the CCSBT. In 2014 the CCSBT agreed to a common definition of “attributable catch”, under which members are expected to have a process to account for all sources of mortality, including commercial, discards and recreational catch within their allocation by 2018.

ABARES researchers collaborated with Fisheries Victoria and the Institute for Marine and Antarctic Studies to develop and test methods for collecting this data. They reviewed recreational fishing survey practices and also modelled different fishing scenarios to estimate how many days of on-site surveys would be needed to build an accurate picture of the data.

The simulation modelling has helped to identify the most cost-effective way to obtain a robust estimate of the national SBT recreational fishing catch. In some states this was through on-site surveys. In others, where a targeted ‘sampling frame’ of fishers identified through fishing or boat licence databases was available, off-site phone surveys were preferred.

In Victoria and Tasmania catch data are relatively easy to gather because SBT tend to congregate in a few places and on-site surveys at popular boat ramps near these congregation points can quickly and effectively gather the required data. However, in South Australia and New South Wales, where SBT move quickly along the coast, fishing tends to be more episodic and diffuse, making sampling difficult and costly. Off-site phone surveys offer a solution to this, but are not currently available in all jurisdictions.

In Western Australia and New South Wales off-site surveys were found to be the most cost-effective techniques, as they are in Tasmania where they are already in use. On-site surveys were preferred in Victoria and are the only current option in South Australia, where there is no available fisher-related databases that could be used. The modelling indicated that in South Australia over a fishing season of eight months, a minimum of 500 survey days would be required. In New South Wales, 330 survey days over a two-month season would be required if phone surveys were not an option.

In all states the survey information could be combined with data from charter boats and game fishing competitions to develop a national estimate.

The project has estimated that in the short term the total cost of a national SBT recreational fishing survey would be \$2.3 million, in addition to resources already allocated such as Western Australia’s biennial recreational fishing survey. These costs could be reduced in the future if an off-site sampling frame for South Australia could be developed. Over the longer term, a national ‘sampling frame’ could reduce annual costs to \$0.4 million.

The project had an advisory committee comprising representatives from the game fishing community, charter boat sector and state fisheries organisations and was part funded by FRDC.

For further information: Andy Moore, Anthony.moore@agriculture.gov.au

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 2015–16, there was \$0.32 million or around 1 per cent of the total R&D investment for this program. This is 6.95 per cent above the AOP forecast budget.



Project activity during the year

United States insights into localised supply chains

FRDC research code: 2015-504

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

Seeing how other people do things can provide a useful insight into how a company can improve their own business. This was one of the objectives for sending a group of Australian seafood industry people to the Local Seafood Summit held in Virginia in the United States. Glen and Tracy Hill from the Lakes and Coorong Fishery in South Australia, fisher and fisheries researcher Andrew Tobin from Townsville in Queensland and Suzie McEnallay from the Wallis Lake Fisherman's Co-operative in New South Wales were selected and sponsored by the FRDC to attend the summit and meet local fishers there.

The conference included sessions on business planning, financial planning and advertising. The Australian delegates also noted some clear challenges that United States community-supported fisheries (CSFs) face, such as bureaucracy, food regulations and the importance of maintaining community support. These issues could be obstacles to establishing a similar model in Australia.

The Local Seafood Summit was organised by LocalCatch.org, a network of small-scale harvesters and CSFs. It ran over two days and was attended by 110 seafood direct marketing advocates. The main focus of the event was to facilitate knowledge exchange and networking.

For further information: Peter Horvat, 02 6285 0400, peter.horvat@frdc.com.au

Response to POMS

FRDC research codes: 2011-053, 2012-032 and 2015-406

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

The outbreak of POMS in Tasmania has killed more than 5 million dozen Pacific Oysters valued in excess of \$12 million. The Tasmanian oyster industry accounts for 37 per cent of Australian Pacific Oyster production with an estimated farm-gate value of \$25 million per year. In Tasmania, the Pacific Oyster industry supports more than 700 jobs, and the POMS outbreak has already caused the loss of at least 80 of these.

Although this POMS outbreak is localised in the south of Tasmania, it has a national impact as Tasmania's hatcheries located in the infected region supply 90 per cent of Pacific Oyster spat (juvenile oysters) to farmers in South Australia and New South Wales. Following the outbreak, the movement of spat from Tasmania has been banned and will be restricted in the foreseeable future. This will also significantly reduce production in South Australia and New South Wales, representing a further loss of livelihood for about 300 farms with a gross value of production of \$60 million a year.

Understanding the virus causing POMS and how it spreads as well as what conditions inhibit or assist infection will help Pacific Oyster growers to reduce the impact of POMS in the short term. Farm Animal Health at the University of Sydney has been involved in POMS research since the virus first appeared in New South Wales in late 2010. FRDC funding, is supporting research to provide Pacific Oyster growers with scientifically sound information on which to base their management decisions.



After two years of intensive research, a hypothesis that the virus spreads in seawater attached to plankton has emerged. The Pacific Oysters are infected when eating this plankton, but older Pacific Oysters seem to have better resistance to infection. This resistance is further enhanced when growing racks or longlines are raised higher in the water column, which means less time immersed in water. As the outbreaks in New South Wales continued beyond 2010, the team also discovered a clear seasonal pattern to the infection. Researchers now have outbreak maps spanning four years and these show a strong correlation between water temperature and disease activity. This work offers valuable insights for growers, helping support management decisions on when to bring Pacific Oysters onto farms and when to harvest.

Another important aspect of the work has been on how to protect hatcheries from outbreaks. As younger Pacific Oysters are particularly vulnerable to the virus, hatcheries are at very high risk of having their entire production wiped out by the introduction of POMS. In a 2014 FRDC-funded project, the University of Sydney team tested two commercially applicable methods of protecting spat in hatcheries. After extensive testing, the methods are now being used by Pacific Oyster hatcheries in Australia and in New Zealand and are proving very successful.

One Tasmanian hatchery has recently been declared POMS free thanks to the application of this research. This includes holding water for 48 hours to settle the sediments prior to running it through the Pacific Oysters and/or filtering the water through a 5-micrometre filter. Research has also led to more effective disinfection practices for industry, and the important role of water temperature through experimental infection trials in the laboratory.

To continue this essential research for the recovery of the industry, Oysters Australia, a national body formed in 2011 by Australia's community of oyster growers, is looking at other funding options and is investigating how to address the long-term flow-on effects from the outbreak.

The first step is the development of a National Response Plan funded by a \$25,000 contribution from the FRDC. This plan will guide all levels of government to provide ongoing support and R&D needed during the recovery of the Pacific Oyster farming industry. The plan will also identify measures to create greater resilience needed for the industry to expand in the future.

The next step is to work on breeding POMS-resistant Pacific Oysters and understand the virus better to provide best-practice husbandry advice to growers to beat POMS in the long term. Developing Pacific Oyster lines that are 100 per cent resistant to POMS will take several years and will only be possible with the continuation of the Australian Seafood Industry breeding program.

For further information: www.oysterhealthsydney.org

Sea cucumber harvest strategy

FRDC research code: 2012-200

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

Research on the Great Barrier Reef has identified a sea cucumber harvesting strategy with global applications. Australian research has shown that, zone-based rotational harvesting have the potential to lift the sustainability, productivity and profitability of the sea cucumber industry.

A two-year FRDC-funded project has evaluated rotational harvesting of sea cucumbers across 154 zones in the multi-species Queensland East Coast Beche-de-mer Fishery. The two main operators in the fishery—Tasmanian Seafoods and Seafresh Australia—had already voluntarily introduced a three-year rotational harvest strategy in 2004. Now researchers have verified that this novel approach can provide both biological and economic benefits.

This is the first study to use quantitative modelling to show that a rotational harvest strategy can reduce population depletion, increase long-term yields and improve profitability in a sea cucumber fishery. The study also assessed a variety of different harvesting intervals over different time periods. Drawing on 160 simulations for nine sea cucumber species in each of the fishery's 154 zones over 20 years (from 2012 to 2032), the study also examined the trade-off between risk and revenue across different rotational harvest periods from one to six years. It found the three-year period, developed and implemented by industry in the Queensland fishery more than 10 years ago, provided the optimal balance.

The study also identified the need for future research to address gaps in the data about the fishery's high-risk species, specifically Burrowing Blackfish outside fished zones and White Teatfish throughout the fishery. The findings from the Australian research have drawn international attention with reports in *Scientific American* and other journals. Resource management is an important focus in sea cucumber fisheries worldwide because these animals are vulnerable to over-exploitation. Demand from Asian markets is estimated to be worth US\$60 million a year.

For further information: Eva Plaganyi, 07 3833 5955, eva.plaganyi-lloyd@csiro.au;
Tim Skewes, tim.skewes@csiro.au



Sea cucumber species including White Teatfish (top row) and Black Teatfish (middle row) and Prickly Redfish (lower row).

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 2015–16, there was \$0.86 million or around 3.50 per cent of the total R&D investment for this program. This is 1.50 per cent above the AOP forecast budget.

Project activity during the year

Bridge-building needed for Indigenous fisheries research

FRDC research codes: 2016-409, 2014-404, 2015-205, 2014-233, 2014-226 and 2013-218

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

Indigenous-focused fisheries research and the flow-on benefits to Indigenous communities was the subject of the third National Indigenous Fisheries Forum, supported by the FRDC. Held in Cairns, Queensland, in March the forum brought together 50 people including fishers, community members, researchers and managers. About 35 Indigenous people representing communities from around the country attended the event.

The previous forum, held in 2012, identified priorities for Indigenous fisheries research. Since then, a range of projects has been underway. These involve research to develop resources on Indigenous customary fishing practices, deepen engagement between researchers and Indigenous fishing communities and identify the benefit in fisheries for Indigenous communities. At the forum, researchers had the opportunity to present their projects and Chris Calogeras, executive officer of the Indigenous Reference Group (IRG), said all presentations were well received.

Forum participants included Tasmania’s Emma Lee who is keen to extend her natural resource management research to include fisheries and Wally Stewart who represents the NSW Aboriginal Fishing Rights Group.



The issue of communicating the IRG's goals to Indigenous communities was identified as an ongoing challenge and workshopped at the forum and resulted in suggestions such as developing a website and YouTube videos, and engaging through Indigenous media and the Australian Broadcasting Corporation. The work done at the forum will now be used to develop a more formalised communication strategy.

The forum also facilitated face-to-face meetings to help establish relationships, collaborations and understanding of the shared goals between community representatives and researchers. Developing these relationships is valuable to understanding shared priorities and to build capacity that can benefit Indigenous communities through fisheries development.

For further information: Chris Calogeras, 0401 692 601, chris@c-aid.com.au

Citizen scientists reef monitoring program

FRDC research code: 2014-005

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

Recreational fishers, motivated by community stewardship, are helping to develop cost-effective monitoring options for a Western Australian artificial reef trial. The recreational fishing community in Western Australia is harnessing this technology for a unique citizen science program. Reef Vision is part of an FRDC-funded research project investigating whether highly engaged recreational fishers can provide a cost-effective means of monitoring artificial reefs. In the south-west of the state a network of 32 dedicated recreational anglers and supporting scientists is helping to monitor the social, biological and structural impacts of artificial reefs.

A key component of this program is an Australian first: the use of baited remote underwater video stations (BRUVS) by the general public as part of a coordinated monitoring program. This program is based around the first-ever purpose-built artificial reefs in Western Australia.

Deployment of the new reefs was largely driven by Western Australia's 740,000 recreational fishers. The reefs consist of six clusters of five cube-shaped cement modules, each weighing 10 tonnes, spread across 4 hectares of seafloor. The custom design includes propeller-shaped cross braces to create upwellings that serve as the base for food webs, attracting higher-order fish.

New inhabitants

The reefs have quickly been colonised by a diverse range of species. The initial 12 species of fish observed pre-deployment, on a bare sand bottom, have been joined by more than 38 other species in the three years since deployment. These include recreationally targeted species, which the reefs were designed to attract, such as Samsonfish, snapper and Silver Trevally. The reefs have also attracted smaller, non-target species in abundance, such as Rough Bullseye and Western King Wrasse.

Monitoring success

The ability to monitor these trial reefs is essential to making additional artificial reefs. The five-year program for the existing reefs included pre-deployment surveys and four years of monitoring by the Department of Fisheries, at a cost of \$575,000, has been funded by the state government. There have been surveys of the trial reefs but also comprehensive surveys of local natural reefs, and other nearby artificial reefs, such as the HMAS Swan wreck and the Busselton Jetty.

Stereo BRUVS technology is being combined with underwater stereo-video methods and side-scan sonar to best capture the size, biomass and diversity of fish present, and to assess the structural integrity and positioning of the reefs.

Reef Vision was born out of this opportunity to run the scientific and citizen programs concurrently which helps determine whether the citizen-based program has the rigour and credibility needed to meet legislated monitoring requirements. If so, this could also help reduce the cost of future monitoring programs. Reef Vision is being led by Recfishwest, which represents the state's recreational anglers, with scientific oversight provided by Murdoch University and the Department of Fisheries, Western Australia.

The goal is to develop complementary methods to scientific approaches that are cost-effective and which have the resolution to meet legislative requirements. Through such partnerships, and by harnessing the enthusiasm of recreational fishers, these methods have the capacity to build community stewardship and provide cost-effective monitoring options, with potentially wide-ranging applications.

For further information: Andrew Rowland, Recfishwest, 08 9246 3366,
andrew@recfishwest.org.au



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 2015–16, there was \$1.54 million or around 6.27 per cent of the total R&D investment for this program. This is 3.73 per cent below the AOP forecast budget.

Project activity during the year

Students catch onto fisheries lessons

FRDC project code: 2010-403

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

Amid the growing disconnect between Australia’s population and the source of its food and fibre, agencies involved in primary industry research and in education have come together to establish a peak body to teach children more about fishing, forestry and agriculture.

The FRDC is among those supporting the Primary Industries Education Foundation Australia (PIEFA) to address this disconnect, which also coincides with a downturn in the number of young people seeking a career within the fishing industry.

In 2014, the Australian Government announced a \$2 million initiative, ‘Agriculture in Education’, to develop resources to specifically match curriculum outcomes and make it as easy as possible for teachers to embed related content.

PIEFA’s part in this project was to develop 23 units of study and 40 matching videos to support teachers and their students. The videos are divided into two sections. The first have industry members discussing their industry to provide teachers with background information to increase their knowledge and confidence to teach students. These videos are also a great source of information for students directly. The second group of videos shows teachers who have trialled the videos discussing their educational value and how they have implemented the units in their classrooms.

The resources cover all of Australia's primary industries but several specifically target the fishing industry. For example, Year Five has a unit entitled 'Investigating Australian approaches to producing fish, seafood and meat'. The videos accompanying these units feature well-known local industry figures.

For further information: Ben Stockwin, PIEFA, ceo@primaryindustrieseducation.com.au; Primezone, www.primezone.edu.au

Nuffield scholars explore the world for answers

FRDC project code: 2016-407

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

The FRDC has awarded its 2016 Nuffield scholarships to Dennis Holder and Steven Davies. Dan Richards has picked up a Woolworths Scholarship. Steven and Dan are both graduates of the FRDC's National Seafood Industry Leadership Program.

Dennis Holder

Dennis, from Largs North adjacent to Port Adelaide in South Australia, will investigate technologies to reduce the carbon footprint of commercial fishing vessels. Dennis operates a purpose-built, 24-metre aluminium boat for the wild catch of Blue Swimmer Crabs. The boat FV Silver Spectre and its fishing equipment reduced their carbon footprint and bycatch of juvenile crabs by 92 per cent, while increasing operating efficiencies by over 50 per cent. He has three fishing licences in South Australia, with a total quota holding of 220 tonnes. This is about 35 per cent of the South Australian total allowable commercial catch quota and enables him to supply local markets but also those in New South Wales, Victoria and Queensland. Dennis plans to use his scholarship to assess new marine technologies in electric propulsion and drive systems, energy storage and power generation for hybrid operations.

Steven Davies

Steven, from Perth, Western Australia will investigate the development of socially responsible and economically sustainable wild-catch seafood and aquaculture industries in Australia. His particular interest is the relationships between industry, government and interest groups and how these can encourage the development of a sustainable aquaculture industry across the country. Steven is a senior manager of Marine Produce Australia and is part of the small team responsible for the company's Kimberley-based operation, Cone Bay Ocean Barramundi. This is Australia's only sea-cage barramundi farm. Steven hopes his research in Chile, China, Iceland, Kiribati, Norway and the United States will identify potential new practices and insights that can be applied to the Australian wild-catch seafood and aquaculture industries.

From left:
Dennis Holder,
Steven Davies,
Dan Richards.



Dan Richards

Dan, from Darwin in the Northern Territory will use his scholarship to travel to Belgium, Denmark, Japan, Norway, Saudi Arabia and the United States to study international seafood and aquaculture production, technologies and market trends. As business owner of the Humpty Doo Barramundi aquaculture operation, he sees big opportunities to develop premium quality, sustainably produced white fish to complement pink fish markets in Australia and overseas.

Returning scholars

This year's returning scholars were Ben Ralston and Wayne Dredge who both recently presented on their experiences at the Nuffield annual conference. Ben's topic focused on directly connecting the consumer with oyster products, and Wayne spoke about innovative fishing methods for shark, and fisheries management approaches.

For further information: <http://nuffield.com.au/>

Sense of pride unites seafood leaders

FRDC research code: 2014-407

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

New perspectives and initiatives emerge from the latest group of fisheries and aquaculture leadership graduates. 'United by pride' is the theme of a touring photographic exhibition that highlights the human face of fisheries and is an initiative of the 2015 National Seafood Industry Leadership Program (NSILP).

The exhibition was featured as part of the industry's national conference, Seafood Directions, held in Perth in October, and plans to visit several other Australian cities. It is one of several initiatives to come from the NSILP participants this year. Others featured point-of-sale information for consumers and a fisheries education and careers strategy.

Each year participants in the leadership program develop a vision and mission statement for themselves, before establishing project groups that each develop an initiative to advance their vision and mission for the seafood industry.

The profiles have also been adapted for use in social media, including a smartphone app that is being developed by the Tasmanian Seafood Industry Council (TSIC). The app is based on a popular Tasmanian Seafood Trail brochure TSIC previously produced and is now looking to move to an electronic format. The app allows travellers to find information about fishers, fisheries and fish-related food outlets based on location, and to be alerted to relevant local information as they travel.

The profile of seafood industry members produced as part of the 'Pride' initiative will be incorporated into the app, which also includes details of local commercial and recreational fisheries, Indigenous heritage and reviews of fish shops and restaurants.

Point of sale

A second project group developed point-of-sale promotional material, giving consumers information to connect the fish they have bought with the fishers and fisheries that have provided the catch. The project focused on two species, Spencer Gulf prawns and New Zealand snapper, with industry partners willing to fund the preparation of materials. The Spencer Gulf and West Coast Prawn Fisherman's Association assisted with the design of a postcard featuring its product for retail buyers, and a business card for restaurant diners.

The feedback was overwhelmingly positive. There was also an increase in activity on the web pages listed on the cards, such as the FRDC's Fishfiles (www.fishfiles.com.au), which was attributed directly to the project.

Education

The third project group focused on an education initiative to raise the profile of fisheries in the general public. It developed a concept for collectable Australian seafood cards for supermarkets featuring different fish species, and fishing techniques. Discussions are underway with both Coles and Woolworths about the possibility of taking part.

The group also analysed available information about fisheries jobs and careers, identifying a need for a more national approach to establish clearer career pathways and to link relevant jobs in an easily searchable way. It also plans to establish a presence on LinkedIn for the NSILP program.

Although the 2015 NSILP participants officially graduated in September, all of the project groups have developed a plan of action and committed to pursuing their initiatives further in the coming year. This year's graduates are:

- **Michel Bermudes**, hatchery manager at Shellfish Culture Ltd, Tasmania (now mariculture and aquatic biosecurity expert, Secretariat of the Pacific Community, Noumea, New Caledonia),
- **Chloe Clauson**, licence manager, abalone industry, South Australia and Western Australia,
- **Adam Clow**, owner-operator of Southern Cross Fishing, New Zealand,
- **Craig Fox**, abalone diver and director of AquaFox, Victoria,
- **Johnathon Davey**, executive director, Seafood Industry Victoria,
- **Hayley Egan**, researcher, Southern Cross University, New South Wales,
- **Darvin Hansen**, general manager, Tasmanian Seafoods' Margate factory, and vice-president of the Tasmanian Abalone Council,
- **Julian Harrington**, chief executive, Tasmanian Seafood Industry Council,
- **Aaron Irving**, executive officer, Pearl Producers Association, Western Australia,
- **Rhiannon Jones**, fisheries management officer, Department of Fisheries, Western Australia,
- **Rachel King**, executive officer, Oysters Australia, New South Wales,
- **Robert Langdale**, Tasmanian-based fisher,
- **Emma Lowe**, assistant director, Australian Department of Agriculture and Water Resources, Australian Capital Territory,
- **Stephen Mayfield**, science leader—fisheries, South Australian Research and Development Institute Aquatic Sciences, Primary Industries and Regions South Australia,
- **Suzanne McEnallay**, operations manager, Wallis Lake Fish Co-operative, New South Wales,
- **Veronica Papacosta**, director and chief financial officer, Penrith Seafoods (Wetherill Park), New South Wales,
- **Josiah Pit**, operations and supply chain manager, Aquarium Industries, Victoria,
- **Alicia Sabatino**, fisheries management officer, Australian Fisheries Management Authority, Queensland.

The NSILP program is part of the FRDC's people development portfolio, with gold sponsorship from Sydney Fish Market.

For further information: www.ruraltraininginitiatives.com.au

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 2015–16, there was \$1.95 million or around 7.94 per cent of the total R&D investment for this program. This is 0.06 per cent below the AOP forecast budget.



Project activity during the year

World Fisheries Congress 2020

FRDC project code: 2014-506

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

A successful joint Australia–New Zealand bid to host the 2020 World Fisheries Congress is expected to bring more than 1500 scientists and policy makers to the Adelaide Convention Centre, South Australia on 11 to 15 October 2020.

The World Fisheries Congress will provide a platform for Australia to showcase the work it has undertaken in fisheries and aquaculture science to the world.

The World Council of Fisheries Societies organise and run the event every four years, with the aim of advancing and promoting international developments and cooperation in fisheries science, conservation and management.

The South Korean city of Busan hosted the 2016 World Fisheries Congress from 23 to 27 May. An Australian contingent, which included two FRDC staff participated in the conference gaining first-hand knowledge of the organisation, structure and key international contacts as part of the preparation for the event in 2020.

Australia last hosted the congress in Brisbane in 1996, where an action plan for the next 25 years was put forward. The Adelaide event will provide a timely opportunity to assess what has been achieved in the interim. The 2020 congress will also focus on the challenges of fishing sustainably and maintaining prosperous fishing communities from oceans and rivers whose functional integrity and conservation values are facing increasing pressure.

The bid was led by the Australian Society for Fish Biology, the South Australian Research and Development Institute and the FRDC. Other bid members included the University of Adelaide, the Adelaide Convention Bureau, CSIRO, the New Zealand Ministry for Primary Industries and the South Australian and New Zealand seafood industries.

Seafood Directions

FRDC project code: 2014-505

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

The 2015 Seafood Directions conference held in Perth in October has drawn the industry more strongly towards a single, focused course of action for the future. More than 300 delegates attended the biennial conference, which this year had the theme ‘Selling our story’.

Delegates heard about several international and local initiatives designed to promote sustainable seafood, but the presentation that resonated most was from Joshua Stoll, co-founder of the United States-based Walking Fish co-operative, and whose conference attendance was sponsored by the FRDC.

The conference was officially opened by Assistant Minister for Agriculture and Water Resources Senator Anne Ruston who told delegates the seafood industry needed to drive its own strategy and sell its own message.

Seafood Directions is a key conference for the FRDC to get researchers to showcase and put forward the work that has been undertaken. At Seafood Directions 2015, over 50 per cent of the presentations related to FRDC investment and 16 of the presenters had been through FRDC-funded leadership programs.

Local success stories featured in many presentations, as well as works in progress and familiar challenges. Several speakers highlighted efforts to assess and certify the sustainability of fisheries, with a growing emphasis on social sustainability, in addition to environmental sustainability.

Chief executive of the Marine Stewardship Council (MSC) Rupert Howes outlined how the MSC certification program had gained momentum and international recognition in the 15 years since it was launched. Certification has often been viewed as a marketing tool that could help fisheries attract a premium, or as an insurance policy to help protect the reputation of a fishery.

Western Australia reported on the progress of its initiative to assist all of its fisheries towards MSC certification. Small-scale fisheries and the MSC were also central to the Project Inshore initiative developed by the United Kingdom-based fishing industry authority Seafish, which was outlined by the FRDC-sponsored keynote speaker Tom Pickerell, the technical director at Seafish.

One of the FRDC-funded projects covered was that led by Janet Howieson, from Curtin University’s Centre of Excellence for Science, Seafood and Health, and Western Australian fisher Peter Jecks. They outlined the efforts to streamline the development and marketing of new products. Peter called for a series of national seafood hubs that could effectively centralise small quantities of product for cost-effective national distribution. This would also more closely link seafood producers with end users, without the need for wholesale distributors as intermediaries of ‘approved’ inventory.

The FRDC’s executive director, Patrick Hone, provided a concluding summary for the conference saying the overall message was positive. There was plenty of evidence of the passion and pride that fishers have for their industry. He said the conference also identified opportunities to engage better with the rest of the world. Fisheries sectors internationally were facing similar challenges, operating in a “parallel universe” and Australian fisheries could learn more from greater interaction at an international level.

For further information: Seafood Directions, www.seafooddirections.net.au

A decade of excellence in culinary connections

FRDC project code: 2014-504

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

The FRDC, in partnership with a number of other RDCs, has been involved in taking chefs and hospitality staff to visit fishers and farmers to showcase the research and science that goes into Australia’s primary production for more than a decade, through the Appetite for Excellence program.

Now an annual event, over the course of a week-long tour, finalists in the Appetite for Excellence program visit four or five primary industry sectors to learn about where the produce comes from, first-hand. Seafood Industry Victoria chief executive Johnathon Davey hosted the seafood leg of the tour, joining fishers from the Jenkins family and Victorian fishery scientist Matt Koopman. Their expertise provided participants with a good overview of Victoria’s commercial fishing operations, from harvesting methods to techniques used to assess fish stocks.

The tour participants spent three hours on Port Phillip Bay where they were able to observe crew from Jenkins and Son demonstrating how shallow water haul seining works. This is a low-impact harvesting technique used in Port Phillip Bay to catch many popular species such as King George Whiting. Fishing on the day produced a good haul and the group was also able to compare their own fish filleting technique against that of the professional filleters, who process the catch for Jenkins and Son.

Continuing their tour, the group visited the Craig Mostyn Group’s Jade Tiger Abalone farm (see below) where managing director Anton Krsinich gave an overview of the operation from spawning and spat production (of which the FRDC has invested significantly with the Australian Abalone Growers Association), right along the supply chain to processing, canning, packaging and exporting. This land-based facility is the largest abalone farm in Australia and produces a selectively bred abalone with a distinctive jade colour. At the end of the tour the group was treated to a tasting of abalone in a few different forms—canned and fresh.

After 10 years of involvement in Appetite for Excellence the FRDC has helped to educate over 200 of the country’s leading hospitality professionals, and has built long-lasting partnerships and a network of good people who continue to use the FRDC as a resource for information on the seafood industry.

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



IMPACT AND OUTCOMES

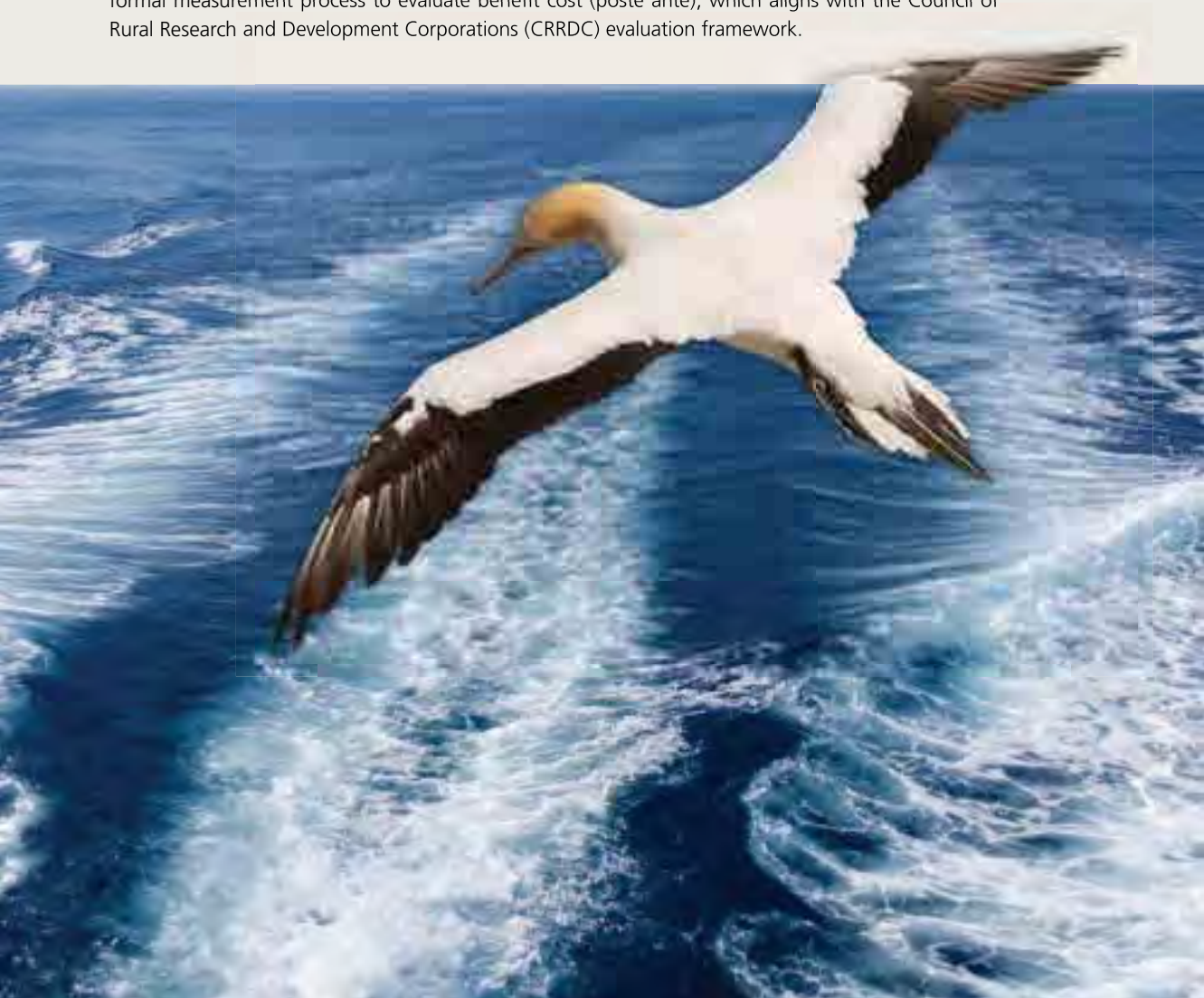
Evaluating the results of RD&E investment

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 25) 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.

FRDC evaluation results

The FRDC's RD&E Plan saw investment across five programs, divided into 14 themes. The Corporation set an impact assessment objective of evaluating in economic terms all projects, grouped into clusters of like projects, across all themes over the five-year period commencing March 2011.

Programs	Theme no.	Theme name	Clusters
Program 1: Environment	1	Biosecurity and aquatic animal health	3
	2	Habitat and ecosystem protection	3
	3	Climate change	1
	4	Ecologically sustainable development	3
Program 2: Industry	5	Governance and regulatory systems	1
	6	Resource access and allocation	1
	7	Production, growth and profitability	4
	8	Consumers, products and markets	2
	9	Value from aquatic resources	1
Program 3: Communities	10	Resilient and supportive communities	1
Program 4: People	11	Leadership development	1
	12	Workforce development	1
	13	Innovation skills	2
Program 5: Adoption	14	Extension and adoption	1

The first population of projects was defined in January 2011 and projects were placed into clusters. Where there were high numbers of projects, these divided more specific groupings and this resulted in a total of 25 clusters across the 14 themes being assessed.

Evaluation of the first eight clusters was completed in October 2012 and the evaluation report provided to FRDC. The second round of evaluation was undertaken between July 2013 and December 2014 with nine clusters (outlined below) subjected to impact assessment. The assessment used benefit cost analysis to estimate investment criteria for each cluster of projects. The nine clusters evaluated in the second round comprised:

- one cluster from theme 1 (Biosecurity and aquatic animal health),
- one cluster from theme 4 (Ecologically sustainable development),
- one cluster from theme 5 (Governance and regulatory systems),
- one cluster from theme 6 (Resource access and allocation),
- four clusters from theme 7 (Production, growth and profitability),
- one cluster from theme 8 (Consumers, products and markets).

Each cluster comprised between seven and 50 projects. As the entity for evaluation reporting was the cluster, the costs and benefits for each cluster had to be built up from information on individual projects in the cluster. This was achieved largely through access to the FRDC's database and contact with principal investigators of projects, government agencies and industry personnel.

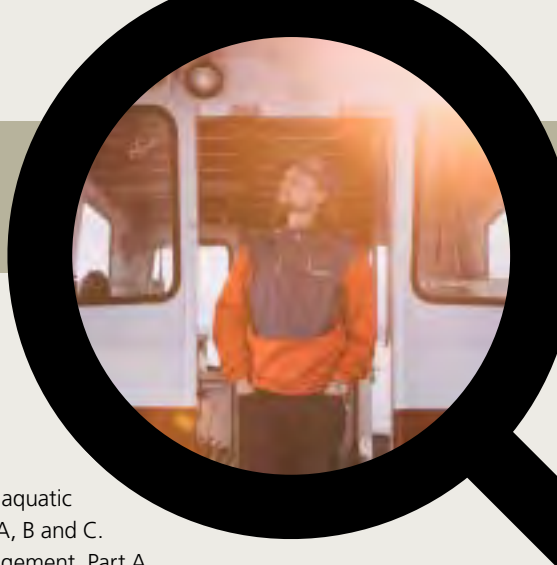
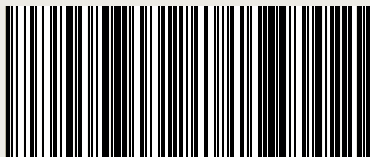
The value of total funding for each of the nine clusters (FRDC plus other investment) ranged from \$3.7 million to \$44.2 million, with the total value for all nine clusters being \$137.4 million (in nominal dollar terms). The FRDC's nominal investment varied for each cluster (ranging 32.6 per cent to 62.4 per cent of the cluster total). FRDC contributed 40% of the total nominal investment across all nine clusters.

Most of the benefits identified from the nine clusters (202 projects in total) were economic in nature although significant numbers of environmental and social/community benefits were also identified. The major beneficiary of research investment has been the fishing industry (51 per cent of the number of benefits identified), with 43 per cent of the identified number of benefits being public in nature and 6 per cent to overseas interests. The results demonstrate the significant spillovers of benefits to the public sector from research targeted at the fishing industry. There were insignificant spillover benefits to other Australian industries.

The net present values (NPVs) for total investment for the individual clusters ranged from \$6 million to \$124 million and the benefit cost ratios (BCRs) ranged from 1.8:1 to 3.9:1. FRDC investment made up 37.9 per cent of the total investment in present value terms, and the NPVs for FRDC investment in individual clusters ranged from \$4 million to \$60 million.

When all nine clusters are aggregated, the BCR for the \$266.5 million investment in the nine clusters was 2.6:1 (present value terms), with a present value of benefits of \$684.0 million and an NPV of \$417.5 million. For the FRDC investment of \$101.0 million (present value terms), the NPV was \$170.2 million.

The four clusters completed this year follow and are available on FRDC's website—www.frdc.com.au



An economic analysis of FRDC’s investment in Theme 4: Management

Background

Theme 4 is concerned with the use and management of aquatic resources. The theme is divided into three clusters: Parts A, B and C. The current analysis addresses Part C, which covers management. Part A addresses recruitment/movement, stock structure and fisheries modelling while Part B focuses on biology.

The projects funded in Part C covered a range of fisheries management issues. The majority of projects sought improvements in tools and methods for assessing the status of fisheries stocks; many investments aimed at improving and/or extending the extent and quality of information available to industry and fisheries managers; other investments were aimed at new tools and methods for reducing costs of providing information.

There are 50 projects included in this analysis.

Project no.	Project title	Total (\$)
2000/123	Risk analysis and sustainability of the Southern Rock Lobster (<i>Jasus edwardsii</i>) resources in South Australia	163,116
2001/042	Development of the tools for long-term management of the giant crab resource: Data collection methodology, stock assessment and harvest strategy evaluation	246,572
2001/074	Linking fishery-dependent and fishery-independent assessments of abalone fisheries	412,571
2001/076	Assessing survey methods for Greenlip Abalone in South Australia	270,404
2002/014	Developing a new method of evaluating catch rates of spatially mobile and aggregating prawn resources	657,640
2002/056	Innovative stock assessment and effort mapping using vessel monitoring systems (VMS) and electronic logbooks	495,861
2002/057	Sustainability of small-scale, data-poor commercial fisheries: Developing assessments, performance indicators and monitoring strategies for temperate reef species	195,620
2002/059	Developing fishery-independent surveys for the adaptive management of New South Wales’ estuarine fisheries	1,026,442
2002/072	Assessing the feasibility of an industry-based fishery-independent survey of the South East Fishery	87,033
2002/083	Towards an industry-based abalone fishery monitoring program	334,356
2003/017	Juvenile scallop trashing rates and bed dynamics: Testing the management rules for scallops in Bass Strait	400,531
2003/044	Development of a sustainable industry-based observation system for Blue Grenadier at the primary spawning sites	434,670

Project no.	Project title	Total (\$)
2003/047	Evaluation of methods of obtaining annual catch estimates for individual Victorian bay and inlet recreational fisheries	380,064
2003/052	Spatial scales of exploitation among populations of demersal scalefish: Implications for wetline management	514,378
2003/222	Innovative Solutions for Aquaculture: Spatial impacts and carrying capacity—further developing, refining and validating existing models of environmental effects of finfish farming	253,377
2003/223	Innovative solutions for aquaculture planning and management—Project 5, environmental audit of marine aquaculture developments in South Australia	498,512
2004/006	ESD [ecologically sustainable development] Reporting and Assessment Subprogram: Strategic planning, project management and adoption	173,402
2004/008	Improving demonstrated environmental accountability in the Northern Territory fishing industry	160,000
2004/019	Towards optimising the spatial scale of abalone fishery management	525,407
2004/020	Validation and extension of acoustic reef habitat mapping methodologies in the western abalone zone, Victoria	75,000
2004/096	The development and production of EMS [environmental management system] template documents for the salmonid, oyster and abalone aquaculture sectors in Tasmania	106,667
2004/101	ESD Reporting and Assessment Subprogram: Review of the scope, assessment methods and management responses for fisheries ESD and EBFM [ecosystem-based fisheries management] in Australia	149,664
2005/004	Determination of effective longline effort in the Eastern Tuna and Billfish Fishery	128,607
2005/011	Development of field implemented fillet identification for coral reef finfish	176,435
2005/031	Establishing ecosystem-based management for the South Australian sardine fishery: Developing ecological performance indicators and reference points to assess the need for ecological allocations	799,999
2005/035	The development, adoption and evaluation of an EMS in Western Australian commercial fisheries	90,000
2005/038	Space-time analysis of Western King Prawns, Brown Tiger Prawns and Saucer Scallops in Shark Bay for improved fisheries management	196,895
2005/044	Development of the scientific requirements of an EMS for the pearling (<i>Pinctada maxima</i>) industry	488,359
2005/047	Utilisation of GIS spatial statistical methods to assist in the development of ecosystem based fishery management strategies using the Northern Territory demersal and Timor Reef fisheries as case studies	73,188
2005/238	Australian Seafood Industry Council/National Aquaculture Council environmental labelling	41,671
2006/008	Assessing data poor resources: Developing a management strategy for byproduct species in the Northern Prawn Fishery	160,627

Project no.	Project title	Total (\$)
2006/024	Harvest strategy evaluation to optimise the sustainability and value of the Queensland scallop fishery	412,078
2006/036	Supporting sustainable fishery development in the Great Australian Bight with interpreted multi-scale seabed maps based on fishing industry knowledge and scientific survey data	291,930
2006/057	Development of a national environmental management and accreditation system for business/public recreational fishing competitions	76,561
2007/010	Integration of socioeconomic sustainability criteria into a reporting framework for the Australian aquaculture industry	166,050
2007/013	A comprehensive ESD analysis of a fishery: The incorporation of regulatory, ecological, economic and sociological aspects	161,461
2007/014	Developing innovative and cost-effective tools for monitoring recreational fishing in Commonwealth fisheries	174,998
2007/016	Development of national guidelines to improve the application of risk-based methods in the scope, implementation and interpretation of stock assessments for data-poor species	191,841
2007/017	Integrated evaluation of management strategies for tropical multi-species long-line fisheries	258,009
2007/018	Developing techniques to estimate total allowable catches for the Northern Prawn Fishery major prawn species	793,324
2007/048	Towards evaluating the socioeconomic impacts of changes to Queensland's inshore fishery management	220,551
2007/055	Independent environmental certification for Australia's Northern Prawn Fishery marine stewardship council pre-assessment	8,200
2007/061	The progression of abalone fishery performance indicators	30,000
2007/064	Tactical Research Fund: Developing an analytical module for large-scale recreational fishery data based on phone/diary survey methodology	70,872
2007/066	Tactical Research Fund: Rapid response to abalone virus depletion in western Victoria: Information acquisition and reefcode assessment models	70,000
2008/064	Tactical Research Fund: Management Strategy Evaluation (MSE) of the harvest strategy for the Small Pelagic Fishery	85,897
2008/075	Tactical Research Fund: Industry based size-monitoring and data collection program for albacore tuna in the Eastern Tuna and Billfish Fishery	39,009
2008/097	Tactical Research Fund: Developing the use of existing technology in cost-effective and reliable industry-based structured fishing surveys to urgently replace more costly methods and advise finer-scale management of abalone populations	75,000
2008/215	Tactical Response Fund: Implementation of the NEATFish environmental standard for recreational fishing tournaments	58,000
2009/031	Taking female Mud Crabs (<i>Scylla serrata</i>): assessment of risks and benefits	59,499
		12,960,348

Benefits

The various projects undertaken in this cluster have helped to generate a number of potential and actual economic, environmental and social benefits. The following table provides the triple bottom line framework summary of the principal types of benefits associated with the outcomes of the investment.

ECONOMIC, ENVIRONMENTAL AND SOCIAL BENEFITS

Industry	Environmental	Social
1. Increased sustainability of the wild-catch fishing resource	6. Maintenance or improvement in ecosystems and/or reduced biodiversity decline	8. Improved research resource allocation/public policy and governance
2. Increased access to resources (or avoided reduced access) by both wild catch and the aquaculture industry	7. Improved natural resource management by aquaculture industries	9. Increased scientific capacity
3. Reduced costs and or increased incomes		
4. Improved research resource allocation		
5. Increased industry/scientific capacity		

Public versus private benefits

The investment has both public and private benefits. On the basis of the nine benefits as listed in the table above, and equal weighting for each benefit, it can be concluded that public benefits to Australia make up 44 per cent of the total Australian benefits. If subjective weightings are used, the public benefits still make up 43 per cent of the total Australian benefits.

Distribution of benefits along the supply chain

The majority of private benefits and any added costs from improved sustainability of wild-catch fisheries and aquaculture sustainability could be captured initially by fishers but some projects may deliver initial benefits further down the supply chain (e.g. environmental branding). However, all costs and benefits will most likely ultimately be shared along the supply chains, including seafood consumers.

Benefits to other industries

It is likely that most industry benefits will be confined to the seafood industry, including recreational fishers and consumers.

Benefits overseas

It is likely that there may be only some small spillover benefits to overseas interests, mainly in the form of scientific information and methods.

Quantification of benefits

Four benefits were valued. The first benefit valued is the increased economic sustainability of the various wild-catch fisheries addressed by the projects compared to the situation where the projects were not funded. The general contributions to sustainability (10 projects) are assumed to apply to the specific 28 fisheries but any contributions from these general projects to fisheries external to the 28 are not valued. The second benefit valued is the reduction in the risk of biodiversity decline in species and ecosystems due to the improved fisheries management. The third benefit valued is associated with avoidance of reduced access to the resources and improved natural resource management associated with aquaculture industries. The fourth benefit valued was from wild-catch focused projects that would have assisted continued access to marine resources

Results

All past costs and benefits were expressed in 2013/14 dollar terms using the consumer price index (CPI). All benefits after 2013/14 were expressed in 2013/14 dollar terms. All costs and benefits were discounted to 2013/14 using a discount rate of 5 per cent. The base run used the best estimates of each variable, notwithstanding a high level of uncertainty for many of the estimates. Investment criteria were estimated for both total investment and for the FRDC investment alone. All analyses ran for the length of the investment period plus 30 years from the last year of investment (2010/11) to the final year of benefits assumed.

The analysis is based on total investment in the projects and associated benefits, not on the additional benefits due to the marginal investment by FRDC. The FRDC benefit is estimated from the total benefit by the proportion of total funding provided by FRDC.

Observations for future investment and evaluation

1. The FRDC project management system was found valuable in being able to easily extract funding information by project by financial year across a range of individual RD&E areas. However, an improvement would be if summary tables for each year by RD&E area (e.g. by species in a time series) could be made available.
2. The proportion of total funding in this group of projects made by FRDC was 49 per cent. This was well above the average percentage of 40 per cent found for 18 clusters in 2009. This was not surprising due to the large public commitment to sustainable management of fisheries. The relevant percentages for each cluster are worth summarising as they may be important in assessing the FRDC's current and prospective roles in different RD&E areas and where public benefits are manifest but external funding may be difficult to attract. The percentage data may be useful also in developing changed leveraging targets for various themes and project groups.
3. While the ABARES statistics on production and value by species group and jurisdiction is extremely useful, one of the constraints faced by this analysis was finding data on the gross value of some fisheries and how these gross values may have varied year by year. It would be helpful if FRDC could facilitate improved summary data on the various fisheries such as annual gross values over time.

Key performance indicators

The four Theme 4 key performance indicators (KPIs) are listed below.

KPI	Description	No. of projects
1	Development of mechanisms and technologies to collect economic, environmental and social data to inform management processes	33
2	Improvement of knowledge of the relationship between environmental processes and known biological processes	4
3	Development of techniques for incorporation of ecosystem based fisheries management in fisheries	8
4	Development of knowledge to help the industry to meet environmental standards	13

Four of the 50 projects did not contribute to any of the KPIs as the projects did not produce any impacts except for building some scientific capacity. Of the 46 projects that did contribute, 33 contributed to KPI 1 and 13 to KPI 4. Some of the 46 projects contributed to more than one KPI.

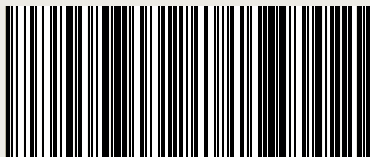
Conclusion

Investment was made in a total of 50 projects within the cluster and FRDC contributed approximately 49 per cent of the total nominal costs of investment. Both industry and public benefits are delivered by the investment.

Four benefits were valued from the investment in this group of projects. The two largest benefits in value terms were the industry economic benefits from improved sustainability of wild-catch fisheries and the reduced risk of biodiversity decline; together these benefits contributed over 90 per cent of the total benefits valued.

Four of the 50 projects were considered to be associated with no benefits except by building some industry or scientific capacity. One of these was highly innovative but its results could not be applied in a practical sense; another was innovative but required further investment that was not forthcoming. Two projects offered potential benefits to fisheries management but their findings were not adopted due to stakeholder considerations.

Overall, the investment criteria estimated for total investment in the project group of \$49 million (present value of costs) were positive with a present value of benefits of \$173 million, a net present value estimated at \$124 million and a benefit cost ratio of 3.5 to 1, all estimated using a discount rate of 5 per cent (benefits estimated over 30 years from the final year of investment). A number of minor benefits identified were not valued, so the resulting investment criteria are likely to be a conservative estimate of total benefits.



An economic analysis of FRDC's investment in Theme 7: Enhancement, nutrition and health

Background

Theme 7 is part of the FRDC's industry program, the main priorities of which are to promote the development of new and existing technologies, improve the productivity and profitability of existing industries while supporting the development of new ones, and to better understand and response to domestic and international market and consumer requirements. Investment in the enhancement, nutrition and health cluster aims to support the broad objective of Theme 7, which is to 'increase the gross value of production, profit margins, productivity and opportunities throughout the fishing and aquaculture industry'.

The research in this cluster has been conducted against the backdrop of the increasing gap between world demand for seafood and the capacity for seafood supply. Expansion of aquaculture production and enhancement of wild fishery stocks provide two methods of addressing this issue, thereby increasing the economic and environmental sustainability of the fisheries industry.

Nutrition and health are critical issues for successful aquaculture production, with implications for cost of production, growth rate, survival, product quality and market acceptance. Feeding expenses usually represent the single largest cost to aquaculture producers, so there is a strong incentive to identify opportunities for improved efficiency in this area. As nutritional requirements can vary substantially between species, it is important to have targeted aquaculture nutrition research that addresses the needs of commercial operators. In addition to research in animal nutrition, several projects worked to develop new or improved methods for measuring health in fish.

With recent increases in the prices of traditional feeds such as baitfish, fishmeal and *Artemia*, there has been a growing interest in producing manufactured feeds from lower cost ingredients. Several of the projects in this cluster reflected this trend, investigating the potential of alternative plant and animal ingredients in aquaculture feeds, as well as methods for producing, storing and administering these new feeds.

Summary of projects

There are 15 projects in this cluster.

Project no.	Project title	Total (\$)
1999/305	Abalone Aquaculture Subprogram: Identification of insulin-like peptides from abalone	53,715
2001/033	Development and delivery of technology for production, enhancement and aquaculture of Blacklip Abalone in New South Wales	414,118
2001/249	Aquafin CRC – SBT Aquaculture Subprogram: Optimisation of farmed Southern Bluefin Tuna (<i>Thunnus maccoyii</i>) nutrition to improve feed conversion efficiency and reduce production costs	995,671
2002/045	Rock Lobster Enhancement and Aquaculture Subprogram: Assessing the possibilities for enhancing the natural settlement of Western Rocklobster	265,266
2004/211	Aquafin CRC – SBT Aquaculture Subprogram: Nutritional profiles of baitfish 3: Effects of harvest and post-harvest processes on quality of local baitfish for feeding SBT	305,109
2004/220	Aquafin CRC: Feed technology for temperate fish species	1,012,905
2004/236	Aquaculture Nutrition Subprogram: Evaluation of value-added grain protein products for Atlantic Salmon and Black Tiger Prawns	317,600
2004/237	Aquaculture Nutrition Subprogram: Assessment of growth performance under limiting environmental conditions	466,788
2004/238	Aquaculture Nutrition Subprogram: Further development towards commercialisation of marine fish larvae feeds – <i>Artemia</i>	436,463
2004/258	Aquaculture Nutrition Subprogram: Further development towards commercialisation of marine fish larvae feeds – Microdiet	113,809
2005/016	Marking scallops for release and recapture	40,000
2007/221	Evaluating the Southern Bluefin Tuna cell lines as a platform for testing the effectiveness of antioxidants in preserving flesh quality	353,279
2007/230	Aquaculture Nutrition Subprogram: Technical review, project management and development services	30,903
2008/071	Tactical Research Fund: Economic viability of pipi (<i>Donax deltoides</i>) reseeded	5,760
2008/712	Seafood CRC: Second generation tuna feeds	165,320
		4,976,706

Benefits

The various projects and studies included in this cluster have helped generate a number of actual and potential economic, environmental and social benefits. These can be broadly separated into the following triple bottom line framework.

ECONOMIC, ENVIRONMENTAL AND SOCIAL BENEFITS

Industry	Environmental	Social
1. Increased profits of aquaculture 2. Increased profits of wild-catch fisheries 3. Improved industry and scientific capacity	4. Reduced environmental impact of production 5. Increased sustainability of wild-catch fisheries	6. Improved scientific capacity

Public versus private benefits

The investment will result in both public and private benefits. On the basis of the six benefits listed the table above, and an equal weighting for each benefit, it could be concluded that the public benefits to Australia could make up 50 per cent of the total Australian benefits. If the subjective weightings are taken into account, the public benefits could make up 30 per cent of total Australian benefits.

Distribution of benefits along the supply chain

The majority of private benefits will initially be captured by fisheries and aquaculture producers. Some benefits (and costs) may be shared along the supply chain, including consumers.

Benefits to other industries

As the majority of research outputs are specific to fisheries and aquaculture, it is unlikely that benefits will accrue beyond the broader fisheries industry. However, it is possible that some of the advances made in feed compositions and feeding strategies will be applicable to aquaculture species outside those targeted in this cluster.

Benefits overseas

Overseas producers of popular aquaculture species such as Atlantic Salmon may receive minor benefits from the developments of feed composition and feeding strategies.

Quantification of benefits

The primary benefit valued in this analysis is the reduction in aquaculture production costs, primarily in the area of feeding costs. This has been achieved through development of lower cost ingredients, as well as enhanced knowledge of feeding practices which will enable producers to maintain production levels with a lower level of feed input. Historical production figures were used when available, and used to inform conservative estimates of future industry value.

Results

All past costs and benefits were expressed in 2013/14 dollar terms using the CPI. All benefits after 2013/14 were expressed in 2013/14 dollar terms. All costs and benefits were discounted to 2013/14 using a discount rate of 5 per cent. The base run used the best estimates of each variable, notwithstanding a degree of uncertainty for many of the estimates. Investment criteria were estimated for both total investment and for the FRDC investment alone. All analyses ran for the length of the investment period plus 30 years from the last year of investment (2011/12) to the final year of benefits assumed.

Key performance indicators

The Theme 7 KPIs are outlined below.

KPI	Description	No. of projects
1	Development of knowledge, processes and technologies to improve productivity and profitability of the commercial sectors.	7
2	Development of knowledge and technologies in the areas of domestication and breeding genetics to support growth of the aquaculture sector.	0

Of the projects in this cluster, seven were deemed to be directly contributing towards the theme's KPIs. The eight which did not make a direct contribution focused on identifying opportunities for further research and development, and as such may have made contributed in an indirect manner.

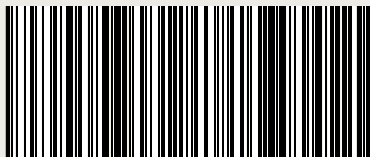
Conclusions

FRDC investment in this cluster produced a range of mainly productivity and capacity building benefits. These benefits were primarily economic in nature, although some minor social and environmental benefits also occurred. Of the 15 projects in the population, three were valued. Six benefit categories were identified, with the one major benefit (feeding cost reductions in aquaculture industries) being valued.

The majority of projects analysed in this cluster focused on aquaculture nutrition, with nine of the 15 targeting this area. Of the remainder, four targeted enhancement, and two were in the area of animal health. None of the enhancement or health projects were valued, due to difficulties in their valuation or because there was insufficient evidence to suggest they had led to any industry impacts to date.

Benefits for the Atlantic Salmon industry contributed the largest share of benefits, as salmonids represent the largest aquaculture industry by value in Australia by a large margin. However, the benefits for smaller industries such as Yellowtail Kingfish and Barramundi are still important, as the productivity improvements provide the opportunity for these industries to grow in the future.

Overall, the investment criteria estimated for total investment in the cluster of \$23.13 million (present value of costs) were positive with a present value of benefits of \$50.63 million, a net present value estimated at \$27.50 million and a benefit cost ratio of 2.19 to 1, all estimated using a discount rate of 5 per cent (benefits estimated over 30 years from the final year of investment). Due to the number of minor benefits which were identified but not valued, the resulting investment criteria are likely to be a lower bound estimate of total benefits.



An economic analysis of FRDC's investment in Theme 7: Genetics/selective breeding

Background

Theme 7 is concerned with improving productivity, economic value, and efficiency of production. It is divided into four clusters: Part A, B, C and D. The current analysis addresses Part B which covers genetics and selective breeding. The projects funded in Part B cover a range of aquaculture industries. These industries have strong growth prospects and much of the investment is focused on domestication and breeding genetics for disease resistance and growth.

There are 18 projects included in the analysis of this cluster.

Project no.	Project title	Total (\$)
1994/070	Higher returns in prawn aquaculture: Pilot program to create production stocks that are all female	163,967
1994/081	Experimental production of tetraploid oysters for use as broodstock for commercial hatchery production of triploids	191,801
1997/321	Selective breeding of Pacific Oysters	293,542
2000/206	Sustainable genetic improvement of Pacific Oysters in Tasmania and South Australia	737,531
2000/215	Improved performance of marron using genetic and pond management strategies	706,426
2001/254	Abalone Aquaculture Subprogram: Selective breeding of farmed abalone to enhance growth rates	286,881
2002/202	Abalone Aquaculture Subprogram: Use of marker assisted genetic breeding to improve abalone and abalone products	383,984
2002/204	Development of techniques for production of homozygous Pacific Oysters	247,313
2002/209	Understanding and removing the barriers to <i>Penaeus monodon</i> domestication	1,579,138
2005/205	Practical, feasible and low cost genetic selection of <i>P. monodon</i> for increased profitability	200,000
2005/227	Selection of genetic strategies in Pacific Oysters to maximise commercial benefit	59,905
2006/205	Genetic improvement of <i>P. monodon</i> —establishing commercial readiness	233,252
2006/238	Planning for investment in genetics for <i>Pinctada Maxima</i>	40,000
2008/722	Seafood CRC: Scope and economic analysis of options for a nationally unified breeding program that provides significant economic benefits to the Australian abalone aquaculture industry	35,378

Project no.	Project title	Total (\$)
2008/723	Seafood CRC: The development of a genetic management and improvement strategy for temperate marine finfish (Southern Bluefin Tuna, Yellowtail Kingfish and mullet)	35,287
2008/758	Seafood CRC: Development of a genetic management and improvement strategy for Australian cultured Barramundi	31,132
2008/904	Seafood CRC: Benefit cost analysis of marker assisted selection in Australian aquaculture species	11,136
2008/221	Atlantic Salmon Aquaculture Subprogram: Whole genome selection to improve selection efficiency for AGD [amoebic gill disease] resistance	94,973
		5,331,646

Benefits

The various projects funded in this cluster have contributed to a number of industry, environmental and social benefits. The following table outlines the triple bottom line framework summary of the principal types of actual and potential benefits associated with the outcomes of the investments. Most potential benefits were associated with the private sector.

ECONOMIC, ENVIRONMENTAL AND SOCIAL BENEFITS

Industry	Environmental	Social
1. Potential productivity gains via higher growth rates and lowered production costs via domestication and selective breeding	Nil	3. Enhanced scientific capacity
2. Enhanced industry and scientific capacity		4. Improved community wellbeing through increased aquaculture farm income and associated off-farm expenditure

Public versus private benefits

The investment will result in predominantly private benefits to a range of aquaculture industries. On the basis of the four benefits outlined the table above, and equal weighting for each benefit, it could be concluded that public benefits make up 50 per cent of the total Australian benefits. If the subjective weightings are taken into account, the public benefits would contribute only 25 per cent of the total Australian benefits.

Distribution of benefits along the supply chain

The majority of the private benefits will be initially captured by aquaculture producers but any benefits (and additional costs) will most likely be ultimately shared along the supply chains, including seafood consumers.

Benefits to other industries

It is most likely that industry benefits will be confined to the Australian aquaculture industries targeted, with some potential spillovers to other aquaculture industries due to the scientific capacity built.

Benefits overseas

It is possible there may be some benefits from the investment captured by overseas industries, mainly via new scientific information.

Quantification of benefits

Selective breeding in aquaculture industries can provide economic benefits to the industry by reducing the costs of production largely via faster growth rates, enhanced product quality and improved disease resistance. Of the 18 projects funded in this cluster, 12 addressed three aquaculture industries, namely farmed prawns, edible oysters and abalone. Single projects addressed Marron, Barramundi, Yellowtail Kingfish, pearl oysters, salmon, a group of three finfish industries, and aquaculture breeding strategies in general.

Seven benefits were valued and focused on Marron, Barramundi, Yellowtail Kingfish, Black Tiger Prawns, Pacific Oysters, abalone, and pearl oysters.

Marron

The selective breeding program funded in project 2000/215 and the improved pond management strategies produced and communicated by the project have been adopted by only a small part of the industry. This has resulted in some increase in profitability of Marron production. The benefits are valued both in relation to the part of the existing production where yields have been increased and also in relation to the uncertain potential for induced additional investment in Marron farming due to the enhanced productivity gains available.

Barramundi

Project 2008/758 estimated genetic and economic improvements likely to result from a selective breeding program for Barramundi and recommended a breeding program be established. Considerable progress has been made to date in establishing a breeding entity (project 2009/730). The entity requires grant funding of \$1 million per annum for the first five years but funding has not been supported to date. Despite this delay and uncertainty, any future program is expected to provide significant productivity gains to Barramundi farmers, albeit at some time in the future. The project identified the potential and, in the case of the breeding program proceeding, could be attributed a small proportion of the resulting benefits. In the meantime, individual company selective breeding programs have commenced.

Yellowtail Kingfish

Project 2008/723 contributed to the development of the improved performance of Yellowtail Kingfish as farmed by Clean Seas Tuna (CST). This was because the project was the forerunner to CST's decision to move forward with a genetic program and this probably would not have happened without the project. The project proceeding 2008/723 has delivered improved domesticated F2 progeny with better performance in the hatchery and commercially. Benefits from this improved Yellowtail Kingfish performance are already being delivered to CST with profits increased by more than \$1 million per annum.

Black Tiger Prawns

Three of the four prawn projects in this cluster built knowledge and capacity in domestication and selective breeding of Black Tiger Prawns. This capacity in domestication has been realised by part of the industry already and this impact is likely to expand significantly from 2015. Despite some setbacks in the selective breeding initiative, selective breeding impacts are likely to commence in 2015 for part of the industry and be captured some years later by other industry players.

These impacts are being, or will be, captured by an increasing proportion of the industry (e.g. Gold Coast Marine Aquaculture, Pacific Reef Fisheries and Australian Prawn Farms).

Pacific Oysters

The average annual total Australian edible oyster production for Tasmania and South Australia over the three years ending June 2010 to June 2012 was over 10,000 tonnes. The Pacific Oyster selective breeding program commenced as far back as the year 2000 and the effort was reorganised in 2006 when Australian Seafood Industries was formed. The priorities of the program changed over time with growth rate being targeted early on. The traits selected for changed from growth rate towards survival and quality traits and more recently to breeding for resistance against POMs. The oyster breeding projects in this cluster contributed significantly in the early part of the initiative but the gains that may be attributed to the investment in this cluster are only part of the total gains likely over time.

Abalone

The three abalone breeding projects in this cluster have progressed the selective breeding program for farmed abalone. The main productivity gain has been associated with growth rate, with gains captured from about 2009. With a three-year generation interval for abalone, gains would have accelerated from about 2013. The expected benefits estimated in this current analysis, after attribution to other investment and assuming only part of the industry is benefiting, are just over \$350,000 per annum.



Pearl oysters

The average annual production of pearls in Western Australia and the Northern Territory is 954 kan (a measure of weight), with the majority produced in Western Australia, some in the Northern Territory, and a very small quantity in Queensland. The average farm gate price is about \$110,000 per kan, so the cost of production would be somewhat less than \$100,000 per kan. As stated earlier, the results for the following project are confidential but it is known that it has been successful to date. Project 2006/238 estimated selection responses of 10–20 per cent per generation for most traits and the selection response in economic terms was predicted possibly to be greater. Hence, a conservative estimate of a 10 per cent cost reduction has been made in the current evaluation.

Projects where benefits were not valued

The five projects were:

- 1994/070: Female bias in prawn production systems,
- 1994/081: Tetraploid route to triploids for Pacific Oysters,
- 2008/221: Whole genome selection for AGD [amoebic gill disease] in Atlantic Salmon,
- 2008/723: Temperate marine finfish,
- 2008/904: General aquaculture species selection.

The principal reasons for not attempting to value benefits were that evidence could not be located to show that the outputs had been used commercially to produce benefits for the Australian aquaculture industry.

Results

All past costs and benefits were expressed in 2013/14 dollar terms using the CPI. All benefits after 2013/14 were expressed in 2013/14 dollar terms. All costs and benefits were discounted to 2013/14 using a discount rate of 5 per cent. The base run used the best estimates of each variable, notwithstanding a high level of uncertainty for many of the estimates. Investment criteria were estimated for both total investment and for the FRDC investment alone. All analyses ran for the length of the investment period plus 30 years from the last year of investment (2009/10) to the final year of benefits assumed.

Observations for future investment and evaluation

1. As for previous cluster analyses, the FRDC project management system was found valuable in being able to easily extract funding information by project by financial year across a range of individual RD&E areas.
2. The proportion of total funding in this group of projects made by FRDC was 30 per cent. This was well below the average percentage of 40 per cent found for 18 clusters in 2009. This finding was not surprising due to the largely private benefit streams expected to be captured via genetic improvement in aquaculture pursuits.

3. The relevant percentages for each cluster are worth summarising as they may be important in assessing the FRDC current and prospective roles in different RD&E areas and where public benefits are manifest but external funding may be difficult to attract. The percentage data may be useful also in developing changed leveraging targets for various themes and project groups.
4. While the ABARES statistics on production and value by species within aquaculture was extremely useful, one of the important constraints faced by this analysis was a lack of readily available information on standardised yields, costs and gross margin budgets for the various aquaculture industries. It would be helpful if FRDC could facilitate improved indicative summary data for the various industries.
5. The most successful individual industry investment has been that for Black Tiger Prawn genetics and this success has compensated for the mediocre performance of most of the other industry investments.
6. The benefit cost ratio for the overall investment in the genetics cluster was not particularly high. The reasons most likely include:
 - The cost of investment in the cluster of projects.
 - The short history of previous investment in genetics for many of the industries so that the knowledge base was not highly developed.
 - The long time periods between the investment and the realisation of benefits.
 - The relatively small size of many of the industries included in this cluster.
 - The lack of success with some of the industries in developing and maintaining improved stock.
7. Many of the projects spanned some 10–15 years and many were not completed before other projects on the same topic commenced. This superseding of projects made it time consuming to assess benefits from the earlier project as it was necessary to capture some data from the newer projects; this extended the workload. For example, two projects in the genetics cluster commenced in 1994 but did not deliver final reports until 11–13 years later.

One suggestion that may be considered would be to move the population forward in time and include incomplete projects when they had reached a significant milestone. Another suggestion would be to ensure projects are completed within one year of their original completion date. If not, and the investment is to be continued, it may be preferable to commence a new project rather than extend the former project.

Key performance indicators

The two Theme 7 KPIs are listed below.

KPI	Description	No. of projects
1	Development of knowledge, processes and technologies to improve productivity and profitability of the commercial sectors	18
2	Development of knowledge and technologies in the area of domestication and breeding genetics to support growth of the aquaculture sector	18

All 18 of the projects funded in this cluster contribute to the second KPI, as all addressed domestication and breeding genetics across a range of aquaculture industries. As breeding and genetic initiatives primarily were aimed at industry productivity and profitability, all projects addressed the first KPI as well.

Conclusion

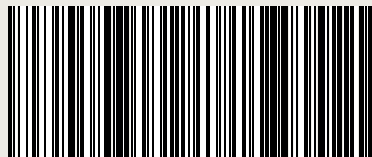
Investment was made in a total of 18 projects within the cluster and FRDC contributed approximately 30 per cent of the total nominal costs of investment.

Both industry and public benefits will be delivered by the investment. On the basis of the four benefits as listed the table on page 84, and equal weighting for each benefit, it could be concluded that public benefits to Australia could make up 50 per cent of the total Australian benefits. If the subjective weightings are taken into account, the public benefits would still make up about 25 per cent of the total Australian benefits. On the basis of those benefits valued, the industry benefits contributed 100 per cent of the total.

Seven impacts were valued from the investment in this group of projects, one for each of seven aquaculture industries (Marron, Barramundi, Yellowtail Kingfish, Black Tiger Prawns, Pacific Rock Oysters, abalone and pearl oysters). The largest benefit valued was the economic benefits estimated for genetic improvements in Black Tiger Prawns (70 per cent of the total benefits), with Pacific Oysters contributing the next highest at 10 per cent.

In addition to the impacts valued, most of the projects contributed by building scientific, technical and industry capacity in genetics, domestication and selective breeding and this capacity is likely to deliver future impacts that were not valued in the analysis.

Overall, the investment criteria estimated for total investment in the project group of \$39.0 million (present value of costs) were positive with a present value of benefits of \$85.5 million, a net present value estimated at \$46.5 million and a benefit cost ratio of 2.19 to 1, all estimated using a discount rate of 5 per cent (benefits estimated over 30 years from the final year of investment).



An economic analysis of FRDC's investment in Theme 7: Systems and production

Background

This cluster evaluates a specific group of aquaculture projects in the Industry program which aims to increase the gross value of production, profit margins, productivity and opportunities throughout fishing and aquaculture.

A range of aquaculture species such as Atlantic Salmon, rock lobster, Mud Crab, abalone, Southern Bluefin Tuna, snapper, edible oysters, Barramundi, Yellowtail Kingfish and Striped Trumpeter are included in the cluster. Additionally there are projects that relate to technology and investment prioritisation processes.

There are 28 projects included in the analysis.

Project no.	Project title	Total (\$)
2000-210	Development of commercial production systems for Mud Crab (<i>Scylla serrata</i>) aquaculture in Australia: Hatchery and nursery	500,471
2000-214	Rock Lobster Enhancement and Aquaculture Subprogram: Advancing the hatchery propagation of rock lobsters	712,262
2000-221.20	Aquafin CRC – SBT Aquaculture Subprogram: Quality and nutritional evaluation of baitfish used for tuna farming	108,188
2001-206	Aquafin CRC: Improving growth and survival of cultured marine fish larvae: Striped Trumpeter (<i>Latris lineata</i>) a test case for Tasmania	1,129,773
2001-208	Aquafin CRC: Increasing the profitability of snapper farming by improving hatchery practices and diets	751,817
2001-246	Aquafin CRC – Atlantic Salmon Aquaculture Subprogram: Control of precocious sexual maturation in Atlantic Salmon	521,251
2003-026	Environmentally sustainable development of Barramundi cage aquaculture	158,204
2003/203	Abalone Aquaculture Subprogram: Improvement and evaluation of Greenlip Abalone hatchery and nursery production	504,825
2003-208	Reduction in Pacific Oyster mortality by improving farming and processing technologies in South Australia	308,009
2003-209	Seafood CRC: Sydney Rock Oysters: Overcoming constraints to commercial scale hatchery and nursery production	664,640
2003-211	Rock Lobster Enhancement and Aquaculture Subprogram: Advancing hatchery propagation of Tropical Rock Lobsters (<i>Panulirus ornatus</i>)	1,774,715
2003-212	Rock Lobster Enhancement and Aquaculture Subprogram: Propagation of Southern Rock Lobster in Tasmania	771,494
2003-226	Aquafin CRC – Southern Bluefin Tuna Aquaculture Subprogram: Net fouling management to enhance water quality and Southern Bluefin Tuna performance	623,496

Project no.	Project title	Total (\$)
2004-205	Longer term holding of Southern Bluefin Tuna	1,299,598
2004-210	AquaFin CRC –Atlantic Salmon Aquaculture Subprogram: Use of immunomodulation to improve fish performance in Australian temperate water finfish aquaculture	288,959
2004-212	AquaFin CRC –SBT Aquaculture Subprogram: Assessment of alternative platforms for Southern Bluefin Tuna research	53,213
2004-221	AquaFin CRC: Enhanced hatchery production of Striped Trumpeter in Tasmania through system design, microbial control and early weaning	1,199,315
2004-224	The dynamics and distribution of food supplies for the Sydney Rock Oyster (<i>Saccostrea glomerata</i>) in southern New South Wales estuaries	73,926
2004-241	Coordination of inland saline aquaculture R&D in Australia	617,047
2005-200	AquaFin CRC –SBT Aquaculture Subprogram: Activity metabolism in live-held Southern Bluefin Tuna, Phase 2	561,434
2005-201	AquaFin CRC –Atlantic Salmon Aquaculture Subprogram: Environmental control of growth and early maturation in salmonids	333,571
2005-213	New technologies for sustainable commercial finfish culture	660,146
2006-235.30	Rock Lobster Propagation Subprogram: Commercially viable production of Tropical Rock Lobster puerulus from eggs.	505,132
2007-237	Review of the Gwalwa Dariniki Enterprise Mud Crab Pond Farming Project at Kulaluk, Darwin and of the Bawinanga Aboriginal Corporation Mangrove Pen Mud Crab Farming project at Numungoorda, Maningrida, Northern Territory	16,791
2007-718	Seafood CRC: Yellowtail Kingfish juvenile quality: Identify timing and nature of jaw deformities in Yellowtail Kingfish and scope the likely causes of this condition	68,981
2008-038	Improvements to semi intensive floating tank system to achieve commercial readiness in marine environments	72,000
2008-217	Atlantic Salmon Subprogram: Effect of temperature on reproductive development of maiden and repeat spawning Atlantic Salmon: Understanding the basis for improved egg survival and quality	95,328
2009-219	New and Emerging Aquaculture Species Subprogram: Review of FRDC investment policies and strategies and development of a management framework for new and emerging aquaculture research	49,653
		14,424,239

Benefits

The various projects undertaken in this cluster have helped to generate a number of potential and actual economic, environmental and social benefits. The following table provides the triple bottom line framework summary of the principal types of benefits associated with the outcomes of the investment.

ECONOMIC, ENVIRONMENTAL AND SOCIAL BENEFITS

Industry	Environmental	Social
1. Cost reduction in aquaculture operations 2. Higher profitability from increased yields or higher growth rates 3. Improved product quality. 4. Development of emerging aquaculture industries	5. Reduced impact of aquaculture and increased environmental sustainability	6. Development of emerging aquaculture industries 7. Increased efficiency of research expenditure

Public versus private benefits

Both private and public benefits arise from the investment. A majority of the benefits are private in nature due to being focused on improvements in aquaculture operations. Some public benefits are expected from development of emerging aquaculture industries (where research is expected to correct for market failure), environmental sustainability and increased efficiency of research expenditure.

On the basis of the distribution of the seven benefits in the table above to Australia, and equal weighting for each benefit, it could be concluded that public benefits to Australia could make up 43 per cent of the total benefits. If the subjective weightings are taken into account, the public benefits would still make up 30 per cent of the total benefits.

Distribution of benefits along the supply chain

The direct beneficiaries of the projects are likely to be aquaculture producers, both existing and potential. The outputs from the projects are principally oriented towards improving production for aquaculture operations. However some of the benefits are likely to be captured along the supply chain, including providers of aquaculture services such as hatcheries and feed manufacturers, and including consumers.

Benefits to other industries

It is unlikely that benefits will accrue to industries beyond the aquaculture industry.

Benefits overseas

There are limited benefits that directly accrue overseas. Some may be delivered if the technologies or scientific capacity developed is transferred overseas.

Quantification of benefits

All past costs and benefits were expressed in 2013/14 dollar terms using the CPI. All benefits after 2013/14 were expressed in 2013/14 dollar terms. All costs and benefits were discounted to 2013/14 using a discount rate of 5 per cent. The base run used the best estimates of each variable, notwithstanding a high level of uncertainty for many of the estimates. Investment criteria were estimated for both total investment and for the FRDC investment alone. All analyses ran for the length of the investment period plus 30 years from the last year of investment (2011/12) to the final year of benefits assumed.

Observations for future investment and evaluation

1. In total there were investments specific to 10 different aquaculture species in addition to some cross-cutting industry investments. Gaining information on the possible benefits and sourcing data across the industries proved to be time consuming. More detail and in-depth analysis may be possible if projects were classified according to species. The benefit of grouping like-investments into clusters for better ease of aggregating impacts is somewhat lost when multiple species are covered in a single analysis.
2. Difficulties arise in the evaluation process when some investments have confidentiality issues or when outputs of research have been funded by a commercial partner. Understandably, sharing of the type of information that would assist in valuing return on RD&E investment can be difficult due to competition within the industries. Should growth in the aquaculture sector become increasingly supported by the FRDC, it may be useful to exclude such projects from evaluation early-on during the definition of the population so that time is not spent on projects that cannot be feasibly valued.

Conclusion

The investment in this cluster represented \$87.61 million in the present value of costs. The projects within the cluster varied in the different commodities that they covered, however, there were common themes in the type of research conducted, such as improved hatchery technologies for existing and emerging aquaculture industries.

The benefits from this cluster, totalling \$174.98 million in the present value of benefits largely accrued to the salmon industry through understanding and delaying maturation in stocks, and also through underpinning a better supply of salmon smolt for grow-out operations. In addition a benefit was calculated for the projects in the cluster that contributed to the prospective rock lobster aquaculture industry, and for improved profitability in the Sydney Rock Oyster industry.

The total funding from all sources for the 28 projects in the cluster totalled \$87.61 million. This investment was estimated to produce aggregate total benefits of \$174.98 million, a net present value of \$87.36 million and a benefit cost ratio of 2.00 to 1.



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.

Developing a marketing framework

The FRDC will use feedback from industry and stakeholders to begin drafting a national seafood marketing framework. This will encompass the broad range of activities that link to, and form part of, an integrated approach to marketing including consumer research, quality systems, food safety, and campaign planning and evaluation. In addition, national and sectoral marketing plans will be added as they are developed.

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

APFA, has held a number of meetings to progress the development of a marketing levy which will help position the sector and fund the 'Love Australian Prawns' national campaign. A key decision has been the establishment of a sub-committee to oversee the development of an APFA marketing plan. This was completed in early 2016. A detailed consultation process will occur in the first part of the 2016–17 financial year to refine the final approach for collection of marketing funds, with members confirming the approach and collections commencing in early 2017.

For further information: Helen Jenkins, helen.jenkins@apfa.com.au



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 commenced, and is expected to be completed early in the 2016–17 financial year. This will enable and underpin the consultation phase of the levy development. It is expected that early 2017 this process will be completed and a decision by members made on how to progress the marketing levy.

For further information: Dean Lisson, deanlisson@tassie.net.au

Developing a national seafood communication campaign

During the year the FRDC assisted DAWR with the development of a seafood industry communication campaign that was underpinned by market research and requests by industry and government for an industry-wide marketing initiative.

DAWR carried out market research with the Australian community to identify the areas that have salience and could underpin a fisheries communication strategy which would increase the community's confidence and pride in the Australian seafood industry.

According to findings from 27 focus groups, 20 in-depth industry interviews and a large online survey (1722 respondents), fishers and fisheries are low on the radar for many Australians. Despite the lack of industry communication, or recognition or understanding with seafood consumers they do not hold any real negative views about the seafood industry.

The market research led to the development of a creative marketing concept and communication strategy that could be used by all industry sectors. The objective of the marketing concept and strategy is to increase the community's confidence and pride in the Australian seafood industry.

The visual concept developed was tested with consumers. It demonstrates how generations of families have proudly devoted their lives to creating a sustainable Australian fishing industry and are undoubtedly producing some of the highest-quality seafood in the world. Key to this is showcasing real people who genuinely feel proud to deliver the seafood Australians see on their plates every day.

See more at: http://frdc.com.au/knowledge/publications/fish/Pages/23-4_articles/12_Seafood-marketing.aspx



TRADE

The FRDC began a review of its trade program in early in 2015 looking to identify the best strategic fit for the Corporation. The review was completed late in the year with the Board deciding to narrow the scope and focus on the areas where the FRDC was not duplicating services and could add value. Two areas were identified—provision of international fisheries statistics, and developing a platform for Australian seafood companies to participate in seafood trade shows; additionally linking to international trade shows run by Wine Australia.

Seafood trade portal goes live

The key to developing an export market plan is to gain an understanding of what products are being exported to which markets. The FRDC trade portal provide a very good overview of export (and import) seafood movements.

The trade review, reinforced by industry feedback, identified that providing trade data was an area where FRDC could address market failure—no one else has made the service available to industry—and develop a resource that could underpin export trade development and subsequent evaluation of activities, tracking changes in export volumes and values.

To view the trade portal visit: <http://frdc.com.au/trade/Pages/MarketDashboard.aspx>

FRDC achieves approved body status for seafood

On 15 March 2016 the FRDC received formal notification that it had been approved under the Export Market Development Grant program as an 'approved body' for the generic international promotion of the Australian seafood industry.

Approved bodies are entitled to claim expenses that are used for the export promotion of its associated industry and its broader membership. This means the FRDC will be able to claim against expenditure of up to \$150,000 per annum on export market activities. It is envisaged that any funds received will be re-invested into trade market activities.

The FRDC is now drafting a policy and guidelines that will determine how international activities, such as trade shows, are undertaken. These will form part of a proposal to industry and will not only boost FRDC's ability to deliver services and activities, but also reduce costs.

Seafood stands alone

The global seafood market, of which Australia plays a small role is diverse, complex and provides endless opportunities for 'savvy' producers.

During the year the FRDC started exploring options for developing a coordinated Australian seafood presence at defined international trade shows, linking to existing coordinated Australian trade events (such as Australia Day functions around the globe) and conducting industry missions to key target markets.

FRDC has met with event organisers for some of the major seafood shows (Brussels, Hong Kong and Boston) to gain an understanding of the drivers and opportunities for having a stand, what alternate options might look like; and most importantly the costs and benefits that could come from running an Australian stand.

FRDC is approaching this initiative with caution, fully understanding that running a booth at a large show takes considerable planning, logistical coordination and a considerable investment of funds by industry to do it well. How much of each depends on what industry is looking to achieve. It is expected a decision on progressing this initiative will be confirmed in early 2016–17.

Wine Australia links and options firm up

Over the past several years the FRDC has been building a partnership with Wine Australia to co-brand and promote both industries. This has included coordinating the prawn and oyster industry to partner for the launch of Aussie Wine month in May in Sydney.

FRDC's new regional office is co-located with Wine Australia at the National Wine Centre of Australia in Adelaide. With this close and natural pairing FRDC is looking to build on what the two organisations can do collaboratively and export market development is at the top of that list.

One approach FRDC has examined was partnering with Wine Australia at some of their events. There are number that are highly suitable (markets, audience and style of show), and a further few could be undertaken if circumstances were right, for example, if industry people were in town when an event was on. FRDC has promoted these opportunities with the seafood industry and aims to work with them to attend two events in 2016–17.





STANDARDS

The FRDC is approved by the Accreditation Board for Standards Development Organisations as a Standards Development Organisation. On 12 November 2015, FRDC undertook a surveillance 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.

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.

New Fish Names Standard published

The most recent version of the Australian Fish Names Standard was published in April 2015. Amendments to Annex A (the list of the Standard Fish Names approved for use in Australia), was completed in April 2016. It is envisaged that a new version incorporating all amendments will be published and come into effect in 2017.

Work also began during the year to update and improve this website to deliver better results and integrate base data into overarching FRDC data and web infrastructure.

FISH NAMES COMMITTEE MEMBERSHIP

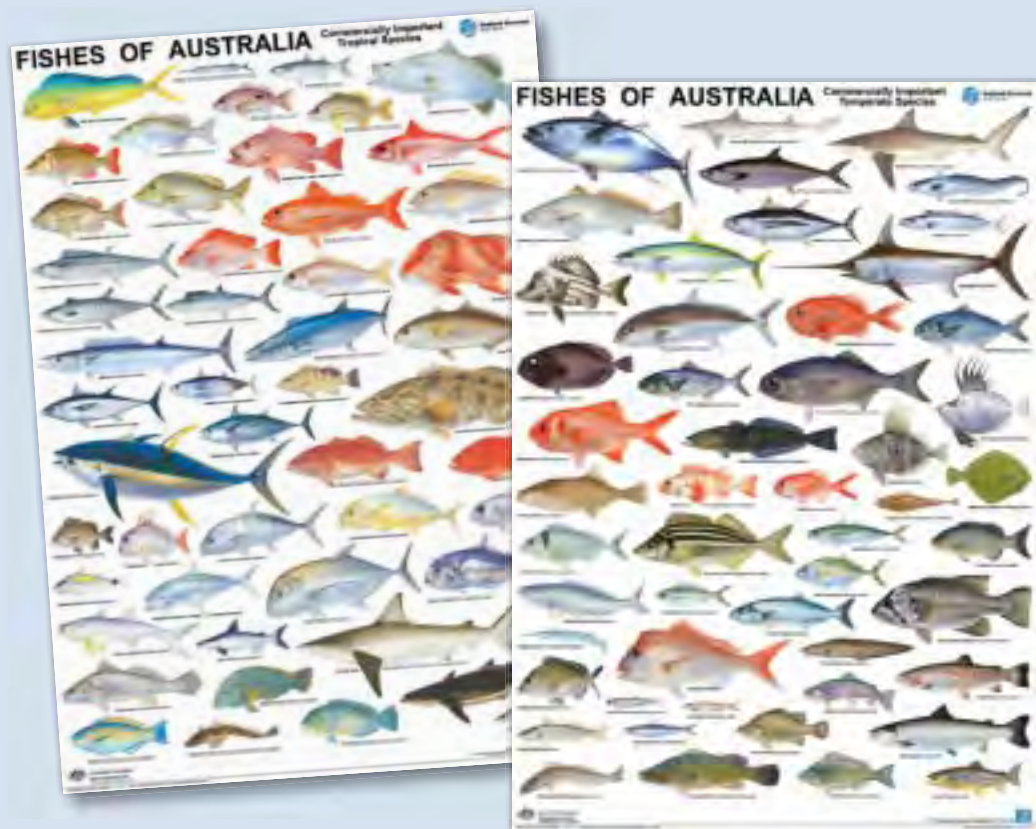
Independent Chair	Gus Dannoun
Deputy Chair and expert member (seafood marketing)	Richard Stevens
Australian seafood industry representative	Simon Boag
Fisheries management agencies representative	Jason Gibson
Recreational fishing representative	Russell Conway
Seafood importers representative	Norm Grant
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 (Gus) Yearsley
Expert member (seafood marketing and fish and invertebrates taxonomy)	Don Tuma

OBSERVERS AND NON-VOTING MEMBERS

Standards Development Organisation representative	Peter Horvat
Standards Development Organisation representative	John Wilson
Standards Development Organisation representative	Tanya Corcoran

PROJECT MANAGER AND ADMINISTRATION

Fish Names Committee Project Manager	Alan Snow
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INFORMATION AND COMMUNICATIONS TECHNOLOGY

Aligning information management systems for the future

FRDC completed its information and communications technology (ICT) review and drafted a new strategy with a three-year roadmap that outlines future development and activity.

The FRDC aims to maximise its use of 'out of the box' solutions which applies to both software applications and infrastructure. This approach keeps costs down by not having to 'reinvent the wheel', and not having to maintain bespoke systems. However, this puts extra emphasis on integration. Thus the FRDC invests in products/technologies/skills that allows for seamless integration of systems. This allows the FRDC's systems to be agile and flexible enough to meet the ever changing demands of its business and its clients.

The vision is to have ICT services that enable FRDC to deliver against its objects cost effectively, responsively, flexibly, and in a client focused manner, thereby allowing FRDC staff to focus on value-adding rather than processing, and consequently keeping staff numbers down.

Achievements

- Setting up office ICT systems in Adelaide office,
- Migration to the cloud completed 21 May 2016,
- All line-of-business applications moved to the public cloud using a combination of Microsoft Azure and Office 365 services. This has increased the scalability and flexibility of the ICT systems while increasing network performance and reliability at the same time.

FRDC has chosen to host its cloud services on Microsoft Azure and Microsoft Office 365, both of which has been certified by the Information Security Registered Assessors Program governed and administered by the Australian Signals Directorate.

This means the FRDC has chosen a service provider who support cloud services' system architecture based on sound security principles and information security manual controls are in place and fully effective for both Azure and Office 365. For further information visit http://www.asd.gov.au/infosec/irap/certified_clouds.htm

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 runs 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. It will also allow FRDC to rationalise those websites that were acquired following the closure of Seafood Services Australia and the Seafood CRC.

Over 2016 the FRDC will migrate these sites to a single database back end to improve the management, inter-operability and data sharing between them. This is the first upgrade to the FRDC web infrastructure since 2012, and will also see their hosting move to a cloud-based host.



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 previous page).

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. The FRDC continues to look for ways to reach all fishery and aquaculture licence holders and has increased the print run from 14,000 to almost 17,000 copies per edition. Additional avenues for distribution have been explored and continue to grow in popularity. *FISH* is available online in a simple html format (for easy accessibility) and as a download for apple or android devices.

FISH readers share their views

FRDC research codes: 2016/500, 2011/514

A total of 217 respondents took part in the 2016 survey of readers of *FISH* magazine. The survey was carried out by market research company Intuitive Solutions. Results show that *FISH* readers include recreational fishers (27 per cent), commercial fishers (23 per cent), government agencies (11 per cent) and academics (11 per cent). It is important to note that *FISH* goes out to almost all commercial licence holders (80 to 90 per cent of recipients), which a higher rate of responses by other sectors was received.

Across two key measures there has been a slight lift in ratings: likelihood to recommend *FISH* to others—score of 8.3 out of 10 (up 0.2 from previous survey); and importance for the FRDC to continue to produce/distribute the magazine—score of 8.4 (up 0.1). In addition, more than one in two subscribers (55 per cent) reported that once they finish reading *FISH* they either pass it on to someone else or leave it about for others to read. This means that readership reaches far beyond the subscriber list. Respondents said they share the magazine with an average of 2.3 other people. Importantly, most respondents 'strongly agree' (51 per cent) or 'agree' (42 per cent) that *FISH* magazine is a valuable way to find out about what is new in R&D in fishing and aquaculture.

Reader interest in research is highlighted by the fact that 41 per cent of respondents read the magazine thoroughly and 54 per cent read articles of specific interest. Sixty-one per cent reported following up on information and 47 per cent say *FISH* had taught them something new. As a scientific organisation seeking to dispel misinformation with the research it funds, these results are in line with FRDC's goals.

While most readers were satisfied with *FISH* magazine, they were able to identify ways to strengthen the content, suggesting more stories on: conservation, including environmental impacts of commercial and recreational fishing; more balance between research and news as well as different viewpoints; greater breadth of information for research, events and stories; and recreational fishing articles.

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



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 corporate governance section starting on page 113.

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 2015–16, there was \$3.76 million (around 13.3 per cent of the total FRDC expenditure) invested in management and accountability activities.

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%	All projects aligned to the priorities of the FRDC Board, government and industry stakeholders.
Projects are assessed as meeting high standards/peer review requirements for improvements in performance and likely adoption.	95%	All projects met a high standard. Each project, where applicable, had an extension and development plan developed.
Maintain ISO 9001:2008 accreditation.	100%	FRDC maintained ISO 9001:2008 accreditation following an external audit.
Submit planning and reporting documents in accordance with legislative and Australian Government requirements and time frames.	100%	Achieved: All corporate documents were submitted according to required time frames. This includes the annual operational plan, RD&E plan requirements, annual report and funding agreement.
Implement best practice governance arrangements to promote transparency, good business performance and unqualified audits.	100%	Achieved: FRDC received an unqualified audit report for 2014–15 financial statements.
Demonstrate the benefits of RD&E investments by positive benefit cost analysis results.	100%	Achieved.

Quality system

The FRDC is a certified AS/NZS ISO 9001:2008 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 2015 and underwent its annual external surveillance audit on 13 October 2015.

Risk management

There was no incidence of fraud detected at the FRDC during 2015–16.

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 February 2016 meeting. All staff participated in an internal risk workshop on 25 September 2015 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 2015–16 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 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 6: Contributions, maximum matchable contributions by the Australian Government and returns on investment, 2015–16 (page iii).

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 seven consultancies which were valued at \$10,000 or more (see tables on the following page).

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

Name of consultant	Strategic Fitness Noosa Pty Ltd
Nature and purpose of consultancy	Information technology advice
Cost (exclusive of GST)	\$157,656.00
Name of consultant	Wayk Consulting Pty Ltd
Nature and purpose of consultancy	Information technology advice
Cost (exclusive of GST)	\$176,755.36
Name of consultant	HWL Ebsworth Lawyers
Nature and purpose of consultancy	Legal advice
Cost (exclusive of GST)	\$23,822.00
Name of consultant	IT Payroll Solutions
Nature and purpose of consultancy	Quality management consulting
Cost (exclusive of GST)	\$64,506.29
Name of consultant	Paxus Australia Limited
Nature and purpose of consultancy	Recruitment Agency
Cost (exclusive of GST)	\$19,053.50

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

Name of consultant	Intuitive Solutions
Nature and purpose of consultancy	Stakeholder research
Cost (exclusive of GST)	\$20,000.00
Name of consultant	Making Data Easy
Nature and purpose of consultancy	Customer relationship management maintenance of mailing list for <i>FISH</i> magazine
Cost (exclusive of GST)	\$55,490.46

Ministerial directions

The PIRD Act provides that the 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. At the date of this report, the following ministerial directions and notifications have been received.

On 28 May 2015, the then Parliamentary Secretary to the Minister for Agriculture Senator the Hon. Colbeck, wrote to the FRDC advising that the ministerial direction made by former Minister for Resources, the Hon. David Beddall, in 1995, under subsection 143(1) of the PIRD Act was formally withdrawn, effective from 1 July 2015.

In addition to this, Senator the Hon. Colbeck revoked the 'Guidelines on Funding of Consultation Costs by Primary Industry and Energy Portfolio Statutory Authorities 1998', as they apply to the FRDC. Payments made by the FRDC to its declared representative organisations for consultation costs are made in accordance with section 88 of the PIRD Act, requirements in the PGPA Act and PGPA Rule, clause 6.6 of the funding agreement, and various other legislative instruments and policies that apply to these expenses, as well the FRDC's internal controls.

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 175.

Judicial reviews and administrative tribunals

There were no judicial reviews or administrative tribunals of the FRDC in 2015–16.

Protective Security Policy Framework

The FRDC wrote to Minister in August 2015 noting 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 2015–16, 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 170 or visit the website—www.frdc.com.au.



Energy efficiency

The Commonwealth Government's *Energy Efficiency in Government Operations Policy* seeks 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.

During the year the FRDC opened an office in Adelaide. The FRDC undertook a number of workplace assessments and structured the office to ensure consistency of approach in both locations. Health checks were provided and work practices and stations reviewed by occupational health and safety consultants. In addition all staff were provided training in workplace health and prevention of injury. All staff were also provided the opportunity to have influenza injections.

In the 2015-16 the FRDC opened its second office in Adelaide, with staff in two locations extra time and care was taken to ensure that induction training was undertaken that included work health and safety. Staff work stations and office space were also reviewed to ensure a consistent standard across the two locations.

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.

Statistics of any notifiable incidents of which the entity becomes aware during the year that arose out of the conduct of businesses or undertakings by the entity.	<ul style="list-style-type: none"> No injuries occurred on FRDC premises during 2015–16.
Initiatives taken during the year to ensure the health, safety and welfare of workers who carry out work for the entity.	<ul style="list-style-type: none"> 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.	<ul style="list-style-type: none"> 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.	<ul style="list-style-type: none"> Increased awareness of roles and responsibilities in WHS including responsibilities of managers.
	<ul style="list-style-type: none"> 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	2011–12	2012–13	2013–14	2014–15	2015–16
Deaths	0	0	0	0	0
Dangerous occurrences	0	0	0	0	0
Serious personal injury	0	1	0	0	0
Incapacity	0	0	0	0	0
Total	0	1	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: Harry Woods, Renata Brooks, Colin Buxton. Second row: John Harrison, Lesley, Daryl McPhee. Third row: John Susman, Patrick Hone, Brett McCallum. Fourth row: Heather Brayford, Bruce Mapstone, Peter O'Brien.

Directors' biographies

The Hon. Harry Woods: Chair

Appointed as Chair 1 September 2010.

Harry Woods comes from a diverse background having been an auditor, bookmaker and publican before serving many years as a politician in both federal and state governments. He was the member for Page from 1990 to 1996. Following this, Harry was elected as the Member for Clarence in the New South Wales (NSW) Legislative Assembly. During his time in NSW Parliament he was Minister for Regional Development and Minister for Rural Affairs from 1997–99 and Minister for Local Government, Minister for Regional Development and Minister for Rural Affairs from 1999 until his retirement in 2003.

Since then, Harry has spent time as a professional fisherman, undertaken policy review work for the NSW Government, worked as an accredited mediator and has been involved in the development and building of commercial property. Harry has a good understanding of, not only the fishing industry, but the broader primary industries arena. As the member for Page his responsibilities included a diverse range of issues—dairy cattle, pigs, maize, tropical fruit, sugar cane, fishing, prawning, oyster farming, butter and bacon factories, breweries, timber mills, and tourism.

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 NSW 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 Science (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. Previously he was CEO of the Western Rock Lobster Council and executive officer of the Professional Fishermen's Association in NSW. 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 currently CEO of Dairy Innovation Australia and is a former board member of Murray Dairy, Barley Australia and MBQIP Ltd. Lesley 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. Lesley 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 Associate Dean (Research) at Bond University. His core expertise though is in fisheries and marine ecology. He has published over 90 reports and publications include *Fisheries Management in Australia* (Federation Press). This remains the only book dedicated to fisheries management throughout Australia. Daryl has undertaken consulting projects on a range of projects including the impacts of dredging and spoil disposal, LNG 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 Fishheads Seafood Strategy. 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 Provodore of the Year.

Dr Patrick Hone: Executive Director

Appointed Executive Director from 21 April 2005.

Patrick Hone is Executive Director of the FRDC, a director of the former Seafood CRC 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 SARDI on a wide range of aquaculture research for Southern Bluefin Tuna, Pacific Oysters, mussels, Yellowtail Kingfish and abalone.

Brett McCallum: Deputy Chair

Director from 1 September 2012 to 31 August 2015.

Brett McCallum was CEO of the Pearl Producers Association until November 2014 before moving into a consulting role within the fishing industry. He has held senior roles in the fishing industry and has been involved in a number of industry and government access and allocation panels and advisory committees. Previous roles include being CEO of the Western Australian Fishing Industry Council, a director with the National Aquaculture Council and several executive management positions in major commercial fishing companies.

Members of the FRDC Board visit the Papacosta family's Sydney Fresh Seafood store in Drummoyne.

From left: Veronica Papacosta, John Wilson (FRDC Business Manager), Daryl McPhee, Paul Papacosta, Colin Buxton, Renata Brooks, Patrick Hone (FRDC Executive Director) and Gordon Neil (Department of Agriculture and Water Resources).



Heather Brayford: Director

Director from 1 September 2009 to 31 August 2015 (with a short break in appointment from 1–11 September 2012).

Heather Brayford has extensive experience in fisheries and aquatic resource management including senior management and policy roles related to commercial fisheries, recreational fisheries, pearling and aquaculture and fish habitat protection. Heather is currently the Director General of the Western Australian Department of Fisheries and has also held the position of Executive Director of Fisheries in the Northern Territory.

Dr Bruce Mapstone: Director

Director from 1 September 2012 to 31 August 2015.

Bruce Mapstone is a chief research scientist in the Oceans and Atmosphere Business Unit at CSIRO. He has a research background in tropical fisheries, especially line fisheries and previously has been Chief of CSIRO's Division of Marine and Atmospheric Research, Director of the Centre for Australian Weather and Climate Research, and Chief Executive of the Antarctic Climate and Ecosystems CRC. He has chaired and served on several advisory committees to Australian and state government agencies, mainly related to fisheries management, the Great Barrier Reef and national regional marine planning.

Dr Peter O'Brien: Director

Director from 1 September 2012 to 31 August 2015.

Peter O'Brien is a professional director, business operator and consultant. He is an adjunct professor at the University of Canberra and chairs the Collaborative Indigenous Research Initiative and the Advisory Board of the Institute for Applied Ecology. He was previously director of the Murray–Darling Basin Futures Collaborative Research Network, Managing Director of the Rural Industries Research and Development Corporation and Executive Director of the Bureau of Rural Sciences.

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 2015–16

The tables below and on the following page show attendance at Board and committee meetings held during the year. The Chairman approved all absences from Board meetings in accordance with section 71(2) of the PIRD Act.

TABLE 7: ATTENDANCE BY DIRECTORS AT BOARD MEETINGS

Date	26/08/ 2015	07/10/ 2015	16–18/ 11/2015	26/11/ 2015 (t/c)	17/02/ 2016	22/04/ 2016 (t/c)	11/05/ 2016
The Hon. Harry Woods (Chair)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ms Renata Brooks (Deputy Chair)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Professor Colin Buxton	n/a	Yes	Yes	Yes	Yes	Yes	Yes
Dr Lesley MacLeod	n/a	Yes	Yes	Yes	Yes	Yes	Yes
Professor Daryl McPhee	n/a	Yes	Yes	No	Yes	Yes	Yes
Mr John Harrison	n/a	Yes	Yes	Yes	Yes	Yes	Yes
Mr John Susman	n/a	Yes	Yes	Yes	Yes	Yes	Yes
Dr Patrick Hone (Executive Director)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mr Brett McCallum (Deputy Chair)	Yes	n/a	n/a	n/a	n/a	n/a	n/a
Ms Heather Brayford	Yes	n/a	n/a	n/a	n/a	n/a	n/a
Dr Bruce Mapstone	Yes	n/a	n/a	n/a	n/a	n/a	n/a
Dr Peter O'Brien	Yes	n/a	n/a	n/a	n/a	n/a	n/a

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).



Board committee

The Board had one committee operating during the year.

The Finance, Audit and Risk Management Committee

This 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 8: ATTENDANCE BY DIRECTORS, INDEPENDENT MEMBER AND BUSINESS DEVELOPMENT MANAGER AT FINANCE, AUDIT AND RISK MANAGEMENT COMMITTEE MEETINGS

Date	25/08/ 2015	16/11/ 2015	08/02/ 2016 (t/c)	18/05/ 2016 (t/c)
Dr Lesley MacLeod	n/a	n/a	Yes	Yes
Professor Colin Buxton	n/a	Yes	Yes	Yes
Mr Peter O'Brien	Yes	n/a	n/a	n/a
Ms Renata Brooks	Yes	Yes	Yes	Yes
Dr Patrick Hone (Executive Director)	Yes	Yes	Yes	Yes
The Hon. Harry Woods (Chair)	Yes	Yes	Yes	No
Mr Brett McCallum (Committee Chair)	Yes	n/a	n/a	n/a
Ms Christine Feldmanis (Independent member)	Yes	Yes	Yes	Yes
Mr John Wilson	Yes	Yes	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

	2016–17	2017–18	2018–19	2019–20
	\$	\$	\$	\$
Remuneration and allowances to directors and committee members	435,000	445,000	455,000	465,000
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

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.





2015–16 AUDITOR-GENERAL'S REPORT





INDEPENDENT AUDITOR'S REPORT

To the Minister for Agriculture and Water Resources

I have audited the accompanying annual financial statements of the Fisheries Research and Development Corporation for the year ended 30 June 2016, which comprise: Statement by the Accountable Authorities, Executive Director and Chief Financial Officer; Statement of Comprehensive Income; Statement of Financial Position; Statement of Changes in Equity; Cash Flow Statement; and Notes comprising a summary of significant accounting policies and other explanatory information.

Opinion

In my opinion, the financial statements of the Fisheries Research and Development Corporation:

- (a) comply with Australian Accounting Standards 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 2016 and its financial performance and cash flows for the year then ended.

Accountable Authority's Responsibility for the Financial Statements

The Directors of the Fisheries Research and Development Corporation are responsible under the *Public Governance, Performance and Accountability Act 2013* for the preparation and the presentation of annual financial statements that comply with Australian Accounting Standards and the rules made under that Act. The Directors are also responsible for such internal control as is necessary to enable the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

My responsibility is to express an opinion on the financial statements based on my audit. I have conducted my audit in accordance with the Australian National Audit Office Auditing Standards, which incorporate the Australian Auditing Standards. Those auditing standards require that I comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

ANDREW COOPER, ACN 1041
18 National Circuit, SUTTON ACT
Phone (02) 6332 6336 Fax (02) 6332
1797



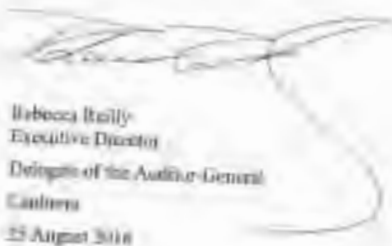
An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements 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. An audit also includes evaluating the appropriateness of the accounting policies used and the reasonableness of accounting estimates made by the Accountable Authority of the Fisheries Research and Development Corporation, as well as evaluating the overall presentation of the financial statements.

I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

Independence

In conducting my audit, I have followed the independence requirements of the Australian National Audit Office, which incorporate the requirements of the Australian accounting profession.

Australian National Audit Office



Rebecca Kelly
Executive Director
Deputy of the Auditor-General
Canberra
25 August 2016



FINANCIAL STATEMENTS FOR THE YEAR ENDED 30 JUNE 2016



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Statement by the Accountable Authorities, Executive Director and Chief Financial Officer


In our opinion, the attached financial statements for the year ended 30 June 2016 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 the FRDC will be able to pay its debts as and when they fall due.

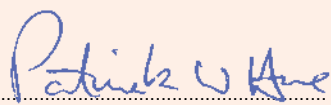
This statement is made in accordance with a resolution of the directors.

Signed 
The Hon. Harry Woods
Chair
Accountable Authority


Date


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


Date

Signed 
Dr Patrick Hone
Executive Director
Accountable Authority


Date

Signed 
John Wilson
Chief Financial Officer


Date

Statement of Comprehensive Income

FOR THE PERIOD ENDED 30 JUNE 2016

		2015–16	2014–15
	Notes	\$	\$
NET COST OF SERVICES			
Expenses			
Employee benefits	1.1A	2,339,836	2,094,407
Suppliers	1.1B	1,264,515	1,008,568
Projects	1.1C	24,575,116	24,853,945
Depreciation and amortisation	2.2A	152,070	173,342
Write-down and impairment of assets	1.1D	–	25,570
Total expenses		28,331,537	28,155,832
Own-source income			
Own-source revenue			
Sale of goods and rendering of services	1.2A	3,294	2,245
Interest	1.2B	299,127	199,572
Grants	1.2C	1,478,585	4,265,254
Contributions	1.2D	7,447,060	7,158,640
Other revenue	1.2E	840,041	1,407,026
Total own-source revenue		10,068,107	13,032,737
Total own-source income		10,068,107	13,032,737
Net cost of services		18,263,430	15,123,095
Revenue from the Australian Government	1.2F	20,049,663	18,708,154
Surplus attributable to the Australian Government		1,786,233	3,585,059
OTHER COMPREHENSIVE INCOME			
Items not subject to subsequent reclassification to net cost of services			
Changes in asset revaluation surplus		31,060	22,216
Total other comprehensive income		31,060	22,216
Total comprehensive income attributable to the Australian Government		1,817,293	3,607,275

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



Statement of Financial Position

AS AT 30 JUNE 2016

		2015–16	2014–15
	Notes	\$	\$
ASSETS			
Financial assets			
Cash and cash equivalents	2.1A	5,955,696	3,183,264
Trade and other receivables	2.1B	5,922,459	7,952,797
Other investments	2.1C	5,001	5,001
Total financial assets		11,883,156	11,141,062
Non-financial assets			
Property, plant and equipment	2.2A	48,140	63,690
Intangibles	2.2A	876,653	848,576
Inventories	2.2B	11,933	12,798
Other non-financial assets	2.2C	11,969	10,300
Total non-financial assets		948,695	935,364
Total assets		12,831,851	12,076,426
LIABILITIES			
Payables			
Suppliers and other payables	2.3A	132,652	85,109
Projects	2.3B	175,000	1,410,931
Total payables		307,652	1,496,040
Provisions			
Employee provisions	4.1A	990,950	864,430
Total provisions		990,950	864,430
Total liabilities		1,298,602	2,360,470
Net assets		11,533,249	9,715,956
EQUITY			
Asset revaluation reserves		276,447	245,387
Retained earnings		11,256,802	9,470,569
Total equity		11,533,249	9,715,956

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



Statement of Changes in Equity

FOR THE PERIOD ENDED 30 JUNE 2016

	2015–16	2014–15
	\$	\$
RETAINED EARNINGS		
Opening balance		
Balance carried forward from previous period	9,470,569	5,885,510
Adjusted opening balance	9,470,569	5,885,510
Comprehensive income		
Surplus for the period	1,786,233	3,585,059
Total comprehensive income	1,786,233	3,585,059
Closing balance as at 30 June 2016	11,256,802	9,470,569
ASSET REVALUATION RESERVE		
Opening balance		
Balance carried forward from previous period	245,387	223,171
Adjusted opening balance	245,387	223,171
Comprehensive income		
Other comprehensive income	31,060	22,216
Total comprehensive income	31,060	22,216
Closing balance as at 30 June 2016	276,447	245,387
TOTAL EQUITY		
Opening balance		
Balance carried forward from previous period	9,715,956	6,108,681
Adjusted opening balance	9,715,956	6,108,681
Comprehensive income		
Surplus for the period	1,786,233	3,585,059
Other comprehensive income	31,060	22,216
Total comprehensive income	1,817,293	3,607,275
Closing balance as at 30 June 2016	11,533,249	9,715,956

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



Cash Flow Statement

FOR THE PERIOD ENDED 30 JUNE 2016

	2015–16	2014–15
Notes	\$	\$
OPERATING ACTIVITIES		
Cash received		
Receipts from the Australian Government	21,661,159	16,814,739
Contributions	9,288,514	6,723,594
Grants	1,478,585	2,273,283
Interest	289,582	194,948
Net GST received	1,192,799	1,530,684
Other	927,339	1,549,974
Total cash received	34,837,978	29,087,222
Cash used		
Employees	(2,213,316)	(2,034,351)
Suppliers	(1,450,134)	(1,243,276)
Projects expenditure	(28,268,559)	(26,148,169)
Total cash used	(31,932,009)	(29,425,796)
Net cash from/(used by) operating activities	2,905,969	(338,574)
INVESTING ACTIVITIES		
Cash used		
Purchase of intangibles	(133,537)	(323,410)
Total cash used	(133,537)	(323,410)
Net cash used by investing activities	(133,537)	(323,410)
FINANCING ACTIVITIES		
Cash used		
Other	–	(324,004)
Total cash used	–	(324,004)
Net cash used by financing activities	–	(324,004)
Net increase/(decrease) in cash held	2,772,432	(985,988)
Cash and cash equivalents at the beginning of the reporting period	3,183,264	4,169,252
Cash and cash equivalents at the end of the reporting period	2.1A 5,955,696	3,183,264

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 it 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 by 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), and the Goods and Services Tax (GST).

Events after the reporting period

No reportable events have occurred after 30 June 2016.

Note 1.1: Expenses

Note 1.1A: Employee benefits

	2015–16	2014–15
	\$	\$
Wages and salaries		
Superannuation	1,738,001	1,583,113
Defined contribution plans	149,529	142,468
Defined benefit plans	325,786	308,771
Leave and other entitlements	126,520	60,055
Total employee benefits	2,339,836	2,094,407

Accounting policy

Accounting policies for employee related expenses are contained at note 4.1A.

Note 1.1B: Suppliers

	2015–16	2014–15
	\$	\$
Goods and services supplied or rendered		
Agency staff	–	20,594
Annual report	25,760	24,844
Asset purchases less than \$5,000	91,188	16,956
Audit fees	32,000	31,000
Cost of goods sold	865	1,371
External service providers	195,977	145,072
Insurance	31,144	30,574
Information technology	309,451	195,516
Joint research and development corporation (RDC) activities	45,733	33,199
Legal	22,515	31,824
Media monitoring and releases	26,461	23,782
Office supplies	27,692	25,192
Photographs	1,450	4,610
Postage and couriers	2,579	4,604
Property	30,721	27,321
Recruitment/director selection costs	29,979	35,520
Representation	42,441	14,646
Representative organisations consultation	6,053	6,133
Telecommunications	26,604	21,192
Training	33,435	32,998
Travel	98,664	106,761
Other	36,953	34,055
Total goods and services supplied or rendered	1,117,665	867,914
Other suppliers		
Operating lease rental in connection with		
External parties		
Leasing commitments ⁽¹⁾	131,503	120,552
Workers compensation expenses	15,347	20,102
Total other suppliers	146,850	140,654
Total suppliers	1,264,515	1,008,568

(1) Leasing commitments

Operating leases included were effectively non-cancellable. The lease for the office accommodation at 25 Geils Court, Deakin expires 31 July 2016. Lease payments are subject to an annual increase in accordance with upwards movements in the consumer price index. The FRDC has agreed with the landlord to extend the lease for a further year to 31 July 2017.

NOTE 1.1B: SUPPLIERS (CONTINUED)

	2015–16	2014–15
	\$	\$
Commitments for minimum lease payments in relation to non-cancellable operating leases are payable as follows:		
Within 1 year	138,012	134,028
Between 1 to 5 years	11,501	11,169
Total operating lease commitments	149,513	145,197

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

	2015–16	2014–15
	\$	\$
Australian Government entities (related parties)	3,103,870	3,027,033
State and territory governments	7,854,081	5,130,941
Universities and educational bodies	5,096,439	4,493,175
Cooperative research centres	2,639,325	3,969,040
Industry (commercial, recreational and Indigenous)	4,877,367	4,204,548
Overseas research entities	103,033	71,650
Other	901,001	3,957,558
Total projects	24,575,116	24,853,945

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.

NOTE 1.1C: PROJECTS (CONTINUED)

	2015–16	2014–15
	\$	\$
Commitments for project commitments are payable as follows:		
Within 1 year	23,028,633	24,663,453
Between 1 to 5 years	9,690,708	11,350,421
Total project commitments	32,719,341	36,013,874

Note: Project commitments are GST inclusive.

Note 1.1D: Write down and impairment of assets

	2015–16	2014–15
	\$	\$
Asset write down and impairments from:		
Write down of intangible assets ⁽¹⁾	–	25,570
Total write down and impairment of assets	–	25,570

(1) FRDC's accounting software and the residual value of the project management system was written down as at 30 June 2015.

Note 1.2: Own-source income

Own-source revenue

Note 1.2A: Sale of goods

	2015–16	2014–15
	\$	\$
Sale of goods in connection with		
Sale of goods	3,294	2,245
Total sale of goods	3,294	2,245

Accounting policy

Revenue from the sale of goods is recognised when:

- a) the risks and rewards of ownership have been transferred to the buyer;
- 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 end of the reporting period. Allowances are made when collectability of the debt is no longer probable.

Note 1.2B: Interest

	2015–16	2014–15
	\$	\$
Deposits	299,127	199,572
Total interest	299,127	199,572

Accounting policy

Interest revenue is recognised using the effective interest method.

Note 1.2C: Grants

	2015–16	2014–15
	\$	\$
Australian Government		
Department of Agriculture and Water Resources ⁽¹⁾	1,478,585	3,496,754
Torres Strait Regional Authority ⁽²⁾	–	768,500
Total grants	1,478,585	4,265,254

(1) RD&E funding from Department of Agriculture and Water Resources (refer Note 4.3B).

(2) Research program funding from Torres Strait Regional Authority (refer Note 4.3B).

Accounting policy

Australian Government grants income is revenue paid to FRDC for the purpose of funding specific research and development projects, and are 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

	2015–16	2014–15
	\$	\$
Fisheries		
Australian Prawn Farmers Association	161,515	189,250
Australian Fisheries Management Authority	895,073	1,007,942
Australian Capital Territory	32,781	–
New South Wales	687,798	636,504
Northern Territory	195,011	177,698
Queensland	655,115	618,731
South Australia	929,518	766,150
Tasmania	2,081,468	2,198,811
Victoria	404,118	305,257
Western Australia	1,404,663	1,258,297
Total contributions	7,447,060	7,158,640

Accounting policy

Contributions are recognised when:

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

Note 1.2E: Other revenue

	2015–16	2014–15
	\$	\$
Projects		
Project funds received	330,498	1,351,760
Project refunds of prior years expenditure	509,543	55,266
Total projects	840,041	1,407,026

Accounting policy

Project funds received are recognised when they are entitled to be received by the Corporation. Project refunds from research partners are brought to account when received.

Note 1.2F: Revenue from the Australian Government

	2015–16	2014–15
	\$	\$
Department of Agriculture and Water Resources		
Corporate Commonwealth entity payment item of 0.50% of AGVP ⁽¹⁾	13,566,775	12,490,335
Matching of industry contributions ⁽²⁾	6,482,888	6,217,819
Total revenue from the Australian Government	20,049,663	18,708,154

(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.

Note 2.1: Financial assets

Note 2.1A: Cash and cash equivalents

	2015–16	2014–15
	\$	\$
Cash on hand or on deposit	5,955,696	3,183,264
Total cash and cash equivalents	5,955,696	3,183,264

Accounting policy

Cash is recognised at its nominal amount. Cash and cash equivalents includes:

- a) cash on hand;
- b) demand deposits in bank accounts with an original maturity of 3 months or less that are readily convertible to known amounts of cash and subject to insignificant risk of changes in value; and
- c) cash in special accounts.

Note 2.1B: Trade and other receivables

	2015–16	2014–15
	\$	\$
Goods and services receivables in connection with		
Goods and services	1,694,341	2,749,775
Total goods and services receivables	1,694,341	2,749,775
Department of Agriculture and Water Resources		
Receivables	3,571,740	5,183,235
Total receivables from Department of Agriculture and Water Resources	3,571,740	5,183,235
Other receivables		
GST receivable from the Australian Taxation Office	656,378	19,787
Total other receivables	656,378	19,787
Total trade and other receivables	5,922,459	7,952,797
Trade and other receivables are expected to be recovered		
No more than 12 months	5,922,459	7,952,797
Total trade and other receivables	5,922,459	7,952,797
Trade and other receivables aged as follows		
Not overdue	5,642,735	7,929,893
Overdue by		
0 to 30 days	84,097	–
31 to 60 days	173,628	134
61 to 90 days	–	–
More than 90 days	22,000	22,770
Total trade and other receivables	5,922,459	7,952,797

Credit terms for goods and services are within 30 days (2014–15: 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

	2015–16	2014–15
	\$	\$
One-fifteenth share in Australian Seafood Co-Products Pty Ltd (ASCo), unlisted company converting fish waste and fish nutrient into agriculture fertiliser products	5,001	5,001
Total other investments	5,001	5,001
Other investments expected to be recovered		
More than 12 months	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 for 2015–16

	Property, plant and equipment	Computer software	Total
	\$	\$	\$
As at 1 July 2015			
Gross book value	63,690	982,426	1,046,116
Accumulated depreciation and amortisation	–	(133,850)	(133,850)
Total as at 1 July 2015	63,690	848,576	912,266
Additions			
Internally developed	–	133,537	133,537
Revaluations recognised in net cost of services	31,060	–	31,060
Depreciation and amortisation	(46,610)	(105,460)	(152,070)
Total as at 30 June 2016	48,140	876,653	924,793
Total as at 30 June 2016 represented by			
Gross book value	48,140	1,115,963	1,164,103
Accumulated depreciation and amortisation	–	(239,310)	(239,310)
Total as at 30 June 2016	48,140	876,653	924,793

NOTE 2.2A: RECONCILIATION OF THE OPENING AND CLOSING BALANCES OF PROPERTY, PLANT AND EQUIPMENT AND INTANGIBLES (CONTINUED)

Reconciliation of the opening and closing balances of property, plant and equipment and intangibles for 2014–15

	Property, plant and equipment	Computer software	Total
	\$	\$	\$
As at 1 July 2014			
Gross book value	124,575	758,322	882,897
Accumulated depreciation and amortisation		(117,345)	(117,345)
Total as at 1 July 2014	124,575	640,977	765,552
Additions			
Internally developed		323,410	323,410
Revaluations recognised in net cost of services	22,216	(25,570)	(3,354)
Depreciation and amortisation	(83,101)	(90,241)	(173,342)
Total as at 30 June 2015	63,690	848,576	912,266
Total as at 30 June 2015 represented by			
Gross book value	63,690	982,426	1,046,116
Accumulated depreciation and amortisation		(133,850)	(133,850)
Total as at 30 June 2015	63,690	848,576	912,266

Revaluations of non-financial assets

On 30 June 2016, Australian Valuation Solutions conducted the revaluation on plant and equipment. A revaluation increment of \$31,060 for plant and equipment for 2015–16 (2014–15: \$22,216) 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 transferer'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 did not differ materially from the assets' fair values as at the reporting date. The regularity of independent valuations depended 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 reversed 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.

	2015–16	2014–15
Depreciation rates applying to each class of depreciable asset are based on the following useful lives:		
Property, plant and equipment	3 to 5 years	3 to 5 years
Leasehold improvements	Lease term	Lease term

All assets were assessed for impairment at 30 June 2016. 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 (2014–15: 10 years).

All software assets were assessed for indications of impairment as at 30 June 2016.

Note 2.2B: Inventories

	2015–16	2014–15
	\$	\$
Inventories held for sale		
Finished goods	11,933	12,798
Total inventories	11,933	12,798

During the period the sum of \$865 of inventory held for sale was recognised as an expense (2014–15: \$1,371). Inventories are recognised at cost.

All inventories are not expected to be sold within the next 12 months.

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

	2015–16	2014–15
	\$	\$
Prepayments	11,969	10,300
Total other non-financial assets	11,969	10,300
Other non-financial assets expected to be recovered		
No more than 12 months	11,969	10,300
Total other non-financial assets	11,969	10,300

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

Note 2.3: Payables

Note 2.3A: Suppliers and other payables

	2015–16	2014–15
	\$	\$
Trade creditors and accruals	73,748	45,221
FBT payable	1,568	1,100
PAYG payable	57,336	38,788
Total suppliers and other payables	132,652	85,109
Suppliers and other payables expected to be settled		
No more than 12 months	132,652	85,109
Total suppliers	132,652	85,109

Settlement is usually made within 30 days.

Note 2.3B: Projects

	2015–16	2014–15
	\$	\$
Australian Government entities (related parties)	175,000	–
Universities and educational bodies	–	68,278
Cooperative research centres	–	1,323,914
Other	–	18,739
Total projects	175,000	1,410,931
Projects expected to be settled		
No more than 12 months	175,000	1,410,931
Total projects	175,000	1,410,931

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 3.1: Cash flow reconciliation

Note 3.1A: Cash flow reconciliation

	2015–16	2014–15
	\$	\$
Reconciliation of net cost of services to net cash from/(used by) operating activities		
Net (cost of)/contribution by services	(18,263,430)	(15,123,095)
Revenue from the Australian Government	20,049,663	18,708,154
Adjustments for non-cash items		
Depreciation/amortisation	152,070	173,342
Net write down of non-financial assets	–	25,570
Movement in assets and liabilities		
Assets		
(Increase)/decrease in net receivables	2,030,338	(5,329,223)
(Increase)/decrease in other non-financial assets	(1,669)	(1,919)
(Increase)/decrease in inventories	865	1,371
Liabilities		
Increase/(decrease) in employee provisions	126,520	60,056
Increase/(decrease) in supplier payables	47,543	(44,001)
Increase/(decrease) in project payables	(1,235,931)	1,191,171
Net cash from/(used by) operating activities	2,905,969	(338,574)

Note 4.1: Provisions

Note 4.1A: Employee provisions

	2015–16	2014–15
	\$	\$
Leave	990,950	864,430
Total employee provisions	990,950	864,430
Employee provisions that could be settled		
No more than 12 months	984,271	812,812
More than 12 months	6,679	51,618
Total employee provisions	990,950	864,430

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 Commonwealth Superannuation Scheme (CSS), the Public Sector Superannuation Scheme (PSS), or the PSS accumulation plan (PSSap), or other superannuation funds held outside the Australian Government.

The CSS and PSS are defined benefit schemes 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 Government. The entity accounts for the contributions as if they were contributions to defined contribution plans.

As at 30 June 2016, all superannuation contributions were fully paid, therefore no superannuation liability has been recognised (30 June 2015: \$Nil).

Note 4.2: Senior management personnel remuneration

	2015–16	2014–15
	\$	\$
Short-term employee benefits		
Salary	1,034,197	971,584
Performance bonus	16,488	–
Total short-term employee benefits	1,050,685	971,584
Post-employment benefits		
Superannuation	225,966	197,620
Total post-employment benefits	225,966	197,620
Other long-term employee benefits		
Annual leave	80,053	76,956
Long service leave	36,024	34,630
Total other long-term employee benefits	116,076	111,586
Total senior management personnel remuneration	1,392,727	1,280,790

During the year no termination benefits were paid to senior executives (2014–15: \$Nil).

The total number of senior management personnel that are included in the above table is 15 (2014–15: 11), made up of:

- one non-executive director continuation of appointment as Chair
- one non-executive director re-appointed 1 September 2015
- five non-executive directors appointed 1 September 2015
- four non-executive directors retired 31 August 2015
- four senior executive staff members.

Note 4.3: Related party disclosures

The directors of the FRDC during the year were:

Ms Renata Brooks	Director (Re-appointed 1 September 2015) (Deputy Chair appointed 7 October 2015) (Chair Finance, Audit and Risk Management Committee appointed 7 October 2015)
Professor Colin D Buxton	Director (Appointed 1 September 2015) (Member Finance, Audit and Risk Management Committee appointed 7 October 2015)
Dr Patrick Hone	Executive Director
Mr John Harrison	Director (Appointed 1 September 2015)
Dr Lesley Macleod	Director (Appointed 1 September 2015) (Member Finance, Audit and Risk Management Committee appointed 26 November 2015)
Associate Professor Daryl McPhee	Director (Appointed 1 September 2015)
Mr John Susman	Director (Appointed 1 September 2015)
The Hon. Harry Woods	Chair (Appointed 1 September 2010) (Chair Remuneration Committee)
Ms Christine Feldmanis ⁽¹⁾	Independent Member Finance, Audit and Risk Management Committee (Appointed 1 September 2014)
Ms Heather Brayford	Director (Retired 31 August 2015)
Dr Bruce Mapstone	Director (Retired 31 August 2015)
Mr Brett McCallum	Director (Retired 31 August 2015)
Dr Peter O'Brien	Director (Retired 31 August 2015)

(1) Paid under a consultancy agreement and those payments are not included in Note 4.2: Senior management personnel remuneration.

Note 4.3A: 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 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.

No loans were made to directors or director-related entities during the year.

Director	Organisation and position held	Nature of interest	Expenditure paid to entity \$	Income received from entity \$
Ms H. Brayford (Retired 31 August 2015)	Department of Fisheries Western Australia <i>Director General</i>	Research projects or work undertaken by the organisation	52,250	110,000
Professor C.D. Buxton (Appointed 1 September 2015)	Colin Buxton & Associates <i>Director</i>	Research projects or work undertaken by the organisation	40,251	0
	Seafood CRC Company Ltd <i>Director</i>	Research projects or work undertaken by the organisation	2,155,965	957,883
	Southern Rock Lobster Ltd <i>Chair</i>	Research projects or work undertaken by the organisation	164,332	0
	Institute of Marine and Antarctic Studies at the University of Tasmania <i>Adjunct Professor</i>	Research projects or work undertaken by the organisation	2,160,295	79,115
Mr J. Harrison (Appointed 1 September 2015)	West Australian Fishing Industry Council <i>CEO</i>	Research projects or work undertaken by the organisation	202,030	7,300
Dr P. Hone	Seafood CRC Company Ltd <i>Director</i>	Research projects or work undertaken by the organisation	3,326,370	1,229,250
Dr B. Mapstone (Retired 31 August 2015)	CSIRO <i>Member, Executive Management Council</i>	Research projects or work undertaken by the organisation	87,944	0
	Institute of Marine and Antarctic Studies at the University of Tasmania <i>Member, Advisory Board</i>	Research projects or work undertaken by the organisation	153,928	0
Dr P. O'Brien (Retired 31 August 2015)	Australian Rural Leadership Foundation <i>Governor Member</i>	Research projects or work undertaken by the organisation	12,100	0

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

Note 4.3B: 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 projects detailed below.

2015–16

- Rural R&D for Profit: Growing a profitable, innovative and collaborative Australian Yellowtail Kingfish aquaculture industry: bringing white fish to the market
- Variation AQUAPLAN 2014–2019
- Non-Tariff Measures project
- Facilitating the development of a central Australian fishing vessel database
- National Social and Economic Survey of Recreational Fishers.

2014–15

- AQUAPLAN 2014–2019 activities 2.2, 3.4 & 3.7
- Assisting commercial and recreational organisations adapt to national maritime safety standards
- AW1213-13—Aquatics Communications Co-ordinator
- Commonwealth Fisheries Harvest Strategy Policy
- Rural R&D for Profit: Growing a profitable, innovative and collaborative Australian Yellowtail Kingfish
- Small Pelagic Fishery
- Training, education and extension support in the development and implementation of the Fisheries Communications Strategy.

Torres Strait Regional Authority

The FRDC has a Research & Development Funding Agreement with the Torres Strait Regional Authority under which it manages the suite of projects and programs detailed below.

2014–15

- Torres Strait Fisheries Development
- Development of a Torres Strait Islander and Aboriginal Traditional Inhabitant Commercial Finfish Fishery Action Plan for the Torres Strait Finfish Fishery and supporting Communications Plan.

The FRDC recognised in 2015–16: \$1,478,585 (2014–15: \$4,265,254) (refer Note 1.2C: Grants).

Note 5.1: Financial instruments

Note 5.1A: Categories of financial instruments

	2015–16	2014–15
	\$	\$
Financial assets		
Loans and receivables		
Cash and cash equivalents	5,955,696	3,183,264
Trade and other receivables	1,694,341	2,749,775
Other investments	5,001	5,001
Total loans and receivables	7,655,038	5,938,040
Total financial assets	7,655,038	5,938,040
Financial liabilities		
Other financial liabilities		
Suppliers and other payables	73,748	45,221
Projects	175,000	1,410,931
Total other financial liabilities	248,748	1,456,152
Total financial liabilities	248,748	1,456,152

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 collect ability 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 5.1B: Net gain or loss from financial assets

	2015–16	2014–15
	\$	\$
Loans and receivables		
Interest revenue (Note 1.2B)	299,127	199,572
Net gain from loans and receivables	299,127	199,572

Note 5.1C: Fair value of financial instruments

	Carrying amount	Fair value	Carrying amount	Fair value
	2015–16	2015–16	2014–15	2014–15
	\$	\$	\$	\$
Financial assets				
Loans and receivables				
Cash and cash equivalents	5,955,696	5,955,696	3,183,264	3,183,264
Trade and other receivables	1,694,341	1,694,341	2,749,775	2,749,775
Other investments ⁽¹⁾	5,001	–	5,001	–
Total financial assets	7,655,038	7,650,037	5,938,040	5,933,039
Financial liabilities				
Other financial liabilities				
Suppliers and other payables	73,748	73,748	45,221	45,221
Projects	175,000	175,000	1,410,931	1,410,931
Total financial liabilities	248,748	248,748	1,456,152	1,456,152

(1) There are no significant differences between the carrying amounts and fair values of financial assets and liabilities; with the exception of the value of Other investments, which is carried at cost because it does not have a quoted market price in an active market, and a fair value cannot be reliably measured.

Note 5.1D: Credit risk

The FRDC's activities expose it to normal commercial financial risk. As a result of the nature of the FRDC's business, the FRDC's internal policies, and Australian Government policies dealing with the management of financial risk, the FRDC's exposure to market, credit, liquidity, cash flow and fair value interest rate risk is considered to be low.

The majority of FRDC's receivables are from government agencies, industry, universities and program contributors that have long-standing relationships with the FRDC.

The FRDC held no collateral to mitigate against credit risk.

Credit quality of financial assets not past due or individually determined as impaired

	Not past due nor impaired	Not past due nor impaired	Past due or impaired	Past due or impaired
	2015–16	2014–15	2015–16	2014–15
	\$	\$	\$	\$
Cash and cash equivalents	5,955,696	3,183,264	–	–
Receivables for goods and services	1,414,617	2,726,870	279,724	22,904
Other investments	5,001	5,001	–	–
Total	7,375,314	5,915,135	279,724	22,904

Ageing of financial assets that were past due but not impaired for 2016

	0 to 30 days	31 to 60 days	61 to 90 days	90+ days	Total
	\$	\$	\$	\$	\$
Receivables for goods and services	84,097	173,628	–	22,000	279,724
Total	84,097	173,628	–	22,000	279,724

Ageing of financial assets that are past due but not impaired for 2015

	0 to 30 days	31 to 60 days	61 to 90days	90+ days	Total
	\$	\$	\$	\$	\$
Receivables for goods and services	–	134	–	22,770	22,904
Total	–	134	–	22,770	22,904

As of 30 June 2016, other receivables in the amount of \$279,724 (2014–15: \$22,904) were past due, but not impaired.

These relate to debtors for whom there is no recent history of default. The FRDC has been in contact with the relevant debtors, and is satisfied that the payment will be received in full.

Other balances within other receivables do not contain impaired assets and are not past due. It is expected these balances will be received when due.

Note 5.1E: Liquidity risk

The FRDC has sufficient available financial assets to meet all financial liabilities as at 30 June 2016.

Note 5.1F: Market risk

The FRDC holds basic financial instruments that do not expose the FRDC to certain market risks. The FRDC is not exposed to 'currency risk' or 'other price risk'.

Note 5.2: Fair value measurement

The following tables, provide an analysis of assets and liabilities that are measured at fair value. The remaining assets and liabilities disclosed in the Statement of Financial Position do not apply the fair value hierarchy. The different levels of the fair value hierarchy are defined below.

Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities that the FRDC can access at measurement date.

Level 2: Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly.

Level 3: Unobservable inputs for the asset or liability.

Note 5.2A: Fair value measurements, valuation techniques and inputs used

Fair value measurements at the end of the reporting period			For Levels 2 and 3 fair value measurements		
	2016	2015	Category	Valuation technique(s) and inputs used	
	\$	\$			
Non-financial assets					
Leasehold improvements	4,380	5,480	Level 2	Market approach	Adjusted market transactions
Leasehold improvements	26,000	32,000	Level 3	Depreciated replacement cost	Replacement cost new (price per square metre) Consumed economic benefit/ obsolescence of asset
Property, plant and equipment	17,760	26,210	Level 2	Market approach	Adjusted market transactions
Property, plant and equipment	–	–	Level 3	Depreciated replacement cost	Replacement cost new

The FRDC did not measure any non-financial assets at fair value on a non-recurring basis as at 30 June 2016.

Fair value measurements—highest and best use differs from current use for non-financial assets

FRDC's assets are held for operational purposes and not held for the purposes of deriving a profit. The current use of all non-financial assets is considered their highest and best use.

Recurring and non-recurring Level 3 fair value measurements—valuation processes

FRDC tests the procedures of the valuation model as an asset materiality review at least once every 12 months (with a formal revaluation undertaken once every three years). If a particular asset class experiences significant and volatile changes in fair value (i.e. where indicators suggest that the value of the class has changed materially since the previous reporting period), that class is subject to specific valuation in the reporting period, where practicable, regardless of the timing of the last specific valuation. The FRDC engaged Australian Valuation Solutions to undertake a full revaluation and confirm that the models developed comply with *AAS813*. There were no changes in valuation technique from previous reporting periods.

Significant Level 3 inputs utilised by the entity are derived and evaluated as follows:

Leasehold improvements—consumed economic benefit/obsolescence of asset

Assets that do not transact with enough frequency or transparency to develop objective opinions of value from observable market evidence have been measured utilising the cost (depreciated replacement cost) approach. Under the depreciated replacement cost approach the estimated cost to replace the asset is calculated and then adjusted to take into account its consumed economic benefit/asset obsolescence (accumulated depreciation). Consumed economic benefit/asset obsolescence has been determined based on professional judgement regarding physical, economic and external obsolescence factors relevant to the asset under consideration.

The reconciliation for recurring Level 3 fair value measurements in property plant and equipment has been included at Note 2.2A.



Note 6.1: Budgetary reports and explanations of major variances

The following tables provide a comparison of the original budget as presented in the 2015–16 Portfolio Budget Statements (PBS) to the 2015–16 final outcome as presented in accordance with Australian Accounting Standards for the FRDC. The budget is not audited.

Note 6.1A: Departmental budgetary reports

Statement of Comprehensive Income

for the period ended 30 June 2016

	Actual	Portfolio Budget Statements 2015–16 estimate	
	(A)	(B)	(C) = A - B
		Original ⁽¹⁾	Variance ⁽²⁾
	2015–16	2015–16	2015–16
	\$	\$	\$
NET COST OF SERVICES			
Expenses			
Employee benefits	2,339,836	2,612,000	(272,164)
Suppliers	1,264,515	1,300,000	(35,485)
Projects	24,575,116	23,089,000	1,486,116
Depreciation and amortisation	152,070	200,000	(47,930)
Other expenses	–	460,000	(460,000)
Total expenses	28,331,537	27,661,000	670,537
Own-source income			
Own-source revenue			
Sale of goods and rendering of services	3,294	15,000	(11,706)
Interest	299,127	250,000	49,127
Grants	1,478,585	–	1,478,585
Contributions	7,447,060	7,685,000	(237,940)
Other revenue	840,041	702,000	138,041
Total own-source revenue	10,068,107	8,652,000	1,416,107
Total own-source income	10,068,107	8,652,000	1,416,107
Net cost of services	18,263,430	19,009,000	745,570
Revenue from the Australian Government	20,049,663	19,048,000	1,001,663
Surplus attributable to the Australian Government	1,786,233	39,000	1,747,233
OTHER COMPREHENSIVE INCOME			
Items not subject to subsequent reclassification to net cost of services			
Changes in asset revaluation surplus	31,060	–	31,060
Total other comprehensive income	31,060	–	31,060
Total comprehensive income/(loss) attributable to the Australian Government	1,817,293	39,000	1,778,293

(1) The FRDC's original budgeted financial statement that was first presented to Parliament in respect of the reporting period from the 2015–16 Portfolio Budget Statements.

(2) Between the actual and original budgeted amounts for 2015–16. Explanations of major variances are provided in Note 6.1B.

Statement of Financial Position

as at 30 June 2016

	Actual	Portfolio Budget Statements 2015–16 estimate	
	(A)	(B)	(C) = A-B
		Original ⁽¹⁾	Variance ⁽²⁾
	2015–16	2015–16	2015–16
	\$	\$	\$
ASSETS			
Financial assets			
Cash and cash equivalents	5,955,696	4,261,000	1,694,696
Trade and other receivables	5,922,459	2,319,000	3,603,459
Other investments	5,001	5,000	1
Total financial assets	11,883,156	6,585,000	5,298,156
Non-financial assets			
Property, plant and equipment	48,140	134,000	(85,860)
Intangibles	876,653	731,000	145,653
Inventories	11,933	–	11,933
Other non-financial assets	11,969	10,000	1,969
Total non-financial assets	948,695	875,000	73,695
Total assets	12,831,851	7,460,000	5,371,851
LIABILITIES			
Payables			
Suppliers and other payables	132,652	161,000	(28,348)
Projects	175,000	201,000	(26,000)
Other payables	–	85,000	(85,000)
Total payables	307,652	447,000	(139,348)
Provisions			
Employee provisions	990,950	854,000	136,950
Total provisions	990,950	854,000	136,950
Total liabilities	1,298,602	1,301,000	(2,398)
Net assets	11,533,249	6,159,000	5,374,249
EQUITY			
Asset revaluation reserves	276,447	223,000	53,447
Retained earnings	11,256,802	5,936,000	5,320,802
Total equity	11,533,249	6,159,000	5,374,249

(1) The FRDC's original budgeted financial statement that was first presented to Parliament in respect of the reporting period from the 2015–16 Portfolio Budget Statements.

(2) Between the actual and original budgeted amounts for 2015–16. Explanations of major variances are provided in Note 6.1B.

Statement of Changes in Equity

for the period ended 30 June 2016

	Actual	Portfolio Budget Statements 2015–16 estimate	
	(A)	(B)	(C) = A–B
		Original ⁽¹⁾	Variance ⁽²⁾
	2015–16	2015–16	2015–16
	\$	\$	\$
RETAINED EARNINGS			
Opening balance			
Balance carried forward from previous period	9,470,569	5,897,000	3,573,569
Adjusted opening balance	9,470,569	5,897,000	3,573,569
Comprehensive income			
Surplus/(deficit) for the period	1,786,233	39,000	1,747,233
Total comprehensive income	1,786,233	39,000	1,747,233
Closing balance as at 30 June 2016	11,256,802	5,936,000	5,320,802
ASSET REVALUATION RESERVE			
Opening balance			
Balance carried forward from previous period	245,387	223,000	22,387
Adjusted opening balance	245,387	223,000	22,387
Comprehensive income			
Other comprehensive income	31,060	–	31,060
Total comprehensive income	31,060	–	31,060
Closing balance as at 30 June 2016	276,447	223,000	53,447
TOTAL EQUITY			
Opening balance			
Balance carried forward from previous period	9,715,956	6,120,000	3,595,956
Adjusted opening balance	9,715,956	6,120,000	3,595,956
Comprehensive income			
Surplus/(deficit) for the period	1,786,233	39,000	1,747,233
Other comprehensive income	31,060	–	31,060
Total comprehensive income	1,817,293	39,000	1,778,293
Closing balance as at 30 June 2016	11,533,249	6,159,000	5,374,249

(1) The FRDC's original budgeted financial statement that was first presented to Parliament in respect of the reporting period from the 2015–16 Portfolio Budget Statements.

(2) Between the actual and original budgeted amounts for 2015–16. Explanations of major variances are provided in Note 6.1B.

Cash Flow Statement

for the period ended 30 June 2016

	Actual	Portfolio Budget Statements 2015–16 estimate	
	(A)	(B)	(C) = A-B
		Original ⁽¹⁾	Variance ⁽²⁾
	2015–16	2015–16	2015–16
	\$	\$	\$
OPERATING ACTIVITIES			
Cash received			
Goods and services	–	17,000	(17,000)
Receipts from the Australian Government	21,661,159	18,083,000	3,578,159
Contributions	9,288,514	8,966,000	322,514
Grants	1,478,585	–	1,478,585
Interest	289,582	250,000	39,582
Net GST received	1,192,799	–	1,192,799
Other	927,339	–	927,339
Total cash received	34,837,978	27,316,000	7,521,978
Cash used			
Employees	(2,213,316)	(2,583,000)	369,684
Suppliers	(1,450,134)	(1,309,000)	(141,134)
Projects expenditure	(28,268,559)	(23,548,000)	(4,720,559)
Total cash used	(31,932,009)	(27,440,000)	(4,492,009)
Net cash from/(used by) operating activities	2,905,969	(124,000)	3,029,969
INVESTING ACTIVITIES			
Cash used			
Purchase of property, plant and equipment	–	(99,000)	99,000
Purchase of intangibles	(133,537)	(200,000)	66,463
Total cash used	(133,537)	(299,000)	165,463
Net cash used by investing activities	(133,537)	(299,000)	165,463
Net increase/(decrease) in cash held	2,772,432	(423,000)	3,195,432
Cash and cash equivalents at the beginning of the reporting period	3,183,264	4,684,000	(1,500,736)
Cash and cash equivalents at the end of the reporting period	5,955,696	4,261,000	1,694,696

(1) The FRDC's original budgeted financial statement that was first presented to parliament in respect of the reporting period from the 2015–16 Portfolio Budget Statements.

(2) Between the actual and original budgeted amounts for 2015–16. Explanations of major variances are provided in Note 6.1B.

Note 6.1B: Departmental major budget variances for 2016

Explanations of major variances

The major variances in 2015–16 was [sic] due to the factors detailed below.

Variances	Affected line items (and statement)
<ul style="list-style-type: none">• Employee benefits costs were lower than budget due to delayed start date for new employees commencing in the Adelaide Office.• 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.• Other expenses were less than budget, as no marketing activities occurred in 2015–16.	<ul style="list-style-type: none">• Statement of Comprehensive Income (Expenses)• Cash Flow Statement (Cash used)
<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 \$1,478,585 (refer Note 1.2C), which were not included in the budget.• Revenue from Australian Government increased due to the greater than expected increase in the GVP determination, which was higher than the budget.	<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">• Trade and other receivables increased due to the timing of the Department of Agriculture and Water Resources GVP determination, resulting in delayed special appropriation payments, and as such the receivable was higher than the budget.	<ul style="list-style-type: none">• Statement of Financial Position (Financial Assets)• Cash Flow Statement (Cash received)



APPENDICES



THE FRDC'S PRINCIPAL REVENUE BASE

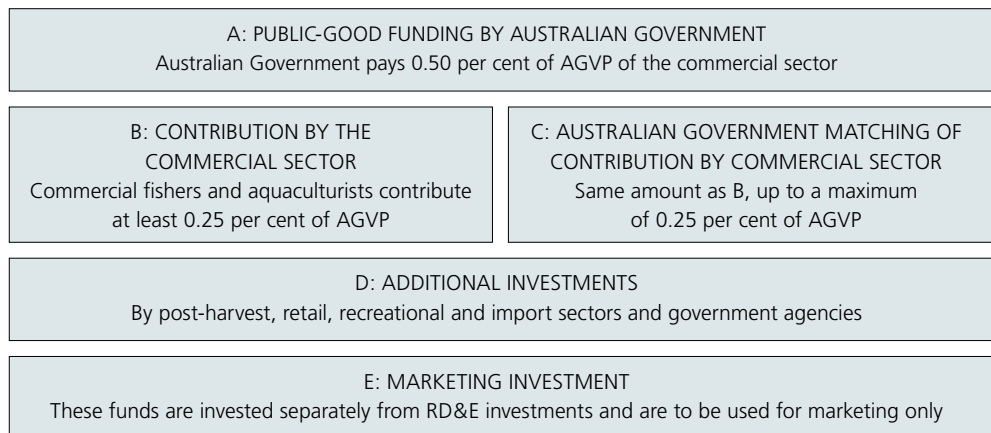
As stipulated in the PIRD Act, and shown in figure 5, the FRDC's primary revenue source is based on:

- 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 i.

Details of all FRDC revenue (including investments, royalties, and sales of products, information and services) are in the financial statements starting on page 126.

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 contributes to the FRDC on the basis that RD&E will be targeted to its needs and will deliver economic and social benefits. The Australian Government matches industry contributions on the basis that the beneficiaries of research should pay approximately in proportion to the benefits received, but the government should contribute to spillover benefits to the wider community.

THE FRDC'S LEGISLATIVE FOUNDATION AND THE EXERCISE OF MINISTERIAL POWERS

The FRDC was formed as a statutory corporation on 2 July 1991 under the provisions of the PIRD Act. It also operates under the provisions of the PGPA Act, which applies high standards of accountability while providing for the independence required by the Corporation's role as a statutory authority.

The FRDC's objects, deriving from section 3 of the PIRD Act and shown in Appendix C, are incorporated in the FRDC's vision and planned outcomes. As reflected in figure 2 on pages 28–29, 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 to the Minister for Agriculture and Water Resources.

Exercise of ministerial powers during 2015–16 is described on page 108.





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.



GOVERNMENT PRIORITIES

In May 2015, the Australian Government announced a new set of Science and Research Priorities (SRPs) which updated the previous National Research Priorities and complement the Rural Research Priorities.

As part of implementing the actions in the National Research Investment Plan, the Australian Research Committee developed the SRPs to drive investment in areas that are of immediate and critical importance to Australia and its place in the world.

The SRPs will complement the broad base of support for research provided by the Australian Government and will foster a more coordinated and strategic approach within the identified areas.

Government Research Priorities attributed to each RD&E program (\$ and %)

RURAL RESEARCH PRIORITIES

RD&E Priorities	Total expenditure	
	\$	%
Adoption of R&D	1,804,975	9.02
Advanced technology	6,924,389	34.59
Biosecurity	2,575,649	12.87
Soil, water and managing natural resources	8,710,795	43.52
Total	20,015,808	100.00

STRATEGIC RESEARCH PRIORITIES

	Total expenditure	
	\$	%
Advanced manufacturing	4,035,031	18.08
Cybersecurity	28,465	0.13
Energy	28,465	0.13
Environmental change	1,773,472	7.95
Food	4,856,416	21.76
Health	1,216,037	5.45
Resources	338,360	1.52
Soil and water	10,015,100	44.87
Transport	29,830	0.13
Total	22,321,176	100.00

Figures in these tables have been rounded, hence totals may not agree with component figures.

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 — http://frdc.com.au/about_frdc/foi/Pages/default.aspx

Role, structure and functions

The FRDC's role is described on page 15 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>FSH</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

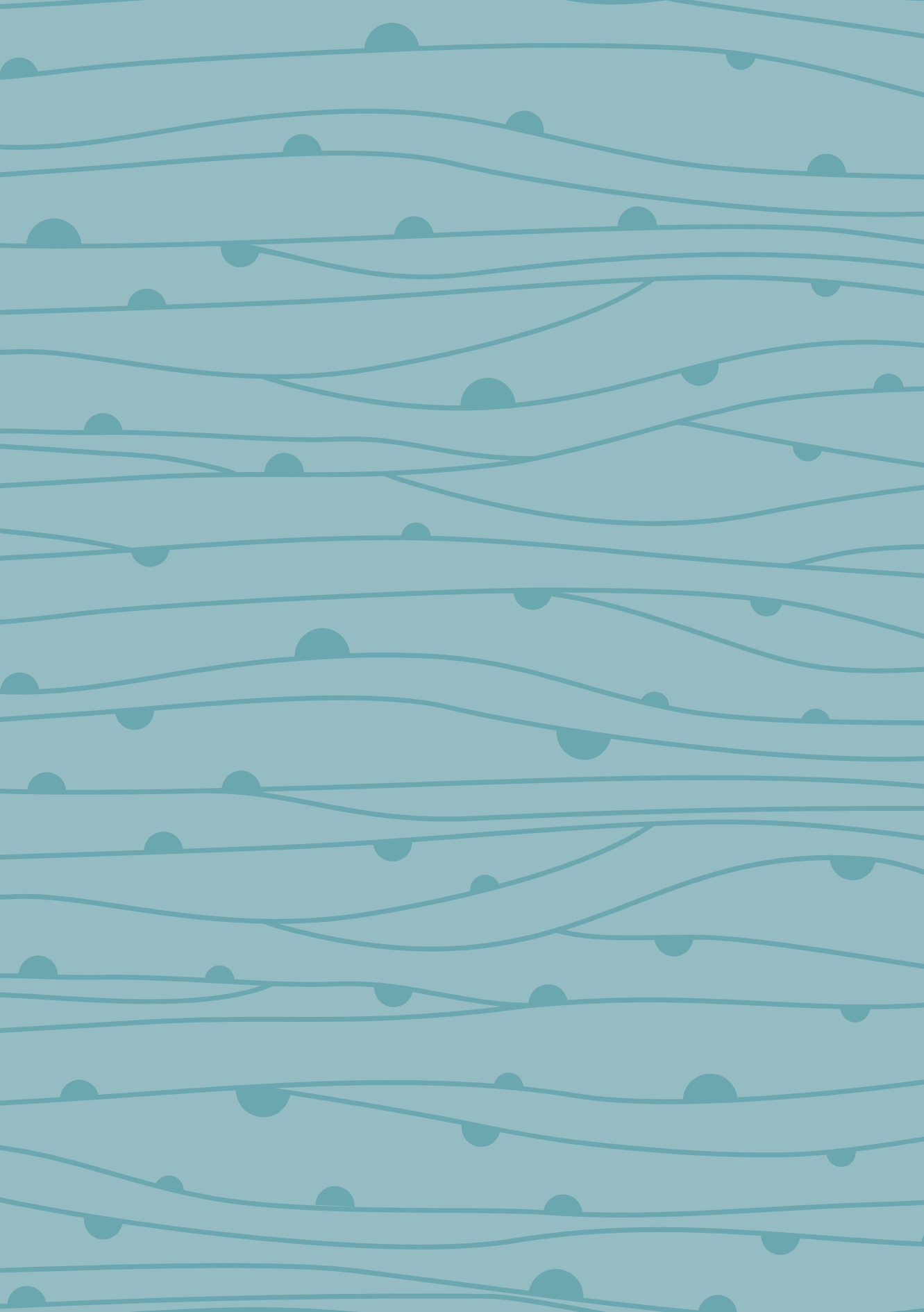
Request	Charge
Application	No fee
Search and retrieval	\$15 per hour
Decision making and consultation	First five hours free, after that \$20 per hour
When a FOI request is not responded to within the statutory time limit	No fee
Internal review	No fee
Request for personal information	No fee

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.





LIST OF ABBREVIATIONS AND ACRONYMS

AASB	Australian Accounting Standards Board
ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
AGVP	average gross value of production
AOP	annual operational plan
APFA	Australian Prawn Farmers Association
CRC	cooperative research centre
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAWR	Australian Government Department of Agriculture and Water Resources
DNA	deoxyribonucleic acid
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
FOI Act	<i>Freedom of Information Act 1982</i>
FRAB	Fisheries Research Advisory Body
FRDC	Fisheries Research and Development Corporation
GIS	geographic information system
GST	goods and services tax
GVP	gross value of production
IPA	Industry Partnership Agreement
ISO	International Organization for Standardisation
ICT	information and communications technology
KPI	key performance indicator
LNG	liquefied natural gas
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 Committees
RD&E	research, development and extension
RDC	research and development corporation
SAFS	<i>Status of Australian Fish Stocks Reports</i>
SBT	Southern Bluefin Tuna
SARDI	South Australian Research and Development Institute
WHS Act	<i>Work Health and Safety Act 2011</i>



INDICES





COMPLIANCE

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; 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 9: PRIMARY INDUSTRIES RESEARCH AND DEVELOPMENT ACT 1989 (PIRD ACT)

Section	Title	Comply	Page
Section 10	R&D corporation is a body corporate etc.	Yes	164–165
Section 11	Functions	Yes	165
Section 12	Powers	Yes	165
Section 19	R&D plans	Yes	8, 25–26
Section 20	Approval of R&D plans	Yes	8
Section 21	Variation of R&D plans	Yes	8–21
Section 24	Consultation	Yes	21–24, 95
Section 25	Annual operational plans	Yes	v, vii, 13, 25–26
Section 27	Compliance with R&D plans and annual operational plans	Yes	105
Section 28	Annual report	Yes	throughout, 105
Section 29	Accountability to representative organisations	Yes	21
Section 33	Expenditure of money of R&D corporations	Yes	i–iv, v–vii
	Spending must be in accordance with funding agreement	Yes	10, 16, 21, 105
Section 33A	R&D money must not be spent on marketing	Yes	95, 126–161
Section 34	Commonwealth to be paid levy expenses from R&D corporation	Yes	126–161
Section 35	Commonwealth to be reimbursed for refunds of levy	Yes	126–161
Section 40	Separate accounting records	n/a	—
Section 47	Times and places of meetings	Yes	119
Section 53	Minutes	Yes	120
Section 76	Duties	Yes	113
Section 87	Employees	Yes	16–19
Section 143	Minister may give directions	Yes	108

TABLE 10: 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	164–165
(b)	both of the following:		
	(i) a summary of the objects and functions of the entity as set out in the legislation,	Yes	164–165
	(ii) the purposes of the entity as included in the entity's corporate plan for the period,	Yes	15, 164–165
(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	15
(d)	any directions given to the entity by a Minister under an Act or instrument during the period,	Yes	108
(e)	any government policy orders that applied in relation to the entity during the period under section 22 of the Act,	Yes	108
(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	17, 115–118
	(i) the name of the accountable authority or member, and	Yes	17, 115–118
	(ii) the qualifications of the accountable authority or member, and	Yes	115–118
	(iii) the experience of the accountable authority or member, and	Yes	115–118
	(iv) for a member—the number of meetings of the accountable authority attended by the member during the period, and	Yes	119
	(v) for a member—whether the member is an executive member or non-executive member,	Yes	115–119
(k)	an outline of the organisational structure of the entity (including any subsidiaries of the entity),	Yes	17
(l)	an outline of the location (whether or not in Australia) of major activities or facilities of the entity,	Yes	185
(m)	information in relation to the main corporate governance practices used by the entity during the period,	Yes	105–111, 113–121, 123–125

		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	16, 107–108
	(ii) the entity, and the other Commonwealth entity or the company, are related entities, and	Yes	16, 107–108
	(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	108
(o)	if the annual report includes information under paragraph (n):		
	(i) if there is only one transaction—the value of the transaction, and	No	—
	(ii) if there is more than one transaction—the number of transactions and the aggregate of value of the transactions,	Yes	108
(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	109
(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	123–125
	(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	121
(u)	an index identifying where the requirements of this section and section 17BF (if applicable) are to be found.	Yes	176–177

TABLE 11: GOVERNMENT POLICY AND ASSOCIATED REPORTING REQUIREMENTS

Section	Comply	Page
Australian Government Cost Recovery Policy	Yes	109
Australian Government Foreign Exchange Risk Management Guidelines	Yes	109
Australian Government priorities <ul style="list-style-type: none"> • Rural Research Priorities • Strategic Research Priorities 	Yes	169
Australian Government Commonwealth Procurement Rules	Yes	16, 107–108
Australian Government Commonwealth Property Management Framework	Yes	109
Australian Government Protective Security Policy Framework (PSPF)	Yes	109
Australian Government Public Sector Workplace Bargaining Policy	Yes	121
Comcover Risk Benchmarking Survey	Yes	106
<i>Commonwealth Disability Discrimination Act 1992</i> (National Disability Strategy 2010–2020)	Yes	19
Commonwealth Fraud Framework 2014	Yes	106
<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Section 16A)	Yes	53, 168
<i>Freedom of Information Act 1982</i> , quarterly and annual lodgements	Yes	109, 170–171
National Code of Practice for the Construction Industry and the Commonwealth's Implementation Guidelines	Yes	109
OLSC [Office of Legal Services Coordination] Legal Expenditure annual return	Yes	108
<i>Work Health and Safety Act 2011</i>	Yes	110–111





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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



frdc.com.au

The FRDC's website (www.frdc.com.au) provides easy access to information and publications, including the items on this page.

... and FRDC is on Facebook <http://facebook.com/FRDCAustralia>

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 is co-funded by our stakeholders,
the Australian Government, and the fishing industry.

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.