Australian Government

Fisheries Research and Development Corporation

Annual Report 2003–04

TO THE PARLIAMENT OF AUSTRALIA,
THE AUSTRALIAN FISHING INDUSTRY AND OTHER FRDC STAKEHOLDERS

In May, the Corporation won the top national award for public sector corporate governance reporting. Details inside back cover.

This report is available electronically from www.frdc.com.au/pub/anrep/index.htm

About the FRDC

The Fisheries Research and Development Corporation (FRDC) is a statutory authority within the portfolio of the federal Minister for Agriculture, Fisheries and Forestry, jointly funded by the Australian Government and the fishing industry. It is responsible to its stakeholders to:

» plan, invest in and manage fisheries R&D throughout Australia; and

» facilitate the dissemination, adoption and commercialisation of R&D results.

The FRDC is the sole Australian agency with this role.

The Corporation does not itself conduct R&D but instead engages research providers through project agreements.

The FRDC's visions

FOR THE INDUSTRY

An Australian fishing industry in which:

» the commercial, recreational and customary sectors are forward-looking, innovative and socially resilient, and use fisheries natural resources in a sustainable way; and

» the commercial sector is profitable and internationally competitive.

FOR THE COMMUNITY

A community that is well-informed about, and supportive of, the fishing industry and the natural resources on which it depends.

FOR FISHERIES RESEARCH

An excellent fisheries research sector that is forward-looking, innovative and responsive in supporting the industry and the community.

The FRDC's mission

The FRDC's mission is to maximise economic, environmental and social benefits for its stakeholders through effective investment in research and development.

Stakeholders

Stakeholders in the FRDC are the fishing industry; the federal, state and territory governments; and the people of Australia.

About this report

This report describes the extent to which the Corporation 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 customary sectors of the fishing industry and in the research and development community.

Australian Government
Fisheries Research and Development Corporation

27 September 2004

Senator the Hon. Judith Troeth
Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry
Parliament House
CANBERRA ACT 2600

Dear Minister,

On behalf of the directors of the Fisheries Research and Development Corporation, I have pleasure in presenting the Corporation's annual report for the year ended 30 June 2004. It is forwarded in accordance with section 9 of the *Commonwealth Authorities and Companies Act 1997* (CAC Act). It has been prepared in accordance with the *Primary Industries and Energy Research and Development Act 1989*, the CAC Act, the *Environment Protection and Biodiversity Conservation Act 1999*, the Commonwealth Authorities and Companies (Report of Operations) Orders 2002, and other Commonwealth legislation and guidelines.

The contents of the report are intended to enable an informed judgement of the Corporation's performance during the year ended 30 June 2004 by you; by the Minister for Agriculture, Fisheries and Forestry; by the Minister for Fisheries, Forestry and Conservation; and by the Parliament.

The report is also intended to inform the FRDC's other stakeholders — especially fishing industry levy payers and other financial contributors; other people in the commercial, recreational and customary sectors of the fishing industry; and members of the research and development community.

Information is also provided on a "significant matter" that occurred between 1 July 2004 and the date on which the report was approved for printing, namely my reappointment until 31 August 2007. Details are on page 20.

I take this opportunity to acknowledge the strong support of my fellow directors in guiding the Corporation towards outcomes that will greatly benefit the fishing industry, the natural resources on which it depends, and the Australian community.

Yours faithfully,

Denis Byrne
Chairman

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Quality Endorsed Company

Cover photograph: see inside back cover

Fisheries Research and Development Corporation Annual Report, 2003–04

An electronic version is at http://www.frdc.com.au/pub/anrep/index.htm

Published by: Fisheries Research and Development Corporation

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ISSN 1039–3773 (soft cover). ISSN 1448–7810 (online).

Project managed by Pacific Project Management Pty Ltd, Canberra.
Designed by Angel Ink Pty Ltd.
Printed by Goanna Print Pty Ltd.

FISHERIES RESEARCH AND DEVELOPMENT CORPORATION

Annual Report

2003–04

Investing for tomorrow's fish

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

» For an outline of the **FRDC and its investments**, read pages 1–4.

» For an **overview of operations** during the past year, read 'The directors' review of operations and future prospects' (pages 11–20).

» For an overview of **the fishing industry and fisheries natural resources**, read pages 21–34.

More detailed coverage is in these sections:

» The key **strategic imperatives** that drive the FRDC's activities are shown on page 38.

» Details of **outcomes** achieved by recent and current projects are in the R&D programs reporting starting on page 45 (the Natural Resources Sustainability Program), page 55 (Industry Development Program) and page 71 (People Development Program).

» The **basis for performance reporting** is described on pages 35–41.

» Financial **contributions by industry and governments** are listed on pages 8 and 94.

» Coverage of **corporate governance** information is in the chapter starting on page 99.

» The **financial statements** start on page 131.

» Lists of **current R&D projects** are in appendix D, 'Project expenditure by program', starting on page 175.

Topics are listed under a wide variety of keywords in the alphabetical index starting on page 221.

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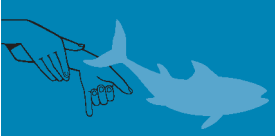
The FRDC, the industry and fisheries natural resources: the year at a glance



The FRDC and its activities in context

The Fisheries Research and Development Corporation (FRDC) is **jointly funded** by the Australian Government and the fishing industry. The Corporation is acknowledged as being highly effective in working for the good of Australia's fisheries **natural resources** and the **fishing industry**.

The rural R&D corporations model on which the FRDC is based

- The rural R&D Corporations (RDCs) take a leading national role in planning, investing in and managing R&D for their respective industries.
- RDCs are not research "grant" agencies. Their enabling legislation requires them to treat R&D as an investment in economic, environmental and social benefits to their industries and to the people of Australia.
- Rather than focusing mainly on generating new knowledge for its own sake, RDCs strive to deliver high rates of return on R&D investment by influencing the full range of interactions along the innovation chain.
- Striving for high returns on investment also leads RDCs to apply significant resources to translating research outputs into practical outcomes and government policies.
- RDCs are required to conduct their activities in accordance with strategic R&D plans and annual operational plans that take account of the R&D needs of end-users and other stakeholders. The plans are approved at ministerial level.
- Although RDCs fund basic research, a high proportion of activity is applied R&D — both short-term and long-term.
- RDCs are accountable to their major stakeholders and to the wider community.

The fishing industry differs markedly from other Australian primary industries. Commercially, there are two production sectors: wild-catch (largely "hunting" of fish in the wild) and aquaculture (fish farming), and a post-harvest sector. Non-commercially, there are two sectors, recreational and customary, which share much of the fisheries resource with the commercial wild-catch sector. Fish are a renewable natural resource, owned by the community, but they are limited and vulnerable.

Fisheries natural resources: page 22. The fishing industry: page 24. Challenges for Australia: page 30. Challenges for the FRDC: page 31. Strategic directions for R&D investment: page 17.

The FRDC and its partners are striving to **use fisheries ecosystems in a sustainable way** to benefit future generations. About 55 per cent of the FRDC's R&D investment in 2003–04 was directed to that end.

The Natural Resources Sustainability Program: page 45.

Ecologically sustainable development (ESD) presents one of the greatest challenges to Australia's governments, industries, businesses and the community. Continual progress towards ESD needs a strong economy and a vigorous, profitable commercial sector, since businesses struggling for survival cannot significantly improve their environmental performance.

Discussion of ESD: page 23 (more: pages 29–46 of the FRDC's R&D plan).

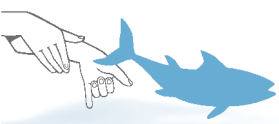
A big change of direction is taking place as the Australian seafood industry responds to the results of fisheries R&D, the expectations of the marketplace and, in relation to the environment, the expectations of the Australian community. Australian companies have been adopting **environmental management systems**, pursuing **quality management** and continually improving processes throughout the whole seafood supply chain. For the past five years, **wild-catch tonnage** and **earnings have been virtually constant**. In the same period, the **aquaculture sector increased its earnings by 22.6 per cent** and now accounts for about 32 per cent of total gross value of production. The combined gross value of production for 2003–04 (landed/farmgate value) is estimated to be $2.30 billion. Exports currently earn $1.84 billion a year. These achievements make the seafood industry **Australia's fourth most valuable food-based primary industry** and seafood the fourth most valuable food export commodity.

Commercial production: pages 25–27, 57–63.

Recreational fishing, by about 3.4 million Australians, is also a major economic activity. In a major FRDC-funded survey, direct expenditure on recreational fishing was estimated to be $1.8 billion a year.

The FRDC's Industry Development Program (about 38 per cent of its 2003–04 investment) helps the seafood industry to become **more profitable and internationally competitive**. Another 2.4 per cent was directed to **improving the capabilities of people** in, and supporting, the industry.

Industry Development Program: page 55. People Development Program: page 71.



The FRDC R&D programs benefit the commercial, recreational and customary sectors of the fishing industry and Australia's economic, environmental and social resources. The programs accord with the **priorities of the FRDC's key stakeholders** — the Australian Government and the Corporation's representative organisations.

Diagram of priorities: page 38. Representative organisations: page 112. Stakeholders: inside front cover.

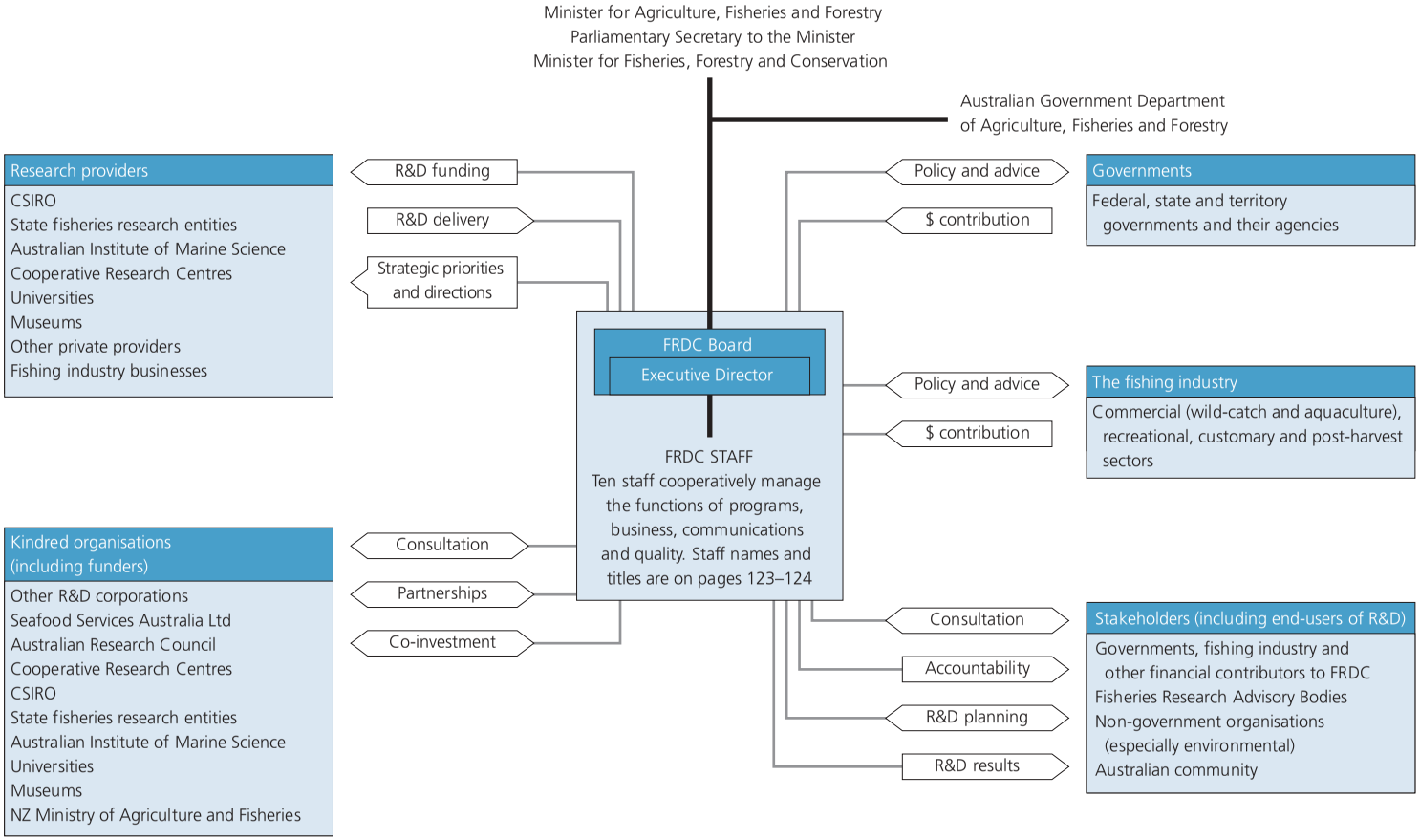
R&D funded by the FRDC not only improves natural resources and development of the fishing industry. It also **raises awareness** of fisheries natural resources and their sustainability; **involves communities** in fisheries and their management; increases awareness of the health benefits of seafood; and measures seafood consumption.

During 2003–04 the **FRDC's performance** in planning, investing in and managing R&D **improved** on that of previous years. Reporting of performance also improved. Program support costs were again kept to 8 per cent of total FRDC expenditure. For more than a decade, the FRDC has invested in highly relevant, quality R&D at minimum cost. This record underpins the Corporation's strong reputation as a key partner in the advancement of the fishing industry and the natural resources on which the industry depends.

Details of FRDC performance: overview page 13; summary (table) page 25. Management and Accountability Program: page 81.

The FRDC's organisation and the context in which it operates are shown in **figure 1**.

FIGURE 1: THE FRDC'S ORGANISATION AND OPERATING CONTEXT



Note: For simplicity, only the relationships between the FRDC and other entities are shown — not relationships between those entities. Many of the entities have multiple relationships with the FRDC (for example, CSIRO is a co-investor and a research provider).

This year …

To maximise the effectiveness of fisheries R&D and its conversion into valuable outcomes, the FRDC has continued to exercise strong leadership in its collaboration with fisheries managers and the fishing industry. More than a hundred final reports on R&D projects were completed during the year. With many of the projects, advanced project management and information technology allowed end-users of the R&D to take up some products (outputs) well before the projects were completed.

Completed projects that the FRDC and its R&D partners considered to make a real difference to the fishing industry and the natural resources on which the industry depends included the following:

» *Developing material to prepare and implement environmental management systems*. Substantial investment by the Australian Government and in-kind support from the fishing industry has enabled Seafood Services Australia Ltd to develop materials to help enterprises to set goals for the environment, food safety and quality, OH&S, profitability and community relations, and to integrate them into day-to-day business activities. The most recent package of "how-to" materials is a world-leading example of a practical environmental management framework strongly focused on the needs of a primary industry.

[Seafood Services Australia Ltd is a not-for-profit company set up three years ago by the Corporation and the Australian Seafood Industry Council to be a catalyst for sustainable development of the seafood industry. In conducting many of the activities formerly carried out by the FRDC under the Industry Development R&D Program, the company has attracted large investments from other sources.]

» *Improving the profitability of the southern rock lobster sector through a condition assessment technique*. This project took techniques developed in the laboratory and applied them in the field. The benefit for a fisher is that harvested lobsters are not near to moult, which significantly increases their survival and quality. The new knowledge will be important for the strategic development of the sector.

» *Identifying environmental factors, especially run-off from acid sulfate soils, causing production losses in Sydney rock oysters*. This project showed clearly that poor water quality is an impediment to sustainable farming of Sydney rock oysters. Remediation projects are now included in every NSW north coast catchment management board's planning and are being given priority for funding in works programs.

» *Studying key uncertainties in population biology and dynamics of southern bluefin tuna, based on direct estimates of age from otoliths (ear bones)*. One of a series of studies conducted by CSIRO Marine Research, this project provided more information on the dynamics of southern bluefin tuna from which better stock assessments have been made. This is a migratory species, so an important feature was interaction with other fisheries in Taiwan and Mauritius.

» *Developing an operating model for evaluation of harvest strategies for the Eastern Tuna and Billfish Fishery*. This project contributed to the ecologically sustainable development of the Eastern Tuna and Billfish Fishery by providing significant scientific and quantitative advice for harvest strategies. The outputs have contributed to new management plans, total allowable catches for several fisheries, management of pelagic fisheries in the Western Central Pacific Ocean and the Indian Ocean, and several other fisheries management processes.

» *Assessing Spanish mackerel stocks in Western Australia*. This project contributed to the ecologically sustainable development of the WA Spanish mackerel fishery — an important commercial and recreational fishery — through improved understanding of its biological characteristics. During the project, WA Fisheries reduced catch limits; significant changes are now being made to integrated management of this fishery.

» *Improving management of Patagonian toothfish in Australia's sub-Antarctic waters*. The outputs, which are being used in stock assessments for toothfish harvested around Macquarie Island, have ensured that the fishery meets sustainability objectives. Importantly, they will contribute to a formal management plan and strategic assessment for the Macquarie Island fishery.

» *Improving post-harvest handling to add value to farmed mussels*. This project sought to raise the quality of mussel handling around the country. A 20 per cent increase in the sector's $6 million farmgate value was predicted. A code of practice and a trade users guide is leading to better shelf life, reduced wastage and increased financial returns. Results have been well received and are being adopted throughout Australia.

» *Developing a community communication plan and communication resources for the seafood industry*. Knowledge from this project (in a Community Communication Guide and a Resource Folder, spread through community workshops and extension networks) has been incorporated in regional action plans. The industry has welcomed the strategies, resources and tools available from the project and is using them widely to communicate with the community and community leaders.

Further reporting on R&D outcomes: pages 36–79. Lists of R&D projects: pages 175–202. Final report searches, project databases: www.frdc.com.au/search/index.htm

Over-all investment in R&D managed by the FRDC

Note: Dollar and percentage figures are rounded; more detailed figures are shown later in the report.

As shown in **figure 2**, total actual investment in fisheries research and development projects under FRDC management in 2003–04 was $65.8 million (last year: $60.0 million). Of this, the FRDC invested $25.1 million (last year: $25.4 million). The remaining $40.7 million was invested by other parties — representing leverage of 1.63 times the FRDC investment (last year was 1.61).

The FRDC investment was made possible by Australian Government contributions (more than $24 million) to the FRDC through appropriations, the 2001 Federal Budget Initiative "Building a National Approach to Animal and Plant Health" and the Cooperative Research Centre for Sustainable Aquaculture of Finfish; and through industry contributions ($6.5 million).

The industry contribution rose from 84% to 109% of the amount that is matched by the Australian Government, reflecting increased recognition by industry of the benefits flowing from fisheries R&D.

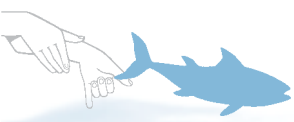
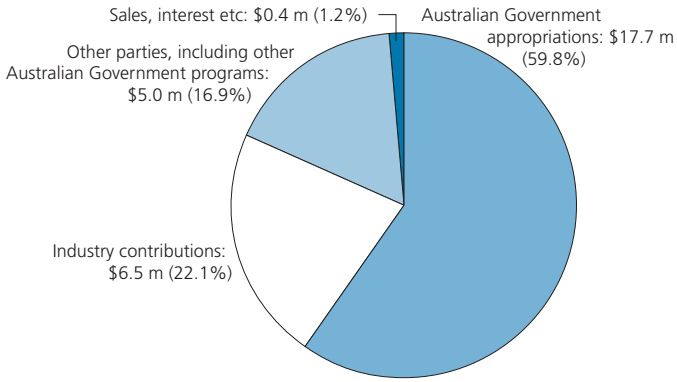
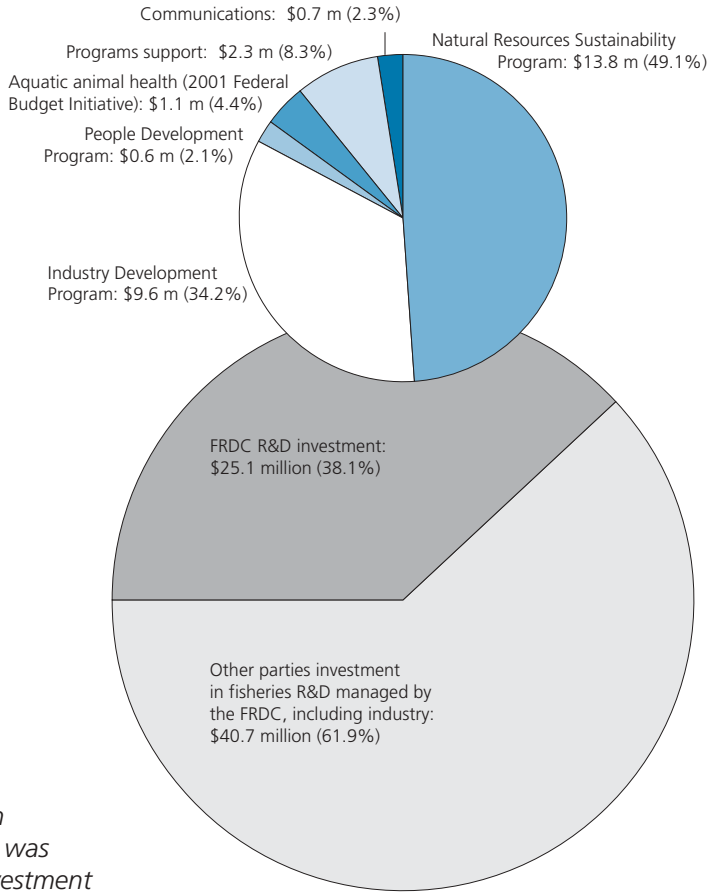


FIGURE 2: INCOME, EXPENDITURE AND LEVERAGE OF INVESTMENT, 2003–04

INCOME
Total: $29.6 million



EXPENDITURE
Total: $28.1 million



CO-INVESTMENT:
Total investment from all sources: $65.8 million

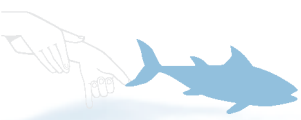
Investment derived from other sources (leverage) was 1.63 times the FRDC investment

Achievements through this investment

TABLE 1: FINANCIAL INDICATORS OF R&D INVESTMENT

	2003–04	2002–03	% change
Expenditure			
» on all R&D projects	$25.1 m	$22.8 m	+10.0%
» on R&D Program 1 (Natural Resources Sustainability)	$13.8 m	$12.7 m	+8.7%
» on R&D Program 2 (Industry Development)	$9.6 m	$8.5 m	+12.9%
» on R&D Program 3 (People Development)	$0.6 m	$0.8 m	–25.0%
» on 2001 Federal Budget Initiative-funded aquatic animal health	$1.1 m	$0.8 m	+37.5%
» on R&D of benefit to the commercial sector	$25.7 m (385 projects)	$18.8 m (353 projects)	+36.7%
» on R&D of benefit to the recreational sector	$3.2 m (164 projects)	$2.6 m (151 projects)	+23.1%
» on R&D of benefit to the customary sector	$0.3 m (47 projects)	$0.3 m (39 projects)	same
Benefits			
Return on R&D investment to the fishing industry for every dollar contributed to the FRDC	$3.85 (see note)	$4.45	–13.7%
Investment levered from other sources for every dollar invested by the FRDC	1.63	$1.61	+1.2%
Return on R&D investment for projects subject to benefit–cost analysis	9.5:1	See pp. 86–92 in last year's report	Comparison not valid
The wild-catch sector earned less and caught more (NB: fisheries statistics are for 2001–02 and 2002–03)	(2002–03) $1.55 bn for 205,000 tonnes	(2001–02) $1.77 bn for 192,000 tonnes	$: –12.5% t: +6.7%
The aquaculture sector earned slightly more and produced slightly less (NB: fisheries statistics are for 2001–02 and 2002–03)	(2002–03) $743 m for 44,000 tonnes	(2001–02) $733 m for 44,300 tonnes	$: +1.4% t: –0.7%
Total commercial sector production:	(2002–03) $2.30 bn for 249,000 tonnes	(2001–02) $2.43 bn for 237,000 tonnes	$: –5.3% t: +5.1%

Note: Since the return-on-investment figure compares investment during the year with returns from investments in previous years, it is vulnerable to distortion by changes in the amount of recent investment. The significant increase in contributions from the fishing industry during 2003–04 therefore distorted the figure downwards. Without this factor, the return on investment would have been comparable to that of 2002–03. The trend to increasing investment by the industry (a very positive development) will tend to artificially lower the apparent return for some years.



Other indicators

	2003–04	2002–03	
Number of applications evaluated	171	142	There are too many variables to make year-to-year comparison valid
Number of approved new projects	81	82	
Total number of active projects under management	494	485	
Number of final reports completed	122	90	
Median value of active R&D projects	$224,406	$206,577	

Directors' review of operations and future prospects: page 11.

R&D program reporting:

» the R&D investment model, page 36;
» natural resource sustainability, page 45;
» industry development, page 55;
» people development, page 71.

Management and accountability reporting, page 81.

Corporate governance, page 99.

Report of Operations

PART 1

The directors' review of operations and future prospects

Part 2, which describes the FRDC's operational and financial results, starts on page 35.

Part 3, describing corporate governance matters, starts on page 99.

The report of operations explicitly addresses section 9 of the *Commonwealth Authorities and Companies Act 1997* and includes material required by other legislation, particularly the *Primary Industries and Energy Research and Development Act 1989* and the *Environment Protection and Biodiversity Conservation Act 1999*.

Certificate concerning the report of operations

The directors of the FRDC are responsible, under section 9 of the CAC Act, for preparation of the following report of operations in accordance with the CAC Orders.

This report of operations is made in accordance with a resolution of the directors at their meeting of 9 August 2004.

The date of the report is 27 September 2004.

Denis Byrne
Chairman

The directors' review of operations and future prospects

Visits to industry are important in keeping FRDC directors up to date on important issues. Directors at a briefing at Lakes Entrance in June included, from left, Nick Rayns, Stuart Richey, Denis Byrne, Ian Cartwright, John Harrison and Peter Dundas-Smith — with Mr Tom Davies, Managing Director, Lakes Entrance Co-operative and Seafood Industry Victoria, third from left.

R&D demand is outstripping R&D supply

In previous annual reports, the directors have stated that the biggest challenge facing the FRDC is its inability to fund the R&D identified by end-users and other stakeholders as being critical to the future of the fishing industry and the natural resources on which it depends. Increasingly the need for such R&D is flowing from legislative requirements, through the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and other instruments, for the industry to prove its environmental performance.

The cost of this R&D is outgrowing the capacity of the FRDC's primary revenue source (which is based on the gross value of the industry's production[1]) to pay for it — and similarly the funding capacity of fisheries management agencies and other R&D funding institutions. Furthermore, the nature of this R&D tends to be more tactical than strategic; therefore, fisheries R&D for which there is a strategic need is being left unfunded.

1 Described on page 168.

The increasing cost of R&D to enable the industry to prove its environmental performance is outgrowing capacities to provide funding.

Recognising this growing divide between R&D demand and available funding, the Board this year established a new Board committee, the Business Development Committee, to undertake the difficult task of developing and implementing strategies to expand the Corporation's revenue.

This year, for the first time, industry contributions to the FRDC have exceeded the maximum level that the Australian Government will match.[2] Consequently, the main incentive for the industry to contribute more to the FRDC has softened. Further, with the lowering of the average gross value of production (AGVP) caused by lower export revenues, both the Australian Government's and the industry's contributions to the FRDC (where tied to the AGVP) will decline, during the next two years at least. (The wider context for this situation is discussed under 'Challenges for the FRDC' on pages 31–34.)

2 That is, 0.25 per cent of the three-year rolling average of the gross value of production.

The new Business Development Committee is therefore focusing on more innovative approaches to increasing the FRDC's investment capacity. One such approach would be to incorporate the value of recreational fishing in calculations of the average gross value of production — an action that was endorsed by the 2002 recreational fishing rights conference. A further approach to widening sources of investment is to enlist the support of the private sector, including philanthropic organisations.

One area that has not been given enough consideration by government departments is the possibility of appropriating additional R&D funding to address the immediate funding gap caused by the need to fund tactical R&D to support fisheries assessments required by the EPBC Act, as described above. Such funding could be allocated to the Corporation or to an appropriate Australian Government agency such as the Department of the Environment and Heritage.

For the FRDC's co-investors — mainly state government agencies — the options for raising investment in R&D are to increase government appropriation (which is unlikely) or to increase cost recovery from the commercial sector (which could have a direct impact on some sectors' viability). Establishing recreational fishing licences in those states and territories which currently do not have them is another way in which governments could raise more funds for R&D. The FRDC is increasing its efforts to derive more funding from non-traditional sources such as the Australian Research Council. Such R&D is likely to be more strategic than the foregoing.

Given that increasing expenditure alone will not ensure that high-priority R&D is addressed, the FRDC is therefore redoubling its efforts to ensure that R&D is competitive and delivered in cost-effective ways. Future investment in fisheries R&D will be even more sharply focused on meeting the knowledge needs of end-users — mainly fisheries managers.

Improvement in FRDC performance

Consistent with the FRDC's Total Quality Management philosophy, during the year the FRDC further improved its performance in areas that included project milestone management (with benefits for financial management of R&D), business management (increasing accountability at no extra cost) and corporate governance (ensuring best practice in compliance). These improvements are encompassed by the Management and Accountability Program reporting starting on page 81.

The directors' broad assessment of the FRDC's performance for the past year is summarised in **table 2**. Changes since last year are subtle, reflecting the fact that now the FRDC's weaknesses and strengths in planning, investing and managing R&D have been rigorously examined they are subject to continual improvement rather than radical change.

TABLE 2: THE DIRECTORS' BROAD ASSESSMENT OF THE FRDC'S PERFORMANCE, 2003–04

Key role	Weakness	Strength	Current status
Planning	» Stakeholders' R&D plans often comprise a "wish list" of R&D themes rather than reflect the output needs of end-users » R&D plans are often not well translated into projects » Determination of R&D priorities is often compromised by competing needs of involved parties and driven by the capacity of research providers » R&D providers are often left to develop priorities in the absence of end-user input	» Australian Government has provided clear guidance for the way in which its contribution to the FRDC should be invested » Long-term, strategically important challenges for the industry and the nation, identified by the FRDC, have been cited in other organisations' strategic plans » R&D strategies are in place for most key fisheries and fisheries management jurisdictions	» FRDC is encouraging FRABs to hold annual R&D planning workshops to identify the outputs (new knowledge, processes and technology) that end-users need » FRDC is developing a new five-year strategic R&D plan that will provide new focus on challenges confronting the industry and the nation in the next 20 years
Investing	» Voluntary nature of contributions to the FRDC results in contributors being more concerned about investment in R&D (= inputs) than its benefits (= outcomes) » Elements of the aquaculture sector require disproportionate funds in their current development phase, and in many cases there is no mechanism for these sectors to contribute to the FRDC » The AGVP on which the FRDC's revenue is based does not take into account the value of recreational fishing » About 40% of fisheries R&D investment is not managed by the FRDC or recorded on national databases, resulting in some duplication and loss of strategic insights	» Voluntary nature of contributions ensures FRDC puts high priority on accountability and good governance » FRDC is regarded as the leading agency for ensuring that Australia's investment in fisheries R&D is maximised » FRDC is increasingly influencing the way in which other funding sources are applied to fisheries R&D » FRDC Board is seen as independent and non-partisan » FRDC Board has rigorous evaluation procedures	» Industry contributions to FRDC from some states and sectors now exceed the amounts which the Australian Government will match » FRDC Board has formed a Business Development Committee to explore potential new income streams
Managing	» Monitoring R&D progress depends mainly on milestone reporting, resulting in a lack of real-time information » Conduct of R&D projects is often constrained by institutional work practices of research providers » Cost-effective methods for measuring adoption of results are lacking » Communication and extension needs further strengthening	» FRDC has effective working relationships with research providers » FRDC project management system, Fishbase, has developed as a key tool for managing R&D » Quality certification results in continual improvement of project management	» FRDC audits and better relationship management have helped research providers to improve their financial management practices » There is increasing awareness of the need to improve communication and extension improvements to achieve adoption that is measurable

During 2003–04 the FRDC's performance in planning, investing in and managing R&D improved on that of previous years. Reporting of performance was also continually improved.

[Effectiveness and efficiency reporting: Management and Accountability reporting, page 81.]

Assessment of the Board's performance

As part of the Corporation's practice of continual improvement, the Board has continued to actively seek ways to further enhance its performance. At the end of all Board meetings, directors now complete individual copies of a one-page evaluation of the Board meeting. Scores from the evaluation are used by the Board and the Secretariat to highlight areas that need improvement.

As in previous years, the Chairman also interviewed directors individually to identify concerns about the Corporation's operations and to devise means of addressing them.

Influences on the Corporation's performance

The Board has been acutely aware that evaluation of the benefits of fisheries R&D in Australia has been quite limited, as is the case internationally. The main reason, aside from the cost, is that there are very few recognised ways of measuring environmental benefits — as distinct from economic benefits (which are easier to measure than environmental) and social benefits (a little easier).

Recently, valuable information on R&D performance evaluation has started to become available from a PhD project by Alex Wells, a former FRDC staff member. Two surveys — spanning five years, more than 100 projects and more than 300 end-users — have shown that "the vast majority of end-users considered the FRDC's R&D projects to be valuable in terms of results, to be of high priority and to be meaningful for the fishing industry and/or the community". A majority also reported that objectives were achieved and results were adopted. Their overall impressions of projects and their benefits were positive. At the same time, they identified areas where improvements may be warranted, such as in communication between end-users and researchers, and in participation by industry. The study shows that end-users are much more likely to adopt results and consider the R&D to be of benefit if they are involved in project planning and development; communication is good throughout the project; the science is of a high standard; the researchers are well regarded; and, most importantly, R&D addresses an issue of high priority.

The Board will continue to give attention to these very important factors in the Corporation's performance. It will also continue its emphasis on the need for end-users of R&D[3] to be closely involved in identifying R&D priorities and in preparing R&D funding applications, including as co-investigators.

3 Usually, the end-users (as distinct from beneficiaries) of R&D outputs from the Natural Resources Sustainability Program (Program 1) are fisheries managers and from the Industry Development Program (Program 2) are the three sectors of the fishing industry. End-users from the People Development Program (Program 3) comprise the foregoing plus other people in the general community.

"The vast majority of end-users considered the FRDC's R&D projects to be valuable in terms of results, to be of high priority and to be meaningful for the fishing industry and/or the community."

— From a recent survey of end-users of fisheries R&D

Strategic directions for R&D investment

Based on extensive analysis of gaps in R&D coverage in conjunction with stakeholders and end-users, the Board has emphasised the following areas of national importance to ensure all sectors that use fisheries natural resources in a sustainable way and that seafood continues to be available to Australian consumers.

NATURAL RESOURCES SUSTAINABILITY

The FRDC has invested heavily in projects that will provide knowledge for the development of ecosystem-based fisheries management strategies and tools and the economic and social components of ecologically sustainable development.

The areas that the FRDC board considers are in need of greater attention are as follows:

» development of innovative, inclusive options for fisheries management that recognise the cost of (and the need for) varying levels of government involvement in fisheries management as reflected by large co-managed fisheries, full-cost-recovered fisheries, small fisheries, data-rich and data-poor fisheries) — for example, studies of fisheries suitable for self-management operating under an external auditing regime;

» development of innovative fisheries management options for managing recreational fishing, taking into account findings from the report of the October 2002 recreational property rights conference and the need to be able to measure recreational fishing effort at national and regional levels;

» development of customary[4] fishing and the need to measure customary fishing effort at national and regional levels (albeit this will be a very gradual process); and

» development of policy and innovative strategies to address non-compliance and organised crime.

4 Formerly referred to as traditional fishing; the FRDC has changed its terminology to accord with other organisations' usage.

INDUSTRY DEVELOPMENT (AQUACULTURE)

Key challenges for aquaculture development are being addressed by FRDC investment and the Australian Government's Aquaculture Action Agenda. However, increasing emphasis is needed on investment in aquaculture that is likely to contribute significantly to Australia's seafood production deficit in 2020, which is likely to be 80,000 tonnes. One way in which the tonnage of seafood could be increased is through inland saline aquaculture.

The FRDC, the National Aquaculture Council, the Aquaculture Action Agenda Implementation Committee and some state agencies have agreed to support a national approach to such planning and development, which is seen as essential.

Emphasis has also been placed on the need to identify and implement best practice in hatchery management as a means of improving productivity and helping to meet ESD requirements in relation to disease management, genetic integrity and the spread of feral fish populations.

INDUSTRY DEVELOPMENT (NON-AQUACULTURE)

Seafood Services Australia Limited has invested heavily in industry development activities relating to the wild-catch and post-harvest sectors. Further, the National Food Industry Strategy (funded by the Australian Government) has recently funded the National Seafood Export Strategy in collaboration with WA Fisheries and Seafood Services Australia. Together, these investments are addressing food safety, quality, product development, OH&S and trade development.

Seafood Services Australia has also been very successful in attracting previously unavailable funding as a consequence of its incorporation as a company limited by guarantee — particularly in relation to environmental management systems.

Likewise, the new company, Australian Seafood Co-products Pty Ltd, in which the FRDC has an interest, has attracted extra funds from commercial sources for trialling the performance of BioPhos (an organic fertiliser produced from fish processing waste) against other fertilisers.

In the interests of fisheries sustainability and better utilisation of protein, the use of fish wasted in the production process is also being emphasised, especially through retention of bycatch or discarding and through marketing matters relating to production costs and market prices.

PEOPLE DEVELOPMENT

The FRDC has steadily invested in leadership programs during the past decade involving the Australian Rural Leadership Program and more recently the *Advance in Seafood* Leadership Development Program. However, these programs do not develop industry leaders for the commercial, recreational and customary sectors in sufficient numbers to meet current and future needs. The Board is encouraging augmenting of these programs through a work placement scheme in which future industry or agency leaders would work in other areas of the fishing industry.

Future prospects

Considerable refinement in R&D planning, investment and management processes has occurred since the Corporation's establishment 13 years ago, and is one of the reasons for the gradual increase in industry contributions toward this year's achievement of 109% of the amount that is matched by the Australian Government. While higher contributions by industry are anticipated, the FRDC's prospects are nevertheless closely tied to its ability to increase R&D investment from new sources. All potential sources, such as the recreational sector of the industry and the private sector (including philanthropic organisations) are being evaluated as contributors.

PROMOTION INITIATIVES

The seafood industry, unlike other primary industries, has little capacity (through a marketing authority or otherwise) for generic promotion. The higher value of the Australian dollar, the outbreak of SARS and the strengthening of competition in overseas markets are increasing the need for the seafood industry to do more product promotion at the industry sector level — as distinct from enterprise level. A number of sectors are taking this view and are looking at ways to fund promotion. In response, the FRDC has taken the first steps towards gaining the legislative capacity to receive and manage sector levies for such promotion activities, much as it does for funding R&D.[5]

5 The FRDC has received strong support for the initiative from industry; however, the Government's legislative timetable may result in legislation not being in place until late 2005.

The future prospects for the fishing industry, for the natural resources on which it depends and for the FRDC are further discussed under the headings 'The strategic challenges' on page 30 and 'Challenges for the FRDC' on page 31.

Award for reporting of corporate governance

The FRDC enters annual reporting competitions each year to compare its achievement against other organisations and to further strengthen stakeholders' confidence in its governance.

In recent years the FRDC has worked hard to refine its corporate governance policy and practice in keeping with rapidly evolving developments in Australia and overseas. The success of these efforts has been reflected in the past three years by the FRDC being placed on a short-list of three for the special award for excellence in corporate governance reporting by Australasian Reporting Awards Inc. (ARA), which evaluates hundreds of annual reports from the public and private sectors in Australia and New Zealand. In May, the ARA awarded the Corporation the main prize for corporate governance reporting in the public (federal, state and local government) sector.

Winning top slot for any achievement has much to commend it, but for a public body to do so is especially important given the diverse nature of your organisation's activities and its vital impact on our community. I know also that often times achievements such as these are symptomatic of other good practices.

— Message to the FRDC from Mr Wayne Cameron, Victorian Auditor-General

Elements of the FRDC annual report were also singled out as examples of good practice in the review by the Australian National Audit Office and the Department of Finance and Administration, and were featured in the resulting report, *Better practice in annual performance reporting*, published in 2004.

FRDC Executive Director, Peter Dundas-Smith (left), receives the FRDC's award for the best corporate governance reporting in the public sector from Rob McLachlan at the Australasian Reporting Awards

Chairman Denis Byrne re-appointed

The directors were delighted to learn of the Minister for Fisheries, Forestry and Conservation's re-appointment of Denis Byrne, on 4 July 2004, as the Corporation's Chair. The period of appointment is for three years, until 31 August 2007.

People make the difference

The Board's sincere thanks go to the many people who during the year have provided advice, help and information in the cause of improving R&D throughout the various sectors of the fishing industry. The Corporation's ten staff members, working with dedication and professionalism, have given form to the Corporation's strategic directions by delivering excellent results. We particularly thank our Executive Director, Peter Dundas-Smith, for his leadership, initiative and skill in advancing the Australian fishing industry through R&D.

For their consistent support during the year we are also grateful to the Australian Government Minister for Agriculture, Fisheries and Forestry (the Hon. Warren Truss, MP); the Parliamentary Secretary to the Minister (Senator the Hon. Judith Troeth); the Minister for Fisheries, Forestry and Conservation (Senator the Hon. Ian Macdonald); and their respective advisers. The willing assistance of the Secretary of the Department of Agriculture, Fisheries and Forestry (Mike Taylor) and his staff, and of members of the Fisheries Research Advisory Bodies, has been invaluable.

Finally, on behalf of all beneficiaries of the Corporation's R&D investments, we extend thanks to the federal, state and Northern Territory governments, and to the fishing industry (particularly those sectors contributing more than the amount that is matchable by the Australian Government), for their financial support of the Corporation's vital role.

The FRDC's business environment

This section covers:

A comprehensive description of the FRDC's business environment is included in the Corporation's R&D plan (*Investing in tomorrow's fish: the FRDC's research and development plan, 2000 to 2005*). The plan describes fisheries natural resources, the fishing industry today, and the outlook for the next 20 years. It also lays down, against the business environment, the FRDC's planned outcomes for the period 2000 to 2005, and strategies for achieving them. The way in which the FRDC plans, invests in and manages fisheries R&D is also described.

The following is based on selected parts of the business environment chapter of the R&D plan, as updated.

A summary of Australia's fisheries resources, their users, Australian seafood production and trade, Australian seafood consumption and industry contacts is in the booklet *From Antarctica to the tropics: a snapshot of the Australian fishing industry 2003*, available from the FRDC.

Australia's fisheries natural resources

For more information on fisheries natural resources, please refer to pages 29–46 of the FRDC's R&D plan.

Australia's exclusive economic zone, which extends 200 nautical miles from the baseline of our continent and our island territories, is the third-largest in the world, covering about 11 million square kilometres: one-and-a-half times the area of Australia's land mass. It contains a diverse range of aquatic species — about 4,500 known species of finfish (in addition to perhaps tens of thousands of invertebrate species) — most of which occur in relatively small volumes. About 800 marine and freshwater seafood species are caught and sold in Australia (under about 350 marketing names) for local and overseas consumption. Most known species are at or near full exploitation; several have been over-exploited.

Although Australian waters are particularly rich in invertebrate species (including Crustacea), the nutrients and plankton produced in Australian ocean waters do not support high-tonnage finfish catches such as those of New Zealand. Consequently, Australia's commercial catch ranks 52nd in the world, representing only 0.2 per cent of world tonnage.

One fishery — the South East Fishery — consistently has high tonnages relative to other Australian fisheries. However, it is very small by world standards. In 2002–03, it produced about 30,500 tonnes. Included in that catch was 8,800 tonnes of blue grenadier. By contrast, the New Zealand catch of the same species (called hoki) was about 185,000 tonnes.

The low production capabilities of Australia's wild fisheries give little opportunity to increase tonnages, yet local and international demand for seafood is set to grow substantially. This situation underlies the strategic directions for Australia's fishing industry, especially the commercial sector.

Nutrients and plankton in Australian ocean waters do not support high-tonnage catches of finfish as in other nations' waters.

The over-arching significance of ecologically sustainable development

The Australian community has become increasingly aware of the need to protect marine, estuary and river ecosystems, and to maintain biological diversity in ecosystems that support fisheries. There is growing awareness of the influences of the various uses of fisheries, and of the need for ecologically sustainable development (ESD) — in essence, development that aims to meet the needs of Australians today while conserving ecosystems for the benefit of future generations.[6] To do this, the environmental resources that form the basis of our economy need to be used in a way that maintains — and where appropriate restores — their range, diversity and quality. At the same time, those resources need to be used to develop an economy that constantly seeks to improve its efficiency and productivity. ESD is therefore not simply concerned with optimal resource management but with the full spectrum of factors involved in sustainable economic, environmental and social development.

6 The definition of ecologically sustainable development nominated by the National Strategy for Ecologically Sustainable Development, 1992, is: Using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased.

ESD presents one of the greatest challenges to Australia's governments, industries, businesses and the community. In particular, an effective level of progress towards ESD requires a strong economy and a vigorous, profitable commercial sector. Businesses that are struggling for economic survival have limited ability to implement continual improvement of their environmental performance.

Setting sustainable levels of fishing has been central to fisheries management and science for a long time. The concept of ESD, however, is far broader than the traditional focus on yields derived from target species. This complexity poses difficulties for fisheries managers, partly because of the poor understanding of how fisheries ecosystems work and how they are affected by use or other disturbance or activity.

Ecologically sustainable development is a vital concept that spans the economic, environmental and social dimensions of our existence.

The fishing industry today

For more comprehensive information on the fishing industry, please refer to pages 47–69 of the FRDC's R&D plan

The three sectors of the fishing industry

The fishing industry includes any industry or activity conducted in or from Australia concerned with taking, culturing, processing, preserving, storing, transporting, marketing or selling fish or fish products.

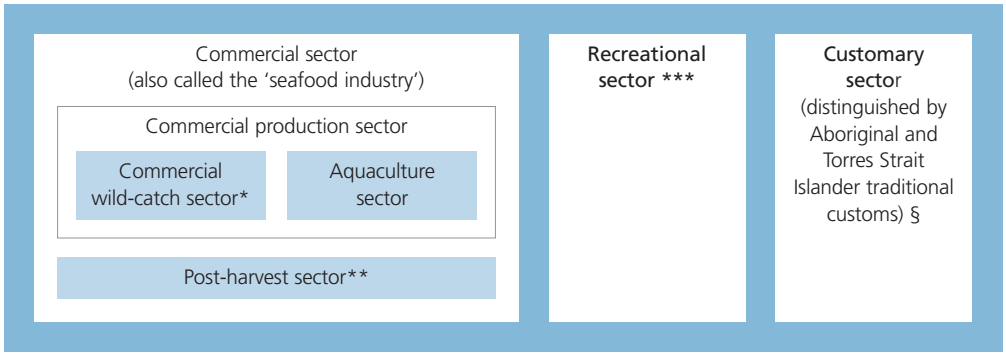
As **figure 3** shows, there are three principal industry sectors:

» *The commercial sector* comprises enterprises and individuals associated with wild-catch or aquaculture resources and the various transformations of those resources into products for sale. It is also referred to as the "seafood industry", although non-food items such as pearls are included among its products.

» *The recreational sector* comprises enterprises and individuals associated — for the purpose of recreation, sport or sustenance — with fisheries resources from which products are derived that are not for sale.

» *The customary sector* comprises enterprises and individuals associated with fisheries resources from which Aboriginal and Torres Strait Islander people derive products in accordance with their traditional customs.

FIGURE 3: COMPONENTS OF THE FISHING INDUSTRY



* The recreational and customary sectors also use the wild-fish resource.

** Includes importers of seafood harvested overseas.

*** Includes charter boat operation.

§ In addition to fishing and shell-collecting in accordance with their traditional customs, Aboriginal and Torres Strait Islander people also pursue recreational fishing (that is, not using customary practices), subsistence fishing (following customary or recreational practices), and commercial fishing.

Fish, in the broadest sense (which is the only context in this publication), are living aquatic vertebrate and invertebrate organisms, including marine mammals and reptiles, and such organisms after they have been harvested.

Commercial sector

The commercial sector of the fishing industry comprises wild-catch, aquaculture, processing, storing, transporting, marketing and selling activities. The sector is a very large business that supports many people's livelihoods and lifestyles. Australian seafood is an integral component of our international image as a clean and environmentally responsible country with an enjoyable climate, innovative cuisine and cosmopolitan culture. Many rural and regional communities depend partly or substantially for their economic viability on prosperous commercial fishing enterprises.

RECENT COMMERCIAL PRODUCTION

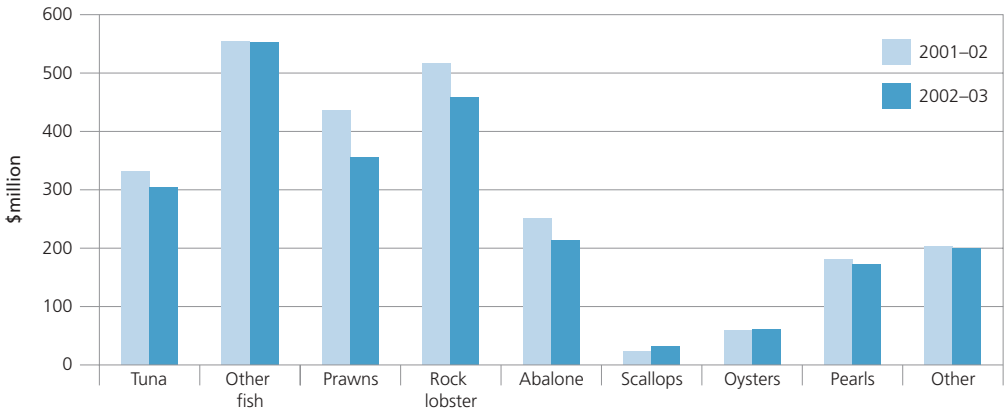
More information on production is in *Australian Fisheries Statistics 2003*, published by the Australian Bureau of Agricultural and Resource Economics and available as a free download from http://abareonlineshop.com/product.asp?prodid=12674

In 2002–03, the seafood industry was Australia's fourth most valuable food-based primary industry — after beef, wheat and milk — contributing about 7 per cent of the gross value of Australian food production.

The $2.3 billion seafood industry is Australia's fourth most valuable food-based primary industry.

Fisheries production rose by 4.9 per cent in 2002–03 to 249,000 tonnes. However, with falling prices (unit values) for many species (see **figure 4**), the gross value of Australian fisheries production fell by 5.5 per cent to $2.3 billion ("landed value" — that is, before value-adding). Indications are that this downward trend will be maintained during 2004–05.

FIGURE 4: GROSS VALUE OF PRODUCTION BY SPECIES (WILD-CATCH AND AQUACULTURE)

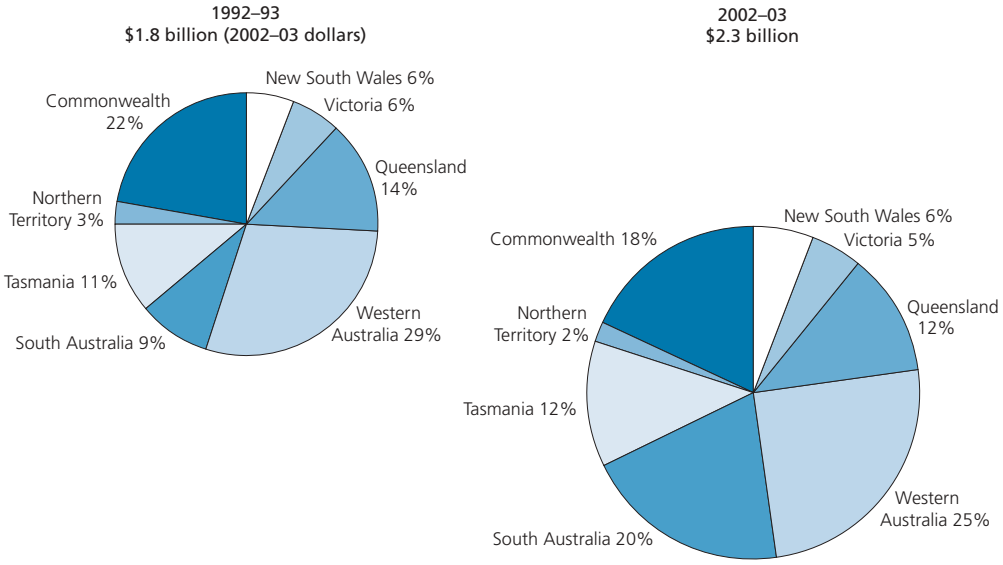


— Source: *Australian Fisheries Statistics 2003*, page 1

The gross value of Australian finfish production (both wild-catch and aquaculture) declined by 1.4 per cent in 2002–03 to $857 million. The gross value of crustacean production (wild-catch and aquaculture) fell by 12 per cent or $123 million to $873 million. The gross value of mollusc production declined 3.1 per cent, from $540 million to $523 million.

A comparison of the landed value of commercial wild-catch and aquaculture in 2002–03 and ten years earlier is shown in **figure 5**.

FIGURE 5: VALUE OF PRODUCTION (WILD-CATCH PLUS AQUACULTURE), 1992–93 AND 2002–03

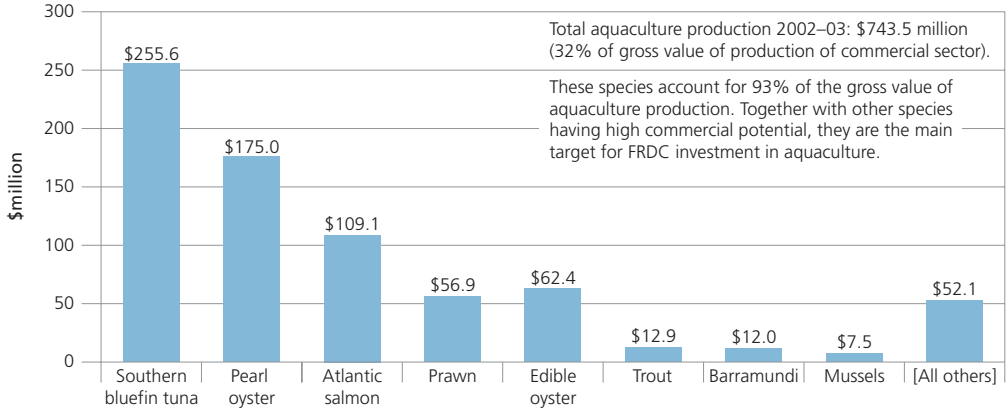


— Source: *Australian Fisheries Statistics 2003*, page 3

Aquaculture is one of Australia's fastest-growing primary industries. The sector aims at the premium end of the market because high production costs militate against high-tonnage, low-value production. Since 1992–93, the real value of aquaculture production more than doubled from $331 million (in 2002–03 dollars) to $743 million in 2002–03. This represents an annual rate of growth of 11 per cent in nominal terms and 8 per cent in real terms. Since the gross value of production for wild-catch grew at a far lesser rate than this, aquaculture's share of the total gross value of production increased from 17 per cent in 1992–93 to 32 per cent in 2002–03.

The major sectors contributing to this growth are those of the eight species shown in **figure 6**, which account for 93 per cent of the total gross value of aquaculture production. If pearl oysters are removed from the list, the remaining seven (edible) species account for 96.4 per cent of the weight of Australian farmed seafood.

FIGURE 6: THE EIGHT MOST VALUABLE AQUACULTURE SPECIES



— *Australian Fisheries Statistics 2003*, table 16

More information on the commercial wild-catch and aquaculture sectors' production, exports and employment is on pages 57–63.

THE PUSH TO SUSTAINABILITY AND HIGHER QUALITY

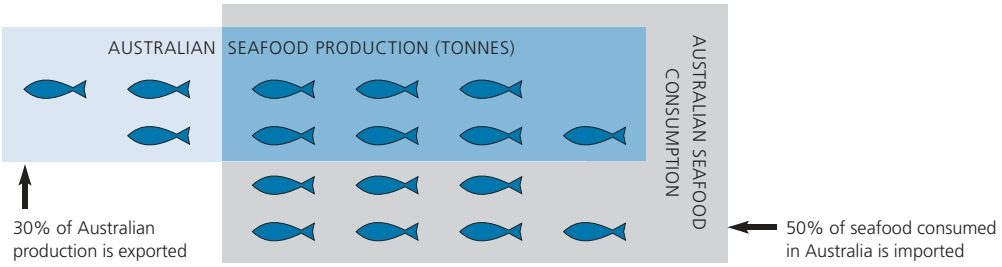
Commercial wild-catch fishing and aquaculture activities take many forms. In rural and coastal communities they are a major source of employment and often provide robustness to communities whose economic prosperity would otherwise be in question. They contribute strongly to export growth.

Increasingly, leading enterprises in the commercial wild-catch sector are adopting environmental and quality management systems and are focusing strongly on seafood quality. The most successful enterprises in the commercial sector recognise that higher long-term incomes will be derived not from increasing tonnages but from increasing value from sustainable catches. Accordingly, they are improving handling, packaging and product differentiation and are focusing on the premium end of the market. They are marketing more efficiently by opening up new markets and developing niche products. These improvements have generally produced better returns on investment and higher environmental and social sustainability.

Continual emphasis on high quality of its seafood is the "driver" that will maintain Australia's favourable reputation in the long term.

As shown in **figure 7**, about 70 per cent of the total tonnage of national seafood production is eaten within Australia. However, since this non-export seafood production supplies only about half the seafood we eat, Australia is a net importer of seafood — especially from New Zealand, South Africa and South-east Asia. These products constitute a significant competitive factor for pricing and quality against Australian products.

FIGURE 7: RELATIONSHIPS BETWEEN AUSTRALIAN SEAFOOD EXPORTS, IMPORTS AND CONSUMPTION



More than 90 per cent of Australians eat seafood. Consumption is indicated by a 1999 Sydney survey, which showed total consumption of 15.3 kilograms per person per year. Increases in consumption since 1991 were 13 per cent total, 19 per cent out-of-home, and 8 per cent in-home. Increasing awareness of the health benefits of eating seafood, resulting from a number of recent research findings, is a strong factor in the increased demand for seafood.

Recreational sector

Recreational fishing is an important activity for about 3.4 million Australians who fish each year, as revealed in a major FRDC-funded National Recreational and Indigenous Fishing Survey completed during 2001–02 (project 1999/158). Although the rate of participation in fishing varies greatly among these people, the recreational sector of the fishing industry is nevertheless larger and more widely dispersed than in any other natural resource industry that supports a prominent commercial sector. Australians enjoy a wide range of recreational fisheries — inland, in estuaries, off beaches and in the seas. Recreational fishers harvest about 125 million fish, crustaceans and molluscs each year. For some species (such as King George whiting), the size of the recreational catch exceeds the commercial catch.

The National Recreational and Indigenous Fishing Survey showed significant economic benefits from recreational fishing. Recreational fishers were estimated to spend $1.8 billion per year on fishing-related items. Survey participants reported more than 45 different expenditure categories, of which boats and trailers ($940 million) was the highest, followed by travel associated with fishing ($395 million) and fishing gear ($182 million).

Other studies have shown that significant economic benefits from recreational fishing flow to many regional areas — including jobs in the tourism, tackle, boating and charter industries. Charter boats support game fishing, estuarine, coastal and inland fishing, skin-diving and whale-watching activities, and there is a diverse boat-hire and service industry. These industries support others. For example, of the 3.8 million international tourists visiting in 1996, some 12 per cent (450,000) participated in diving activities, 3 per cent (115,000) participated in fishing activities, and 2 per cent (75,000) in whale-watching.

For some species, the size of the recreational catch exceeds the commercial catch.

For most people, the major reason for recreational fishing is relaxation. Obtaining fish for food is a lesser, though important, consideration. Many recreational fishers place the benefit of experiencing fishing well above the benefit of making a catch.

In addition to their value as sources of food, fisheries resources are valued by the community in many other ways. For example, they have values deriving from people knowing that the environment and the diversity of species are maintained and that fisheries resources exist. The aquatic environment is increasingly being used by people — particularly tourists — who do not capture the resource but simply enjoy it. Similarly, many people place a very high value on being able to take their children fishing and knowing that the fish will be there for another generation. Many jobs supporting recreational fishing exist because of these values.

Competition for resource access between the recreational and commercial sectors has led elements of the one sector to lobby for greater access than the other sector. At peak body level there is a generally constructive approach to sharing fisheries resources and resolving common environmental issues. The recreational sector is advocating comprehensive collection of data on economic, environmental and social dimensions of fisheries on which to base decisions for the common good.

Customary sector

Aboriginal and Torres Strait Islander people have developed a close, interdependent relationship with the land, water and living resources of Australia through customary fishing practices over tens of thousands of years. That relationship includes customary rights and responsibilities of particular indigenous groups to particular areas of land, water and resources. Some of these rights and responsibilities are now recognised in Australian common law and through native title legislation.

Many Aboriginal and Torres Strait Islander people share traditional marine and freshwater foods among extended families. This practice helps to continue the customary relationship between indigenous people and their environments, and to strengthen their ties of kinship.

Customary fishing is increasingly being addressed in fisheries management plans. Fisheries legislation provides varying recognition of native title fishing rights, in many cases without specifying what those rights may be.

In some Australian jurisdictions, Aboriginal and Torres Strait Islander fishers are exempt from fisheries regulations when they fish according to customary laws and traditions. These exemptions typically apply only to subsistence fishing.

Customary fishing is increasingly being addressed in fisheries management plans.

Since the 1992 decision by the High Court of Australia in the Mabo case, which recognised the existence of native title in Australia, there has been increasing impetus for implementation of indigenous access to fisheries. A 1999 High Court decision confirmed that Aboriginal and Torres Strait Islander people may claim a right under native title to hunt living resources according to local customary law. This decision has implications for recognition of indigenous people's rights and interests in fisheries management. A 2001 High Court decision confirmed that native title rights to areas of sea and marine resources continue to exist where Aboriginal and Torres Strait Islander people have retained their traditional relationship with their sea country. Marine native title rights, however, must coexist with other existing rights, which will prevail wherever conflicting rights occur.

The contribution of subsistence activities to indigenous domestic economies varies between regions, and between families within regions. Whatever the economic contribution or methods used, these activities retain important cultural significance. In southern Australia, many Aboriginal people combine working in mainstream jobs and living in cities or towns with maintaining these cultural practices. Research in southern coastal New South Wales has shown that up to 90 per cent of Aboriginal adults regularly collect fish and shellfish from the sea and sea-lakes of the region.

In addition to fishing using customary and recreational methods, Aboriginal and Torres Strait Islander people also fish commercially. Some Aboriginal groups have developed their own aquaculture enterprises, sometimes as joint ventures with established companies; others have obtained commercial wild-catch fishing licences.

During 2003–04 the FRDC participated in meetings convened by the National Native Title Tribunal at which indigenous bodies, government agencies, and national commercial and recreational industry sector interests were also present, to discuss strategies to establish Aboriginal and Torres Strait Islander fishing rights. A stakeholder group enunciated a set of general principles to guide the future development of fishing strategies within the sustainability limits that currently apply to all other stakeholders. The related policies are intended to be pursued in preference to litigation in the interests of Aboriginal and Torres Strait Islander people having lasting recognition of customary fishing practices and deriving increased opportunities for economic participation in fisheries-related enterprises.

The strategic challenges

The FRDC continually reviews its assessment of it business environment to ensure that the Corporation continues to focus on R&D of the highest priority. The assessment includes an analysis of the factors most likely to be important for the economic, environmental and social resources of the three main sectors of the fishing industry, and for the Australian community, during the next 20 years. In its most recent review of its business environment, the FRDC took into account the results of a recent forecasting study by an Australian university team and another by the Food and Agriculture Organization of the United Nations.[7] As a consequence, the Corporation has identified six strategic challenges against which it will evaluate its future R&D portfolio.

7 FRDC project 1999/160, 'Assessing Australia's future resource requirements to the year 2020 and beyond: strategic options for fisheries', conducted by the University of Canberra (Bob Kearney, Barney Foran, Franzi Poldy and Don Lowe) — a summary published in 2003, *Modelling Australia's fisheries to 2050: policy and management implications*, is available from the FRDC or its website (www.frdc.com.au /bookshop/index.htm). *The state of world fisheries and aquaculture*, Food and Agriculture Organization on the United Nations, Rome, 2002, ISBN 92-5-104842-8, is available at www.fao.org/docrep/005/y7300e/y7300e00.htm

The fishing industry has widely accepted the strategic challenges resulting from the FRDC's 20-year forecasts as key points of focus.

The six strategic challenges are as follows:

» Improve the sustainability of natural resources supporting wild-catch and aquaculture.
» Meet long-term demand for fish and fish products.
» Increase the value and social and economic return of fish and fish products.
» Increase the efficiency of businesses and other entities in the fishing industry.
» Meet long-term demand for people who will help the fishing industry to meet its future needs.
» Increase community support for the fishing industry and the natural resources on which the industry depends.

These six challenges are the prime points of focus in working towards the planned outcomes of the FRDC and its R&D partners. They therefore underpin the comprehensive R&D program reporting on pages 45–79 and the reporting against Australian Government priorities on pages 42–44 and in appendix D.

Discussion of the R&D investment model and current factors in delivering the three R&D programs, including integration of planned outcomes with legislative, government and industry priorities, starts on page 36.

Challenges for the FRDC

R&D demand factors

Demand for FRDC investment in R&D is growing strongly because of increasing acknowledgement of the foregoing challenges and preparedness to address them. Legislation, reflecting higher expectations of the Australian public, is also creating significant demand for fisheries R&D.

Translating these demands into R&D projects is challenging because (particularly with wild-catch production):

» fisheries managers and the fishing industry often have conflicting views on R&D priorities, and generally the industry does not have the resolve or organisation to advocate R&D priorities for the industry;
» existing fisheries research capacities are dominated by biological disciplines, which strongly influences the nature of R&D — in particular, directing R&D away from economic and social topics;
» many researchers are not sufficiently in touch with their stakeholders — and particularly the end-users of R&D outputs;
» many fisheries research institutes are driven by the need to gain access to external funding, which gives rise to a focus on cash rather than outcomes in their R&D planning; and
» the FRDC is under increasing pressure to fund a share of the cost of R&D infrastructure such as research vessels.

Funding supply factors

Competing pressures for public sector funds limit R&D expenditure by the federal, state and territory governments. It is likely that governments will do no more than maintain current levels of investment in fisheries R&D, resulting in increasing demands being placed on the FRDC. Consequently, the FRDC needs to expand its revenue base to maximise investment in fisheries R&D by:

» providing increased incentives for fishers and aquaculturists to contribute to the FRDC above the limit to which the Australian Government will provide matching contributions;

» providing a mix of arrangements to facilitate contribution, such as levies (compulsory and voluntary) underpinned by legislation or memoranda of understanding;

» expanding the definition of gross value of production to recognise the economic value of the natural resources used by the recreational and customary sectors;

» providing increased incentives for other users of fisheries resources to contribute to the FRDC; and

» assuming a more commercial approach to the sale of knowledge, processes and technology.

By assuming a strong national leadership role in fisheries R&D, the FRDC is obtaining better results for its stakeholders' investments.

Further, the FRDC needs to continue to develop flexible approaches to ensure that the most cost-effective arrangements are pursued on behalf of stakeholders. Therefore, although the competitive annual R&D cycle will remain the primary avenue for FRDC funding for the foreseeable future, the Corporation will need to employ other avenues, including by:

» commissioning research providers to undertake specific R&D,

» forming collaborative research teams (such as managed subprograms) to undertake specific R&D,

» requesting tenders for specific R&D, and

» supporting the formation of entities for effective commercialisation.

Other factors

In making decisions about the FRDC's R&D investment portfolio, it is very important to strike the right balance in satisfying the varying needs of stakeholders, especially those who contribute substantially to the Corporation's revenue base. Such a balance would be helped by being able to distinguish clearly between private benefit and public good. In practice, as described in the panel opposite, in fisheries R&D the distinction is blurred.

A distinguishing feature of fisheries R&D — public good and private benefit are inextricably linked

The FRDC's funding arrangements call for a balanced R&D portfolio relevant to the sources of investment and the objectives of each source.

However, that implies a distinction can be made between public good and private benefit. In practice, in fisheries research relating to the commercial wild-catch sector, public good and private benefit are inextricably linked, from catching to marketing. In the recreational and customary sectors, any private benefit is likely to be derived only indirectly — mainly by enterprises that support the sectors' activities.

The large public good component in most fisheries R&D flows from the fact that the Australian Government's stewardship role in relation to fisheries resources is exercised on behalf of the Australian community. The commercial sector of the fishing industry targets renewable, though limited, resources; and it shares the resources and its operating environment with other users to a greater degree than other primary industries. The proportion of public good flowing from fisheries research is high, and the private benefits derived are inseparable from the public good component. Compared with land-based resources, knowledge of fisheries resources is poor, and acquiring such knowledge is slow and expensive. In the interests of the community, these characteristics direct most fisheries R&D towards the public good.

Although the public good component is more obvious in the FRDC's Natural Resources Sustainability program, the Industry Development program also aims to achieve the public-good objective of relieving pressure (directly or indirectly) on wild fisheries resources. At the same time, the Industry Development program helps to meet a growing demand for seafood (for example, through aquaculture) and for lifestyle benefits through recreational fishing. It also satisfies cultural needs through customary fishing of Aboriginal and Torres Strait Islander people. Other public good benefits, such as increased employment, also derive from this program.

In achieving this balance, the FRDC as far as practicable ensures that its R&D investment is of direct relevance, within a five-year period, to the fishery, industry sector, or state / territory in which funds were collected.[8] Also as a consequence of its focus on the needs of end-users, a high proportion of activity is applied R&D — both short-term and long-term — although basic research is also funded.

8 This practice also complies with a ministerial direction issued under section 143(1) of the PIERD Act, which is summarised on page 122.

The FRDC not only needs to balance its investments in R&D; it needs to provide sufficient resources to maintain capabilities for effective management of projects. For that reason, the FRDC devotes a significant proportion of funds to project development, technology transfer and commercialisation, and evaluation.

Higher accountability to the Australian Government for achievement of outcomes requires increased effort in identifying and measuring outcomes, as discussed on page 40.

Increasingly, innovation is based on effective use of knowledge, as distinct from originating new knowledge. The FRDC is continuing to encourage this process.

A key need is to tap into wider sources of funding for fisheries R&D.

An important strategic consideration is that Australia's investment in R&D (all R&D, not just fisheries) is 2 per cent of the world total. Making use of the other 98 per cent is essential.

Development of systems for managing knowledge is increasing (for example, more outputs of fisheries R&D are being delivered via the Internet very soon after discovery) and the time-lag between discovery and adoption is decreasing accordingly. The FRDC is making maximum use of this development.

Management of intellectual property is becoming more challenging. The FRDC accepts that it must be increasingly accountable for its expenditure of public funds and at the same time protect the commercial interests of its commercial partners.

Access to comprehensive, sound data and information is a prerequisite for developing policy, law and procedures in support of sustainable fisheries management. With increasing rates of change in information technology, there is a need for improved storage methods to ensure that aquatic data and information remains available for future use. This needs to be prepared collaboratively with other nations because of the international linkages in fisheries management.

The FRDC's management response

Faced with limits to government funding, the FRDC is vigorously pursuing new ways to maximise Australia's investment in fisheries R&D.

Given the foregoing, the FRDC seeks to maximise Australia's investment in fisheries R&D by:

» providing leadership in fisheries R&D;
» investing in high-priority R&D that has the potential to deliver the highest benefits;
» making R&D results widely known, and facilitating their adoption and (if appropriate) commercialisation;
» expanding the FRDC revenue base to increase investment in fisheries R&D; and
» developing and maintaining effective, efficient, open and accountable management procedures and systems.

These factors constitute the strategies of Program 4 (Management and Accountability), described from page 81 onwards.

Report of Operations

PART 2

The FRDC's operational and financial results

This part of the report of operations covers:

Part 3, which deals with corporate governance, starts on page 99.

The R&D investment model

The prime focus: real outcomes for natural resources and the fishing industry

The FRDC's investment model is centred on:

» delivering outputs (the goods and services — mainly knowledge, processes and technology — that the FRDC and its R&D partners produce for external organisations or individuals)

» that help to achieve its planned outcomes (the results, impacts or consequences of actions by the FRDC and its R&D partners on the fishing industry and Australia's economic, environmental and social resources).

In essence, the FRDC's planned outcomes are things that will make a real difference to Australia's fisheries resources and fishing industry.

The concepts of outcomes and outputs, as used in the Australian Government's outcome-output accountability framework, are shown in the FRDC context in **figure 8**.

The FRDC's efforts are focused on the actual impacts of R&D on the Australian economy, environment and society.

Integration of planned outcomes with legislative, government and industry priorities

The FRDC focuses strongly on its planned outcomes when planning, investing in and managing its R&D outputs. They are integrated with legislative, government and industry priorities as follows.

The three R&D programs through which the FRDC delivers the outputs are based on the first three of the Corporation's legislated objects[9], which are essentially to:

» increase economic, environmental and social benefits,

» achieve sustainable use and management of natural resources, and

» make more effective use of human resources and skills.

The R&D programs also take into account guidance from the FRDC's stakeholders, namely:

» the Australian Government's national research priorities and priorities for rural R&D, and

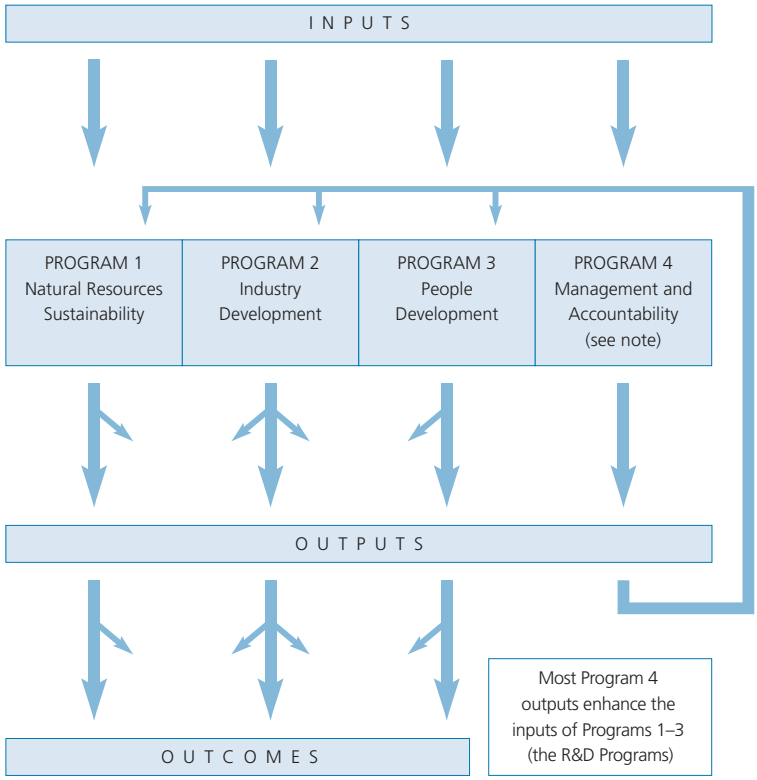
» the planned outcomes of the FRDC's two representative organisations — the Australian Seafood Industry Council (ASIC) and the Australian Recreational and Sport Fishing Industry Confederation (trading as Recfish Australia).

The relationships between these various elements are shown in **figure 9** on page 38.

9 The full text of the objects is on page 172. The fourth and final object — to improve accountability for expenditure — is the basis for the FRDC's Management and Accountability Program.

FIGURE 8: THE FRDC'S FOUR PROGRAMS: INPUTS, OUTPUTS AND OUTCOMES

Inputs are resources — in the form of people, expertise, materials, energy, facilities and funds — that the FRDC and its R&D partners use in activities to produce outputs.



Outputs are the goods and services (mainly knowledge, processes and technology) that the FRDC and its R&D partners produce for external organisations or individuals.

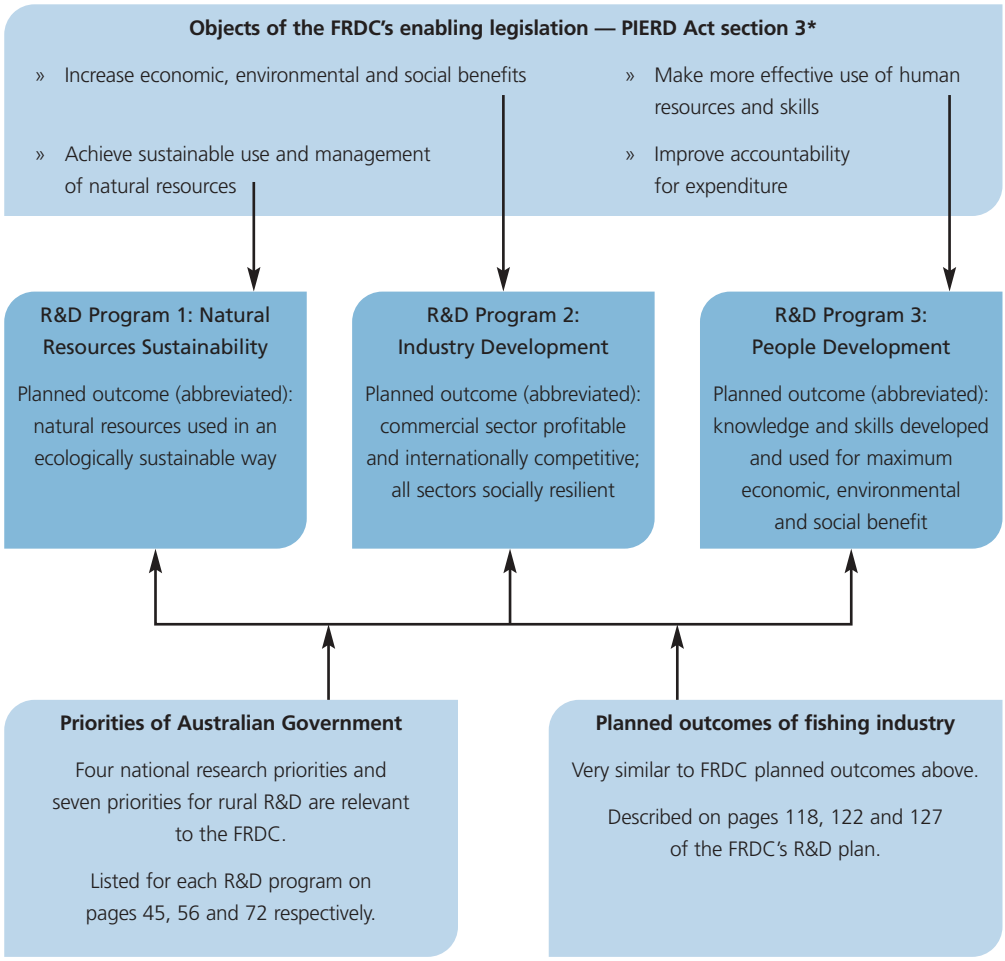
Outcomes are the results, impacts or consequences of actions by the FRDC and its R&D partners on the fishing industry* and Australia's economic, environmental and social resources.

* The main sectors of the fishing industry are the commercial, recreational and customary sectors, as shown on page 24.

Definitions in the diagram have been adapted to the FRDC context from *Specifying outcomes and outputs*, Department of Finance and Administration, pages 174–177, and take into account subsequent Web-based guidelines. They also take account of the letter of 11 January 1999 from the Parliamentary Secretary to R&D corporations that elaborated accountability arrangements for statutory authorities.

Note: The Management and Accountability Program does not have a planned outcome, because its function is to enhance the inputs of the three R&D programs. This program is the vehicle for continually improving the effectiveness and efficiency of the ways in which the FRDC plans, invests in and manages fisheries R&D. It is an important element in the FRDC's achievement of high standards of corporate governance. Reporting of this program starts on page 81.

FIGURE 9: THE FRDC'S FRAMEWORK FOR INTEGRATING LEGISLATIVE, GOVERNMENT AND INDUSTRY PRIORITIES



* Objects and outcomes are abbreviated in this diagram.

Many fisheries strategic plans (including those of the Fisheries Research Advisory Bodies) are based on the FRDC's planned outcomes or adaptations of them.

Review, planning and conduct of activities

The FRDC does not normally determine priorities for R&D at state, regional or fishery level. That task is carried out by the Fisheries Research Advisory Bodies (FRABs), managed subprograms and other priority-setting structures, as described on pages 136 and 140 of the FRDC's R&D plan. However, to ensure a balanced portfolio and to comply with directions of the Australian Government and the FRDC's representative organisations, the Corporation determines the balance between projects funded within the R&D programs. Accordingly, each year, the Corporation reviews its strategic assessment of the business environment, including through consultation with its representative organisations. The review may highlight actual or potential changes to the business environment that prompt the FRDC to adjust the balance — or to address gaps — in the R&D portfolio.

As a result of the FRDC's current strategic assessment of the business environment, the Corporation's funding targets for its R&D programs are:

» Program 1 (Natural Resources Sustainability): 60 per cent;

» Program 2 (Industry Development): 35 per cent; and

» Program 3 (People Development): 5 per cent.

THE ANNUAL R&D CYCLE

The PIERD Act and CAC Act determine the timing of most FRDC activities. An annual cycle (available from the FRDC's website, www.frdc.com.au, and in each July edition of *R&D News*) is used for planning and investing in R&D. Further details of the funding process are available in the R&D plan.

Achievement of outcomes through R&D outputs

As distinct from its obligation to invest in the most beneficial R&D, the FRDC has an obligation to foster the most effective and efficient transformation of outputs from that R&D into outcomes.

The FRDC's business environment is different from those of other rural R&D corporations. For example there is, uniquely, a very high component of public good in most fisheries R&D, as discussed on page 33. Another distinction is that whereas in the natural resources sphere the processes by which R&D outputs are taken up and applied to achieve outcomes are more diffuse than in most other R&D fields, in fisheries R&D they are even more diffuse.

The links between outcomes and the R&D inputs and outputs that achieve them are far from direct and linear: they are many and complex. In general, outcomes result when outputs are implemented by the fishing industry, fisheries managers and other end-users of R&D. These contributing outputs come from many sources, including R&D project outputs of previous years. Further, when there are several projects proceeding in a particular area of R&D, many project outputs become inputs to related projects. Such inter-relatedness becomes most apparent when the FRDC and its R&D partners communicate and extend R&D results to potential beneficiaries, both before and after projects are completed.

Despite the FRDC's rigorous focus on planned outcomes and the high degree of FRDC influence over outputs from R&D projects, the FRDC's investment in R&D is not, alone, sufficient to ensure that its planned outcomes are achieved. The Corporation is increasing the demands it makes on end-user to commit themselves to using R&D outputs. Quicker, more efficient adoption and commercialisation of R&D outputs has been enabled by new communication technologies and greater involvement of end-users throughout the innovation chain, commencing at the planning stage. End-users are frequently taking up appropriate R&D findings while a project is in progress, rather than after the final report is produced.

Quicker, more efficient adoption and commercialisation of R&D outputs has been enabled by new communication technologies and greater involvement of end-users.

The management processes for encouraging the transformation of R&D outputs into outcomes are focused by Program 4, Management and Accountability.

Identification and measurement of outcomes

Measuring achievement of outcomes in the wild fishery environment is more difficult and expensive than on land, posing large challenges for the fisheries R&D community in seeking to realise the huge potential benefits. To identify and measure R&D outcomes, the FRDC needs to work closely with end-users — particularly management agencies — to unravel fisheries decision-making processes. In this context the FRDC's inputs are significant but nevertheless "some among many", the "many" being mainly non-R&D factors — for example, economic, social and political.

The FRDC has an entire R&D subprogram dedicated to developing an ESD reporting and assessment framework incorporating sustainability performance indicators for fisheries so that the industry can meet its obligations under the *Environment Protection and Biodiversity Conservation Act 1999*. The Corporation is also using these indicators to measure the outcomes achieved through the 60 per cent of its investment that is directed to sustainability of natural resources.

The FRDC commissions about five full benefit-cost analyses on selected projects every year. The non-linear links between inputs and outputs, as outlined under the previous heading, make analysis complex and costly. Therefore, the Corporation is also constantly working towards better ways, short of full benefit-cost analyses, to identify and measure outcomes for all of its R&D outputs. The continually developing sustainability indicators for fisheries and the resultant fisheries status reports produced by management agencies are contributing significantly to this effort.

The FRDC is working with all other rural R&D corporations to identify ways to measure non-market benefits of R&D.

The Corporation's increased focus on strategic challenges

The next section of this report provides performance information on the FRDC's three R&D programs and Program 4, the Management and Accountability program. In addition to addressing various criteria shown in figure 9 (page 38), the R&D program reporting fulfils the requirements of section 516A of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).[10]

10 An outline of this section of the EPBC Act is on page 171.

Since last financial year, reporting of R&D program activities has been organised under strategic challenges — the factors that, during the next 20 years, will be the most important for the economic, environmental and social resources of the three main sectors of the fishing industry and for the Australian community. The result is more comprehensive and direct reporting than the previous structure of reporting based on strategies shown in the R&D plan. All R&D activities previously reported are covered by the new reporting.

The respective strategic challenges are shown in the diagrams showing the three R&D program structures on pages 46, 56 and 72.

All the year's R&D activities pursued the planned outcomes specified in the Corporation's 2000–2005 R&D plan. The planned outcomes are in accord with the objects of the FRDC's enabling legislation, as shown in figure 9.

During the year, all projected activities of the 2003–04 AOP were also implemented. In almost all of the activities, the FRDC achieved the levels of performance specified in the AOP.

Reporting criteria of the Australian Government and representative organisations

In recent years, the Australian Government has significantly increased the criteria against which its agencies conduct and report their activities — especially through enactment of the CAC Act and EPBC Act; introduction of the outcome-output framework; specification of national research priorities; and, in the case of rural R&D corporations, specification of priorities for rural R&D. These criteria are shown in the compliance index (page 216).

More comprehensive information on the criteria is available as follows:

» the CAC Act, PIERD Act and EPBC Act: Appendix B: Principal legislative requirements for reporting, on page 169;

» legislated objects, functions, statutory powers, ministerial powers: Appendix C: The FRDC's legislative foundation and the exercise of ministerial powers, on page 172;

» national research priorities: www.dest.gov.au/priorities/ (and http://dest.gov.au/priorities/s_s_humanities. htm for recent refinements); and

» priorities for rural R&D: www.frdc.com.au/links.

As shown in figure 9, R&D program activities take account of the Australian Government criteria and the planned outcomes of the FRDC's representative organisations — the Australian Seafood Industry Council and Recfish Australia. The Corporation liaises closely and frequently with these organisations and their various subsidiary groups and key individuals. Consequently, the Corporation's R&D activities and reporting are based on an intimate knowledge of industry requirements.

The year's achievements against Australian Government priorities

The FRDC's reporting of the principal outputs and outcomes of its R&D activities follows the structure of the R&D Programs. Additionally, to aid accountability to the Australian Government, the following two pages provide totals of expenditure against the Government's priorities and the project lists in appendix D include annotations showing the Government priority for each project. The keys to the annotations are on pages 175–176.

The Australian Government's national research priorities and rural R&D priorities largely coincide, with most differences arising from their focus respectively on all levels of Australian research and on R&D applicable to primary industries. To facilitate reporting, the main headings that follow are those of the priorities for rural R&D relevant to the FRDC, with related national research priorities being shown under them.

SUSTAINABLE NATURAL RESOURCE MANAGEMENT (also addresses national research priority: An environmentally sustainable Australia)

» Integrated, multi-disciplinary approaches to sustainable use and management of natural resources aimed at realising the long-term economic, environmental and social goals of the nation.

» Improved delivery of science and information for more sustainable and profitable fisheries management practices, including through helping the research community, industry and end-users to communicate better and work collaboratively.

2003–04 FRDC investment in this rural R&D priority: $19.5 million; in the associated national research priority: $19.4 million.

IMPROVING COMPETITIVENESS THROUGH A WHOLE-OF-INDUSTRY APPROACH

» A whole-of-industry approach to improving the production, processing, promotion and marketing of seafood, with a focus on lifting profitability at each step in the value chain.

» Support of the industry's capacity to innovate, optimise the price and quality of seafood products, and meet the expectations of consumers.

2003–04 FRDC investment in this rural R&D priority: $2.1 million.

MAINTAINING AND IMPROVING CONFIDENCE IN THE INTEGRITY OF AUSTRALIAN FISH PRODUCTS (also addresses national research priority: Promoting and maintaining good health)

» Enhancement of consumers' confidence in the integrity of Australian seafood.

» Leadership on food supply chain policies and food regulation reform, including through provision of good information, improved risk assessment and improved management of food-borne hazards.

2003–04 FRDC investment in this rural R&D priority: $0.2 million; in the associated national research priority: $0.5 million.

IMPROVED TRADE AND MARKET ACCESS

» Scientific and economic information to support market access negotiations.

» Knowledge concerning the impacts of increased competition on the international competitiveness and structure of the seafood industry and the associated social impacts on rural and regional communities.

In 2003–04, the FRDC did not invest in projects related to this rural R&D priority.

USE OF FRONTIER TECHNOLOGIES (also addresses national research priority: Frontier technologies for building and transforming Australian industries)

» New technologies, particularly biotechnology and genomics, that have the potential to significantly contribute to the sustainability and profitability of the seafood industry.

» Consumer-focused technologies, such as those involving nutraceuticals, which offer new market opportunities and the potential for wider public acceptance of biotechnology applications.

2003–04 FRDC investment in this rural R&D priority: $1.5 million; in the associated national research priority: $1.9 million.

PROTECTING AUSTRALIA FROM INVASIVE DISEASES AND PESTS (also addresses national research priority: Safeguarding Australia)

» Improved technologies and knowledge to prepare for, and mitigate, incursions by exotic pests and diseases.

2003–04 FRDC investment in this rural R&D priority: $1.5 million; in the associated national research priority: $1.5 million.

CREATING AN INNOVATIVE CULTURE

» Improvement of skills and abilities of the people in the fishing industry and the supporting scientific community.

» Furtherance of a culture of innovation in the interests of productivity improvements and adoption of R&D results.

2003–04 FRDC investment in this rural R&D priority: $0.4 million.

The FRDC's R&D programs, reported in the following chapter, address the Government priorities as shown in **table 3**, overleaf.

TABLE 3: GOVERNMENT PRIORITIES BY FRDC R&D PROGRAMS

This table shows the broad allocation of Australian Government priorities to the R&D programs. A small amount of additional spill-over between priorities and programs occurs, as reflected in the project lists in appendix D.

Code*	Priority for rural R&D	Program 1 (natural resources)	Program 2 (industry development)	Program 3 (people development)
Australian Government priorities for rural R&D				
R1	Sustainable natural resource management	✔		
R2	Improving competitiveness through a whole-of-industry approach		✔	
R3	Maintaining and improving confidence in the integrity of Australian agricultural, food, fish and forestry products		✔	
R4	Improved trade and market access		✔	
R5	Use of frontier technologies	✔	✔	✔
R6	Protecting Australia from invasive diseases and pests	✔		
R7	Creating an innovative culture			✔
National research priorities				
N1	An environmentally sustainable Australia.	✔		
N2	Frontier technologies for building and transforming Australian industries	✔	✔	✔
N3	Promoting and maintaining good health		✔	
N4	Safeguarding Australia	✔	✔	✔

* These codes are used to identify the national research priorities and priorities for rural R&D addressed by each project in the list of R&D projects at appendix D (page 175 onwards).

R&D PROGRAM 1

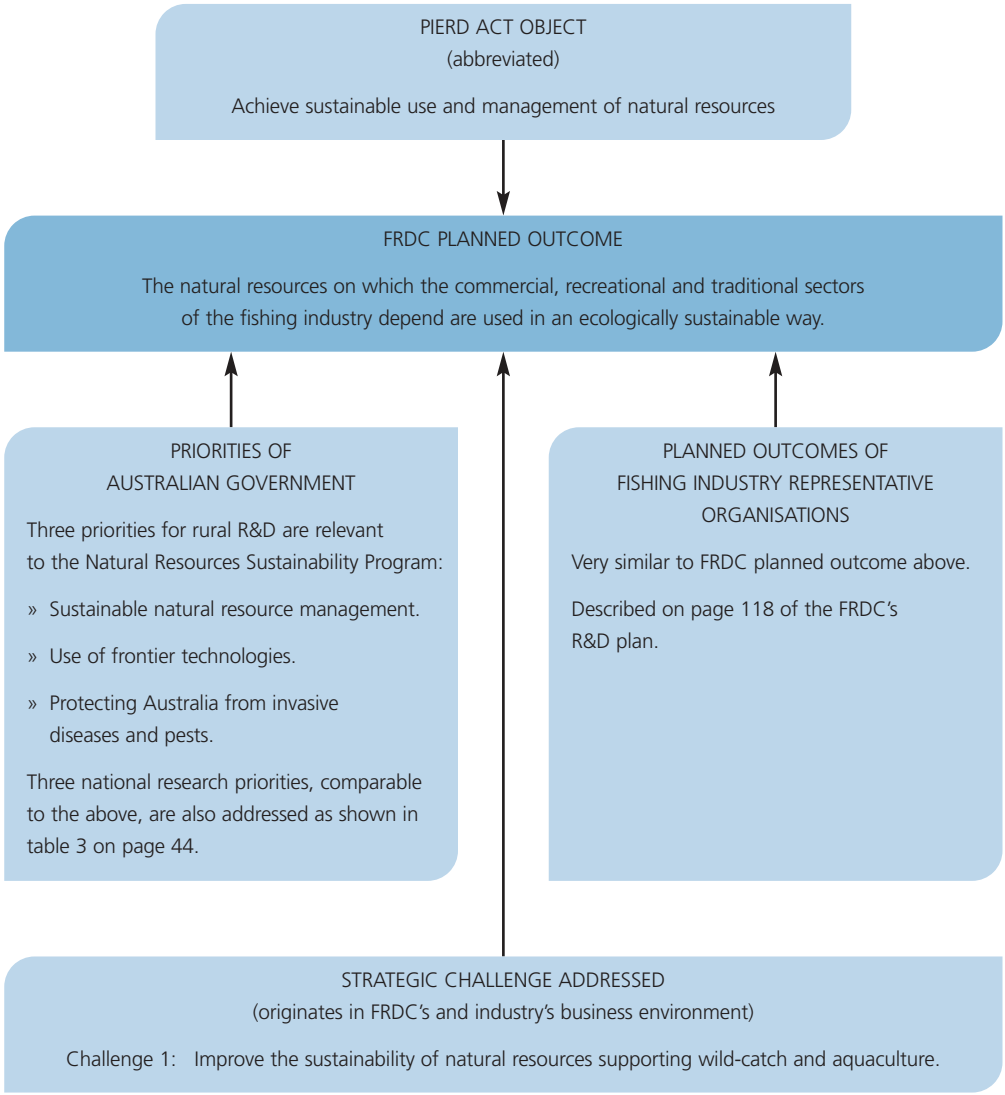
Natural Resources Sustainability

Reporting of the year's R&D activities is, for the most part, set out against the six main challenges arising from the FRDC's forecasts of the next 20 years.

The FRDC addresses these strategic challenges as it works towards achieving the planned outcomes for its three R&D programs.

Program 1: Natural Resources Sustainability

FIGURE 10: STRATEGIC ELEMENTS ON WHICH PROGRAM 1 IS BASED



Principal inputs

During 2003–04, $13.8 million (57 per cent of the FRDC's R&D investment) was invested in R&D activities within this program, through 183 projects listed in **appendix D** (page 175).

The FRDC also oversaw an additional $1.1 million of R&D funded for 35 aquatic animal health projects under the 2001 Federal Budget Initiative for Animal Health.

Principal outputs and outcomes by areas of FRDC investment to meet Strategic Challenge 1

CHALLENGE 1: IMPROVE SUSTAINABILITY OF NATURAL RESOURCES

IN RELATION TO FACTORS UNDER THE INFLUENCE OF RESOURCE MANAGERS, FISHERS OR AQUACULTURISTS: IMPROVE GOVERNANCE, POLICIES AND METHODS IN WILD-CATCH AND AQUACULTURE MANAGEMENT

1996/107 "Synthesis of existing data on larval rock lobster distribution in southern Australia" This project showed adult rock lobsters on the west coast of Tasmania can contribute to this fishery's recruitment against prevailing hypothesis that argued that larvae would move eastwards with the prevailing westerly currents. This project showed the importance of the east coast circulation pattern and its variability to southern rock lobster larval movement.

The "saying we are the sum of our parts" can be equally applied to the problem of managing fisheries in a sustainable manner. The Tasmanian rock lobster fishery has radically changed all aspects of its operation during the last five years, with science contributing to the different pieces of the puzzle.

The fishery used to be managed by input controls, and assessments of stock was based solely on what was caught. FRDC and its partners at TAFI and CSIRO have been instrumental in providing the science-based knowledge that has made this fishery one of the best examples of science, industry and regulators working in partnership to maximise the environmental, economic and social benefits for this fishery. Science is now considered a trusted and critical component of the decision-making process, where previously the fishers thought "boffins had no grasp on the reality that is fishing" in some of the most dangerous waters in the world.

A good example of how science has contributed to this fishery is in answering the question "Where do larvae go?". The old dogma was that rock lobster spawning off the coast of Tasmania had little impact on the subsequent local recruitment. The prevailing opinion was that when rock lobster released their larvae, this was the start of up to 18 months of an "ocean cruise"; rock lobster larvae at a minimum will remain as a larvae for 12 months and in most cases longer, so larvae released on the western coast of Tasmania would never return to where they were born. It followed that it was pointless protecting the parent stocks if the young come from ocean currents a long way upstream. This prevailing wisdom was easy to understand.

Using satellite tracking, computers models and improved understanding of larval biology and recruitment, the scientists in this project were able to show that eddies in the ocean systems adjacent to Tasmania could trap larvae for long enough that they could go through their 11 different life stages and finally swim ashore as young lobsters (puerulus) to start again where their parents began the cycle.

The Tasmanian rock lobster fishery has radically changed all aspects of its operation during the last five years.

The scientists were able to show that the rock lobsters' production of millions of larvae was capable of supporting local stocks. That is not to say that fishers elsewhere — such as in South Australia — should not contribute their share of larvae to the pool. The conclusion is that decisions at any geographic region affect future recruitment, and southern rock lobster stocks need to be seen in the wider context — not just at the jurisdictional management level. This conclusion convinced fishers that protecting breeding stock wherever they occurred was of paramount importance to a productive fishery. No longer would fishers believe that they were protecting stock just to see the larvae "washed away" to benefit their NZ colleagues across the ditch.

IN RELATION TO FACTORS UNDER THE INFLUENCE OF RESOURCE MANAGERS, FISHERS OR AQUACULTURISTS: REDUCE THE ADVERSE IMPACTS OF FISHING AND AQUACULTURE ON AQUATIC ECOSYSTEMS

CHALLENGE 1: IMPROVE SUSTAINABILITY OF NATURAL RESOURCES

Co-management has been part of Australian fisheries management for more than 10 years. Over that time it has had wins and losses as fishers and managers established how best to implement the partnership. The promise a decade ago was to link decision-making with the people who are on the water, in the best place to report how decisions are making the intended impact.

The Northern Prawn Fishery has been a leader in developing this partnership and using it to ensure a profitable and sustainable future for the fishery. During the past 10 years, this fishery has been at the forefront of innovation to ensure the fishery was managed sustainably, responded to community concerns and provided a healthy and profitable working environment. Some of the successes have included the mandatory introduction of turtle exclusion devices, which has seen turtle capture almost completely eliminated; agreement to not retain any shark species; introduction of bycatch reduction devices; and important spatial exclusions to protect important habitats.

Over this period the fishery has implemented a stock rebuilding program, in particular to improve the stocks of brown tiger prawns. This has resulted in difficult decisions: boat numbers have been significantly reduced, gear allocation reduced, and seasonal closures have had significant impacts on the social and economic wellbeing of the fishery. The Bureau of Rural Sciences (BRS) has consistently been reporting brown tiger prawns as "overfished" and reporting this component of the fishery as in the "red". However, as a result of scientific advice and improved data collection that had the co-management partners' confidence, the brown tiger fishery has turned the corner and it is likely that the next BRS status report will list the fishery as "fully fished" rather than "overfished". There is nevertheless a long way to go before the fishery meets not only its sustainability targets but also its maximum economic yield.

"The project has been extremely beneficial to managers, [the management advisory groups] and industry … it has provided an indicator that the grooved tiger prawn stocks are recovering and are no longer overfished but that brown tiger prawns do not appear to be recovering to the same degree."

— Annie Jarrett, EO Northern Prawn Fishery Management Advisory Committee

Fishers are aware that reducing bycatch and continually looking for better fishing practices to catch only target species is an important factor for long-term management.

CHALLENGE 1: IMPROVE SUSTAINABILITY OF NATURAL RESOURCES

IN RELATION TO FACTORS LESS ABLE TO BE INFLUENCED BY RESOURCE MANAGERS, FISHERS OR AQUACULTURISTS: REDUCE THE ADVERSE IMPACTS OF HUMAN ACTIVITY ON WILD-CATCH AND AQUACULTURE ECOSYSTEMS

1999/230 CSIRO Land and water inventory and assessment of Australian estuaries

Estuaries are often referred to as the "life blood of the coastal aquatic environment" for the essential role they play as nurseries and providing important nutrients for coastal waters. Most of the impacts on estuaries result from land-based activities that are not within the control of the natural resource management structures that manage fish and their habitats.

A partnership between the National Land and Water Audit, the Cooperative Research Centre for Coastal Zone Estuary and Waterway Management and FRDC has resulted in two important publications.

The first provided the first national assessment on the trends and condition of Australia's estuaries, and a suggested framework for strategic management of estuaries. This report found that of the 980 estuaries assessed were found to be:

» 50 % in near pristine condition,

» 22% in largely unmodified condition,

» 19% in modified condition, and

» 9% in extensively modified condition.

"Of all the world's ecosystems or biomes, estuaries provide by far the highest value in ecosystem services."

— Col Dyke, Little Swanport Estuary, in Where river meets sea: exploring Australia's estuaries

The report also made it clear that human activities were responsible for this change and that — for the modified and extensively modified estuaries — land-based activities needed to change urgently to restore these estuaries to their former productivity. Policies needed to change and human activities altered before these modified estuaries would be restored. This first report has provided a generational benchmark against which future management decisions can be measured.

Rather than putting the management of estuaries habitat in the "too hard basket" because it was outside the control of fisheries management, a landmark publication has been produced to complement the estuaries audit, showing how fishers and those who live on or around estuaries can make a difference. The book, titled *Where river meets sea: exploring Australia's estuaries*, provides case examples of how people are making a difference in the management of their estuaries. It has been written in a style that is both easy to read and informative — for those who know little to those who make their lives the sustainability of estuaries. The book is being actively promoted to convert as much knowledge as possible into tangible outcomes in estuaries.

Estuaries are dynamic coastal waterways where salt and fresh water mix. *Where river meets sea* describes the value and status of Australia's 974 estuaries.

CHALLENGE 1: IMPROVE SUSTAINABILITY OF NATURAL RESOURCES

IN RELATION TO FACTORS LESS ABLE TO BE INFLUENCED BY RESOURCE MANAGERS, FISHERS OR AQUACULTURISTS: REDUCE OR ADAPT TO THE ADVERSE IMPACTS OF FACTORS NOT INDUCED BY HUMANS ON WILD-CATCH AND AQUACULTURE ECOSYSTEMS

1996/285 "Identification of environmental factors, with particular reference to acid sulfate soil runoff, causing production losses in Sydney rock oysters"

Production of the Sydney rock oyster (*Saccostrea glomerata*) has experienced a significant downturn over the past 30 years due to a range of known and unknown environmental risk factors. Estuarine acidification, associated with drainage of acid sulfate soils, has recently emerged as a major environmental management problem in eastern Australia. This is significant for the oyster sector in eastern Australia, since it utilises reaches of estuaries that are fringed by rural and urban development on acid sulfate soils.

A blue acid plume clearly visible coming out of the mouth of the Hastings river.

Project 1996/285 was prompted by concerns from oyster farmers that acidic plumes, passing over once-productive oyster leases, were causing poor growth rates and increased mortalities in farmed Sydney rock oysters. Unexplained oyster mortalities in reaches of the Hastings River also led farmers to suspect that either an unidentified pathogen or declining water quality caused poor growth and lower survival rates on affected leases. Farmers had discounted many known causes of poor productivity because affected oysters did not present the clinical signs of diseases that normally cause poor growth and mortality. QX disease, a known cause of declining oyster productivity, was also putatively linked to acid on the assumption that acidity could increase susceptibility to this disease. Previous studies had discounted acid as a necessary factor but had not tested whether acid could increase susceptibility of individual oysters in QX-affected estuaries.

The study has confirmed that estuarine acidification, associated with drainage of acid sulfate soils, reduces growth rates and survival in Sydney rock oysters leading to significant production losses. The work has also demonstrated that acidification is not a factor in outbreaks of QX disease.

Drainage of acid sulfate soils into estuaries reduces growth rates and survival of most species, but in particular it has significant impacts on oysters.

The findings have raised greater awareness of the environmental and economic impacts of estuarine acidification, and have influenced environmental decision-making at local and state government levels. The oyster sector is now recognised as an important stakeholder in the management of acid sulfate soils and their impacts. Reactive and proactive strategies to manage acidification now consider impacts on the oyster sector, whereas before the study the sector's concerns and needs were largely ignored. The sector is now represented on key management and advisory committees responsible for management of acid sulfate soils. The research has enabled oyster farmers to minimise stock losses through improved risk and stock management in parts of the estuary affected by acidification. The study has provided a basis for more accurate diagnosis of acid-related oyster mortalities and important baseline information for environmental impact assessment in coastal development.

Summary of final reports received for Program 1

Strategic challenge	No. of projects 2003–04	FRDC investment 2003–04
Challenge 1: Improve the sustainability of natural resources supporting wild-catch and aquaculture	56	$11,268,058

New publications resulting from Program 1

The FRDC also published, or co-published in partnership with other organisations:

» (With many collaborating partners) *Implementation of the National Recreational and Indigenous Fishing Survey*.

» (With Department of Fisheries Western Australia) *National application of sustainability indicators for Australian fisheries*.

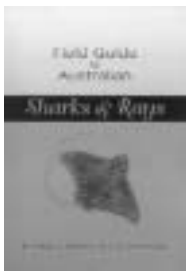
» (With University of Canberra) *Assessing Australia's future resource requirements to the Year 2020 and beyond: strategic options for fisheries*.

» (With CSIRO Marine Research) *Field guide to sharks and rays caught in Australian fisheries*.

» (With Curtin University of Technology) *Rock Lobster Post Harvest Subprogram: rock lobster autopsy manual*.

» (With InfoFish Services) *National Strategy for the Survival of Released Line Caught Fish: planning, project management and communications*.

» (With Aquafin CRC / University of Tasmania) *Aquafin CRC — Atlantic Salmon Aquaculture Subprogram: development of novel methods for the assessment of sediment condition and determination of management protocols for sustainable finfish cage aquaculture operations*.



Achievement of AOP targets

Achievements against the key performance indicators and measures specified for the program's planned outcome in the 2003–04 AOP[11] are summarised as follows:

Key performance indicator	Performance measure	Achievement
Status of fish stocks	Improvement in status as reported in the annual fisheries status reports produced by government agencies	Fish stock sustainability was stated to have improved in the fisheries for which reliable information was reported.
Mitigation actions and processes	Improvement in mitigation actions and processes	Mitigation actions and processes generally improved

11 Modified as a result of the condensation of the strategic challenges described on page 30.

Summary of Program 1 performance

Quantitative measures of natural resources sustainability in wild fisheries are difficult to prescribe and report against. Notwithstanding this, the FRDC is confident, on an aggregated basis, that:

MOST ASPECTS OF THE AOP PERFORMANCE MEASURES WERE MET*

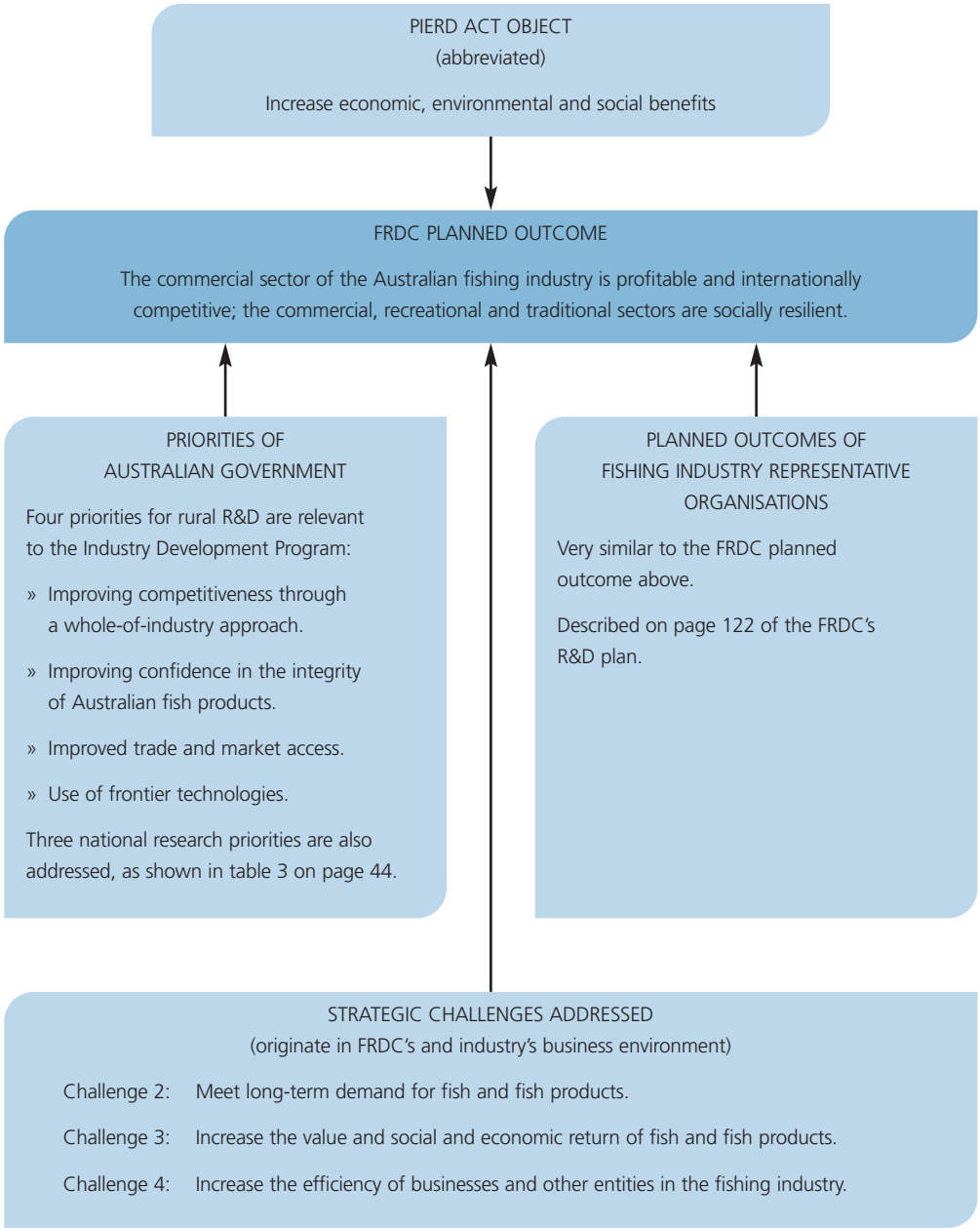
* There was a shortfall in final reports received.

R&D PROGRAM 2

Industry Development

Program 2: Industry Development

FIGURE 11: STRATEGIC ELEMENTS ON WHICH PROGRAM 2 IS BASED



Principal inputs

During 2003–04, $9.6 million (about 38 per cent of the FRDC's R&D investment) was invested in R&D activities within this program, through 125 projects listed in **appendix D** (page 175).

Investment in activities under this Program depends on evidence of market, institutional, technical, policy or political failure, and/or likely "public good" benefits.

Such investment helps to achieve the "public good" imperative of relieving pressure (directly or indirectly) on wild fisheries resources. At the same time, it helps to meet a growing demand for seafood (e.g. through aquaculture) and for lifestyle benefits through recreational fishing. It also helps to satisfy the cultural needs of Aboriginal and Torres Strait Islander people through customary fishing.

Principal outputs and outcomes by areas of FRDC investment to meet Strategic Challenge 2

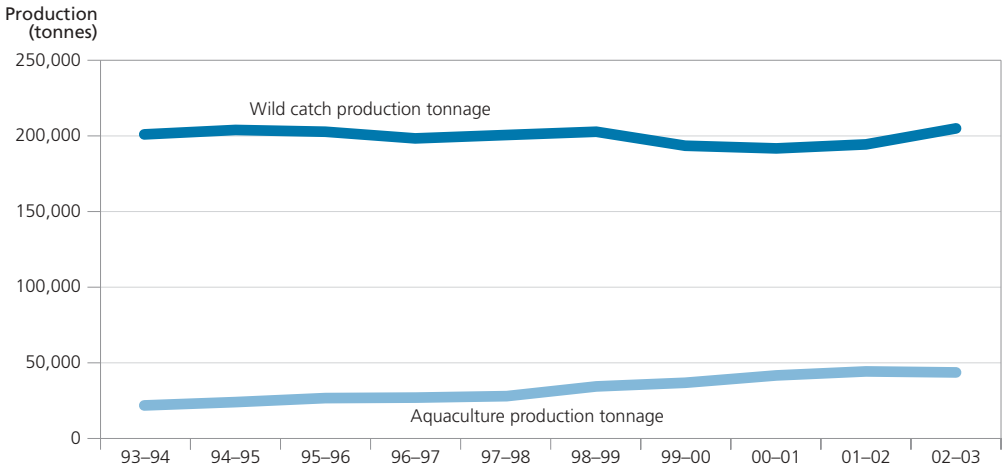
CHALLENGE 2: MEET LONG-TERM DEMAND FOR FISH AND FISH PRODUCTS

PRODUCTION FROM COMMERCIAL WILD-CATCH AND AQUACULTURE SECTORS

The commercial wild-catch and aquaculture sectors' production is reported by the Australian Bureau of Agricultural and Resource Economics.[12] Production for the past 10 years is summarised in **figure 12**.

12 *Australian Fisheries Statistics 2003*, ISSN 1037–6879, available from http://abareonlineshop.com/product.asp?prodid=12674

FIGURE 12: COMMERCIAL SECTOR PRODUCTION FOR THE PAST 10 YEARS



Tonnage figures for the past three years are shown in **table 4**.

TABLE 4: COMMERCIAL SECTOR PRODUCTION FOR THE PAST 3 YEARS

	2000–01	2001–02	2002–03	Change during last year	Ave yearly change in 3 yrs since 2000–01
Wild-catch	190,269 t	192,398 t	204,953 t	6.5%	2.0%
Aquaculture	41,044 t	44,992 t	44,059 t	–2.1%	5.6%
Total	231,313 t	237,390 t	249,012 t	4.9%	2.6%

CHALLENGE 2: MEET LONG-TERM DEMAND FOR FISH AND FISH PRODUCTS

INCREASE AQUACULTURE PRODUCTION

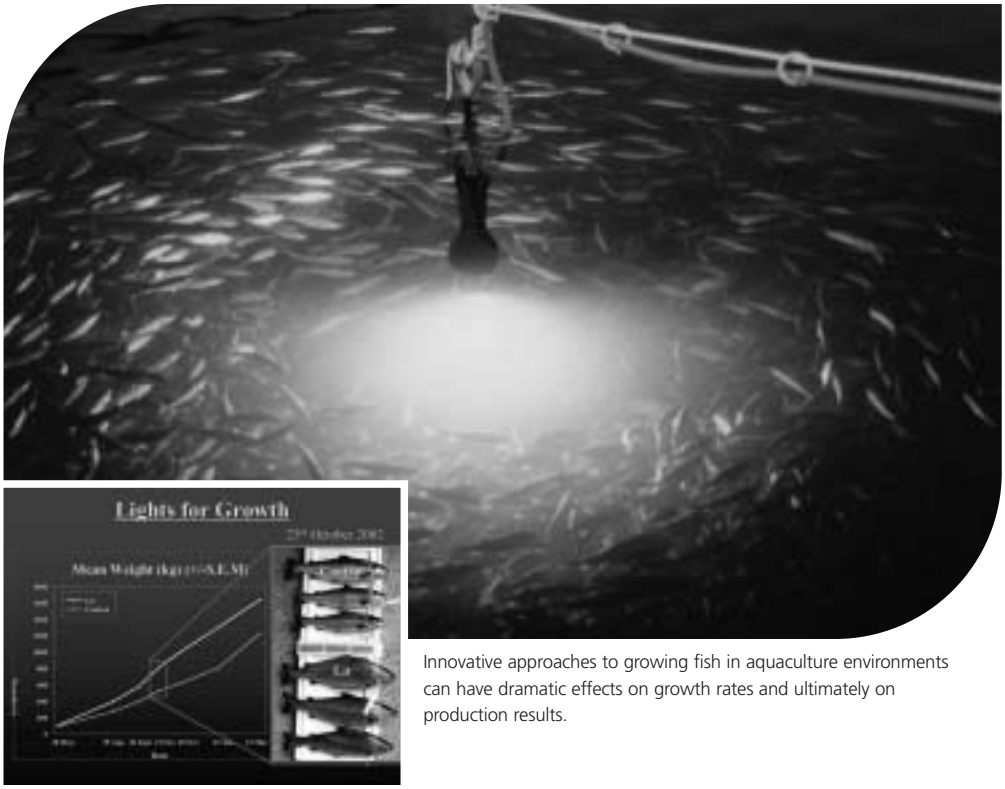
Sunshine — can you ever have too much of it? Fish that originated in the cold waters of Norway and Scotland — Atlantic salmon — are certainly growing in brighter climates in Australia. The question is: If the fish are growing, why should a little extra sunshine be a problem?

The answer is that fish, like humans, respond to diurnal and seasonal changes in light, and use these changes to regulate metabolic and development activities. On the fish's head is a small area of skull that allows light to penetrate on to the pineal gland — almost a "third eye". The fish responds to changes in light by producing melatonin. Importantly for salmon farmers, this signal system regulates the reproductive system, telling the fish to put less energy into growth and to divert it instead into reproductive gonad development. In the northern hemisphere scientists have found that they can delay reproductive development by turning lights on in fish farms during late spring, and off just before summer. Australia's sunlight levels are significantly higher than those experienced in Norway or Scotland, so it was by no means clear whether the fish would respond to artificial lighting in the winter months or whether natural lighting would mask any attempts to trick the fish that summer had not stopped. The benefits of success are large — instead of selling softer, paler and smaller fish which are not in peak condition, the farmer would be able to sell larger fish in peak condition for a greater period of the year.

Dr Mark Porter, with funding from the Aquafin CRC and the FRDC, has therefore started to unravel the effects of light on precocious sexual maturation in Atlantic salmon. Preliminary results show that fish do respond to lights positively, in both increased weight gain and improved colour and condition.

Technology could improve production and allow Atlantic salmon producers a longer production period every year.

Mark will be continuing with this study because the technology offers significant opportunity to provide a cost-effective method to improve production and allow Australian Atlantic salmon producers a longer production period in the year. The consumer will enjoy the best Atlantic salmon all year round.



Innovative approaches to growing fish in aquaculture environments can have dramatic effects on growth rates and ultimately on production results.

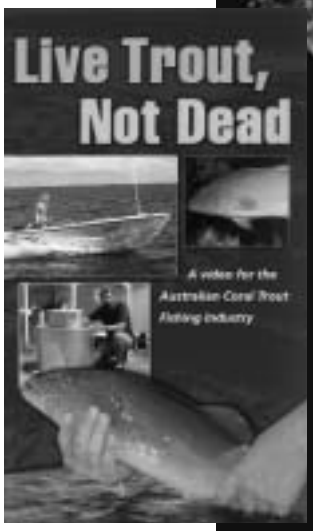
INCREASE WILD-CATCH FISHERIES PRODUCTION

CHALLENGE 2: MEET LONG-TERM DEMAND FOR FISH AND FISH PRODUCTS

1997/341: Enhancement of ship-board survivorship of coral trout destined for the live fish market

In the past five years the value of coral trout production has risen from $19 million to $32 million and the coral trout line fishery is now worth more than $60 million per annum. The major factor that has contributed to this fishery has been the development of supply chain technology that has allowed the fish to be delivered live to the markets in south-east Asia. Value-adding chains and supply chains in the fishing industry are often opposite from terrestrial product chains, with the emphasis being on delivering the product fresh, often live, and not processed. Consumers in south-east Asia like to view and select their fish, so keeping them live ensures the consumer sees the fish in all its fine colours.

Supply chain technology has allowed coral trout to be delivered live to markets in south-east Asia — a major factor in this $60 million market.



Product quality is vital in all food industries. The FRDC has continued to invest in projects at all stages of the seafood supply chain.

The FRDC has invested in a range of projects from air diffusion in containers, air container design, alternative methods to using explosive oxygen in planes, boat holding designs and recirculation tanks and health studies. A project by Dr Trevor Anderson at James Cook University has brought all these studies together to develop a best-practice manual and instruction video for fishers working on the water. This video will ensure that the maximum value can be obtained from every caught fish, to ensure its live and healthy delivery to the markets in south-east Asia. At the same time, more fishers will understand they are part of the supply chain that delivers safe, high-quality food to consumers.

MAKE BETTER USE OF FISH WASTES

CHALLENGE 2: MEET LONG-TERM DEMAND FOR FISH AND FISH PRODUCTS

2002/250 "SEF Industry Development Subprogram: agricultural trials of a fish-based fertiliser (BioPhos) produced from Australian seafood processing wastes"

Good commercial yields of tomatoes have been reported from a series of Victorian trials of fish waste fertilisers. In the first of a series of trials to evaluate fish fertiliser on different crops, this trial showed that the fish fertiliser had a tomato production equivalent to traditional superphosphate.

So where to get fish fertiliser in commercial quantities? For years the fishing and processing sector has known that it has a valuable fish waste, but turning this into a commercial product has proven elusive. The main problem has been the low volumes at scattered sites around Australia and the seasonal nature of the waste. For fish processors the solution to date has been to contain the waste on site and send it to the garbage dump at a cost of up to $700 a tonne. The FRDC, in collaboration with a consortium from the SE Fishery that includes processors and fishers, has formed a company, Australian Seafood Co-products (ASCo), to utilise new technology resulting from small digestion units that can be located on site to produce a liquid extract. Then, using a technology developed in New Zealand, this product is converted into a product called BioPhos. Recently a commercial fertiliser company agreed to help to distribute and promote the product.

The benefit to the farmer is a product that is stable, is easily transportable, uses the same spreading machinery as existing fertilisers and, importantly, is biological. This last point means that it can be classified as organically farmed, which is an important point of differentiation in marketing it farmers.

After the current tomato trials, the next crops will be dryland pastures and irrigated dairy pastures.

Production using fertilisers made from fish waste can be classified as organic.

Tasty, freshly harvested tomatoes grown using fish waste fertiliser — an example of the various ways industry is making better use of fish waste.

Reporting by areas of FRDC investment to meet Strategic Challenge 3

Note: Caution should be exercised in evaluating this data: changes brought about by R&D are essentially long-term in nature, whereas large fluctuations can be brought about by factors such as variations in the value of the Australian dollar.

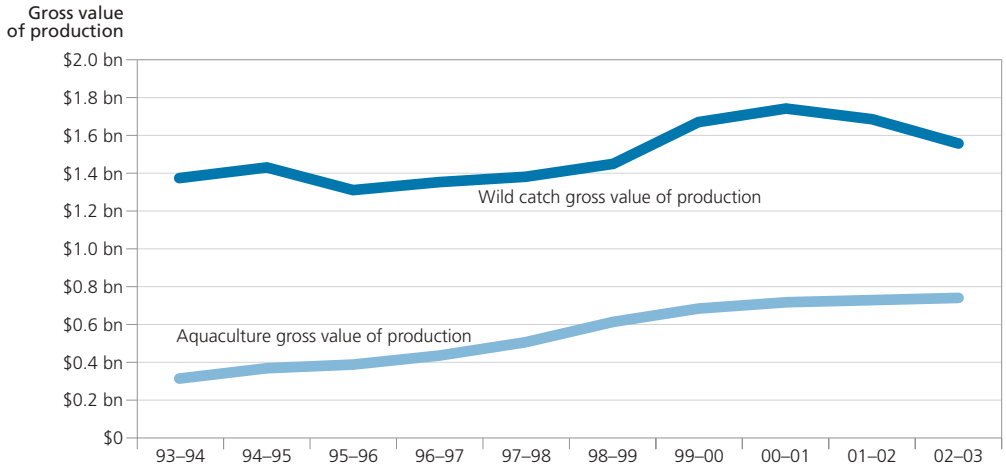
CHALLENGE 3: INCREASE VALUE AND SOCIAL AND ECONOMIC RETURN OF FISH AND FISH PRODUCTS

VALUE OF PRODUCTION FROM COMMERCIAL WILD-CATCH AND AQUACULTURE SECTORS

Increasing value of social and economic returns can be inferred from the value of commercial sector production and exports.

Australian Bureau of Agricultural and Resource Economics statistics for the gross value of the commercial wild-catch and aquaculture sectors' production during the past 10 years are summarised in figure 13.

FIGURE 13: VALUE OF COMMERCIAL SECTOR PRODUCTION FOR THE PAST 10 YEARS



Figures for values of production during the past three years are shown in **table 5**.

TABLE 5: GROSS VALUE OF COMMERCIAL SECTOR PRODUCTION FOR THE PAST 3 YEARS

	GVP 2000–01 ($'000)	GVP 2001–02 ($'000)	GVP 2002–03 ($'000)	Change during last year	Ave yearly change in 3 yrs since 2000–01
Wild catch	$1,732,042	$1,698,514	$1,553,934	–8.51%	–3.7%
Aquaculture	$706,750	$732,127	$743,452	1.55%	2.8%
Total	$2,438,792	$2,430,641	$2,297,386	–5.48%	–0.6%

Note: Where figures for previous years differ from those in previous annual reports, they result from ABARE's refinement of initial estimates.

VALUE OF EXPORTS

CHALLENGE 3: INCREASE VALUE AND SOCIAL AND ECONOMIC RETURN OF FISH AND FISH PRODUCTS

Table 6 shows figures issued by the Australian Bureau of Agricultural and Resource Economics for Australian seafood exports during the past three years.

TABLE 6: VALUE OF SEAFOOD EXPORTS FOR THE PAST 3 YEARS

2000–01 ($'000)	2001–02 ($'000)	2002–03 ($'000)	Change during last year	Ave yearly change in 3 yrs since 2000–01
$2,168,661	$2,100,120	$1,844,435	–12.2%	–2.1%

The main causes of the fall in value of exports during 2002–03 were reduced quantities of crustaceans, molluscs and pearls exported in the face of the rising Australian dollar against the US dollar and of the outbreak of Sudden Acute Respiratory Syndrome (SARS) in Asia.

EMPLOYMENT

CHALLENGE 3: INCREASE VALUE AND SOCIAL AND ECONOMIC RETURN OF FISH AND FISH PRODUCTS

The value of social and economic returns may also be inferred from the amount of employment generated by the commercial sector. It is important — especially in relation to reporting changes in regional employment — to have accurate, timely information on employment in the harvesting, processing and other post-harvest sectors of the commercial sector of the industry, and appropriate information for the recreational and customary sectors. Unfortunately, such information continues to be elusive, other than in the aquaculture sector. Data collected by the Australian Bureau of Statistics (ABS) is not disaggregated in sufficient detail to be very useful, and tends to under-record employees, including through attribution to other industries such as transport and generalised food processing. For example, during 1998 the ABS recorded 22,400 people directly employed in "wild-catch, aquaculture and processing" and during 2004 recorded 12,000 people in "commercial fishing" (comprising the same components). This data does not appear to be consistent and does not compare well with data collected in connection with boats, fishing licences and other forms of fishing regulation. Unfortunately, the latter sources are not sufficiently comprehensive to substitute for ABS data. The FRDC has held discussions with the ABS, in concert with the Australian Seafood Industry Council, to determine the best options for improving the accuracy and availability of employment information from all sources. Significant obstacles nevertheless stand in the way of unambiguously attributing employment to the fishing industry.

As to the aquaculture sector, the Aquaculture Industry Action Agenda has stated that the sector employs more than 7,000 people directly (ABS estimate: 5,050) and more than 20,000 people indirectly, and that during the four years before 2000–01 employment in aquaculture grew by 260%, making it the sixth-fastest-growing occupation in Australia and the fastest-growing occupation within primary industries.

Significant obstacles stand in the way of attributing employment to the fishing industry.

It has previously been estimated that employment in the commercial sector beyond production and processing — in the transportation, storage, wholesaling and retailing sectors — may well be as high as 80,000. However, that estimate is based on assumptions that are not (and cannot be) rigorous. Until accurate information is available, the FRDC's broad — but highly conjectural — estimate of commercial sector employment (wild-catch, aquaculture and all post-harvest processes, including putative seafood components of transport, wholesaling, retailing and restaurants) is between 100,000 and 120,000.

The FRDC-funded national survey of recreational and indigenous fishing showed that about 3.4 million Australians participate in fishing. The employment generated in support of that activity is not known.

CHALLENGE 3: INCREASE VALUE AND SOCIAL AND ECONOMIC RETURN OF FISH AND FISH PRODUCTS

DEVELOP MARKETS

FRDC project 2004/209, *The retail sale and consumption of seafood in Melbourne*, follows on from previous projects by the FRDC and Ruello and Associates concerning the seafood markets in Perth and Sydney, which resulted in one of FRDC's most popular publications, *Retail sale and consumption of seafood*.

Sales in the seafood market for Melbourne are the second-biggest in Australia. It is a very important market in which very little consumption research has been undertaken.

Consumption patterns of seafood have changed significantly in the past 20 years, with an increasing emphasis in Victoria on fine dining and healthy eating. These changes gave rise to a need to ask consumers what they want, and what their preferences are, so that the industry could provide healthy, high-quality, safe seafood to this more discerning market.

The results will be used to determine the trends in consumption of seafood: where are the growth markets, where do people purchase their seafood, what are key products, what informs their choice, etc? Is selling wet fish that are not processed not adequately satisfying demand — do people want "meal solutions" that are easy to prepare, or they are consuming the majority of seafood in fine dining restaurants?

Senator Judith Troeth, Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry, and chef Gabriel Gaté at the Melbourne launch of FRDC's project to measure the retail sale and consumption of seafood in Melbourne.

PRODUCE SAFE, HIGH-QUALITY SEAFOOD

CHALLENGE 3: INCREASE VALUE AND SOCIAL AND ECONOMIC RETURN OF FISH AND FISH PRODUCTS

During the year, Seafood Services Australia Ltd (SSA), the not-for-profit company in which the FRDC has an interest, further facilitated the development of the Australian Seafood Standard, a voluntary standard that defines seafood safety outcomes to be achieved throughout the seafood supply chain. This was the first national "through-chain" standard to be developed for a primary production sector in Australia. It defines common standards for the industry nationally and provides the seafood industry with a blueprint for input into the Primary Production and Processing Standard for Seafood, a draft of which was recently released by FSANZ. Outcomes of the Standard will include increased consumer confidence, reduced duplication and increased business efficiency.

SSA has also participated as a member of the Australian Food Safety Centre of Excellence, achieving a return on investment of at least 5 to 1, improved knowledge about the safety of Australian seafood, and better industry access to world experts in seafood safety and risk management. The industry is thus more able to assert and promote Australia's "clean, green" claims internationally.

More information on SSA's activities is at www.seafoodservices.com.au

The new Australian Seafood Standard is the first national "through-chain" standard to be developed for a primary production sector in Australia.

OPTIMISE THE ALLOCATION OF WILD-CATCH FISHERIES RESOURCES

CHALLENGE 3: INCREASE VALUE AND SOCIAL AND ECONOMIC RETURN OF FISH AND FISH PRODUCTS

2001/065 "Socio-economic valuation of allocation options between recreational and commercial sectors"

Building on the successful development by Professor Tor Hundloe of a framework for valuing fisheries, John Nicholls and his team have successfully undertaken case studies to validate the method for resource sharing in key fisheries in Western Australia, including the abalone, blue swimmer crab and west coast wetline fishery. The case studies have shown the utility of the general framework to evaluate options to share resource access between commercial and recreational users.

The study focused on the extractive use values dominant in the crab fishery, but other social values statistically significant in a particular fishery, including conservation, preservation and catch and release, could also be tested within the general theoretical framework.

The framework set values based on the uses of fish by commercial and recreational fishers as a means of optimising benefits to society from alternative allocations of the resource. Guidelines are available to fisheries managers on how to use the tool, what to measure with it and how to interpret the results. The results show it is a valid foundation for allocation policy, although the study was not designed as a basis for allocation decisions.

Reporting by areas of FRDC investment to meet Strategic Challenge 4

The FRDC's investment in meeting this strategic challenge is largely implemented through Seafood Services Australia Ltd (SSA), the company limited by guarantee set up jointly by the FRDC and the Australian Seafood Industry Council. The company works with stakeholders to help the seafood industry to continually improve its practices and to add value throughout the seafood supply chain.

The FRDC invested $780,000 in SSA during the year — the second year of the company's operation.

SSA's mission is to be a catalyst for sustainable development of the seafood industry.

Through being a non-government entity, the company has been able to attract significant external funding to undertake its mission. This has allowed urgent development priorities to be fast-tracked.

Increasingly sophisticated global markets impel the industry to have prompt, efficient access to the best knowledge, processes and technology if it is to remain globally competitive. SSA aims, therefore, to be proactive in providing an Australia-wide service for people who catch, farm, process, transport, wholesale, retail, export, import or cook seafood. Services include:

» value-adding through seafood product and process development;
» product quality, food safety and consumer health;
» management systems and standards for quality and ecologically sustainable development;
» market development;
» seafood marketing names;
» seafood emergency management; and
» information and advice on other technical issues.

The roll-out of environmental management systems to the seafood industry is an example of an SSA service for which there has been high demand, reflecting the fact that many seafood enterprises and organisations are already proactively improving their environmental performance and are complying with the government and community standards required to be successful. The main problem is that these organisations have been less able to *demonstrate* their compliance. SSA is helping them to choose and act on management processes that will refine, and give rigour to, their continual improvement in environmental performance; and a significant element is to be able to make that rigour transparent to the community. It is encouraging to see the increasing acceptance in industry that such an approach usually helps to improve the business's bottom line and is likely to increase its long-term access to fisheries resources or aquaculture sites. This acceptance is being fostered by substantial Australian Government investment in environmental management system methodologies.

The Seafood Industry Development Fund (SIDF), administered by Seafood Services Australia, provides funding to the seafood industry to pursue the strategic challenge 4. Funding of up to $30,000 on a dollar-for-dollar-maximum basis is available under this initiative.

Projects which have attracted funding under the SIDF during the year covered:

» determination of survival times of blue swimmer crab using conventional live packing techniques,
» preparation of a market access guide for seafood exporters on international residues standards,
» development of best-practice handling techniques for longline-caught tuna,
» development of best-practice skills through a demonstration project at the national WorldSkills event,
» development of an OH&S induction training video for the post-harvest sector,
» guidance on treatment of prawns with an extended dip in Everfresh, and
» participation in a modified atmosphere packaging workshop.

Further information about SSA is at www.seafoodservices.com.au

IMPROVE THE EFFICIENCY OF SUPPLY CHAINS

CHALLENGE 4: INCREASE EFFICIENCY OF BUSINESSES AND OTHER ENTITIES IN THE FISHING INDUSTRY

2002/425 "Food safety and quality assurance for cooked prawns: development and evaluation of a framework for the validation of a supply chain approach"

This project, funded through the FRDC's Seafood Industry Development Fund, is studying the supply chain of prawns harvested from the Spencer Gulf region of South Australia and the extent to which it meets FSANZ food safety standards. Processing procedures used on boats did not contribute additional contamination by micro-organisms of public health significance. Nor was there evidence that seawater or other water used for washing or cooling of prawns introduced contaminants of public health significance.

The standard plate count of cooked prawns was similar to or greater than that of green prawns. Cooking would be expected to substantially reduce the microbial load of prawns, so this contrary result indicated that the industry is performing below potential. The impact of failure to reduce microbial load is potential loss of shelf-life, which was indicated by retail shelf-life data.

The project has provided a baseline of industry hygiene, processing and product performance.

The project has led to the design of a "water-to-waiter" approach that targets processing performance and food safety and shelf-life standards at retail and under controlled conditions. The project has provided a baseline of industry hygiene, processing and product performance. For the Spencer Gulf and West Coast Prawn Fishermen's Association in particular, a set of strategies that may enhance product safety and shelf-life has been established. For the crustacean sectors in general, the project provided principles and a framework to guide the evaluation of processes and product across the supply continuum.

CHALLENGE 4: INCREASE EFFICIENCY OF BUSINESSES AND OTHER ENTITIES IN THE FISHING INDUSTRY

IMPROVE THE OPERATING EFFICIENCY OF BUSINESSES AND OTHER ENTITIES

1998/338 — Prevention of occupationally-related infections in western rock lobster fishermen

"Crayfish poisoning" is the common name for a painful wound infection affecting lobster fishers and other industry workers in the Western Australian rock lobster industry, which is the most valuable single species sector in Australia, earning $400 million annually. Despite improvements in working conditions and antibiotic therapies, evidence suggests that infection continues to be a source of disease for workers. Although rare, severe life-threatening infections can result from these skin infections. Little is known about the cause of these infections; however, there are some similarities with another occupationally related human infection, erysipeloid, caused by *Erysipelothrix rhusiopathiae*. The aims of the project therefore was to elucidate the cause(s) of "crayfish poisoning", with particular reference to *E. rhusiopathiae*, and to assess interventions for preventing or treating infection.

Wound infection for fishers in the Western Australian rock lobster industry can be painful and potentially fatal.

From the epidemiological survey carried out, the following information was obtained: 68% of cases were young deckhands; 52% of infections were on the fingers, 22% on the feet, 15% on the arms, and 15% on the hands; at the time of the injury 43 % were not wearing gloves; 20 % of cases had a previous skin breach. The presenting signs were erythema (redness), cellulitis (skin breakdown), blisters, furuncles (boils) and paronychia (inflammation of the nail). Systemic symptoms presented in 33%, fever in 29%, and lymphadenitis (inflammation of the lymph nodes) in 18%. Antibiotics were given in 94% of cases, mainly flucloxacillin. Most were effective in killing *E. rhusiopathiae* with minimum bactericidal concentrations of 0.001% after application of Pinocleen, and 0.03% for Domestos, Linely and the Wheelie Bin Phenyl Cleanser. These disinfectants could be used following mechanical cleaning of work environments, such as fishing boats and equipment, to reduce the risk of infection with *E. rhusiopathiae*.

The results of this study have now been included in the revised WAFIC Code of Practice for the Western Rock Lobster industry.

Summary of final reports received for Program 2

Strategic challenges	No. of projects 2003–04	FRDC investment 2003–04
Challenge 2 Meet long-term demand for fish and fish products	17	$5,041,260
Challenge 3 Increase the value and social and economic return of fish and fish products	15	$3,062,527
Challenge 4 Increase the efficiency of businesses and other entities in the fishing industry	6	$495,377
Total	**38**	**$8,599,164**

New publications resulting from Program 2

The FRDC also published, or co-published in partnership with other organisations:

» (With Australian Prawn Promotion Association) *Australian prawn industry quality standard: development of a third party audited seafood industry quality standard for prawn vessels and processors incorporating food safety standards*.

» (With Deakin University) *Abalone Aquaculture Subprogram: early life history of abalone (Haliotis rubra, H. laevigata): settlement, survival and early growth*.

» (With James Cook University) *Enhancement of ship-board survivorship of coral trout destined for the live fish market*.

» (With Ruello & Associates Pty Ltd) *Improving post-harvest handling to add value to farmed mussels*.

» (With SA Research and Development Institute) *Spawning and larval rearing research on King George whiting (Sillaginodes punctata) relevant to aquaculture and fisheries biology*.

» (With University of Queensland) *Framework for valuing fisheries resource use*.

» (With University of Western Sydney, Macarthur) *Application of extracellular enzyme techniques to studying the role of bacteria in the ecology of prawn ponds and diseases of P. monodon and P. japonicus*.

Achievement of AOP targets

Achievements against the key performance indicators and measures specified for the program's planned outcome in the 2003–04 AOP[13] are summarised as follows:

Key performance indicator	Performance measure	Achievement
Tonnage of fish production	Improvement in performance with respect to the total production and export values of the commercial wild-catch and aquaculture sectors, and the factors that contribute to those values	Australian fisheries production rose by 4.9% in 2002–03
Gross value of production	Increase in gross value of production	The 2002–03 gross value of production declined by 5.5%
Seafood consumption	Evidence of consumption	No new data on seafood consumption became available during the year
Efficiency of supply chain elements	Evidence of efficiency	It is highly likely that employment in the industry increased; values placed on recreational and customary fishing have been measured in a national survey but trends are not yet known.

13 Modified as a result of the condensation of the strategic challenges described on page 30.

Summary of Program 2 performance

ALL AOP PERFORMANCE MEASURES WERE MET

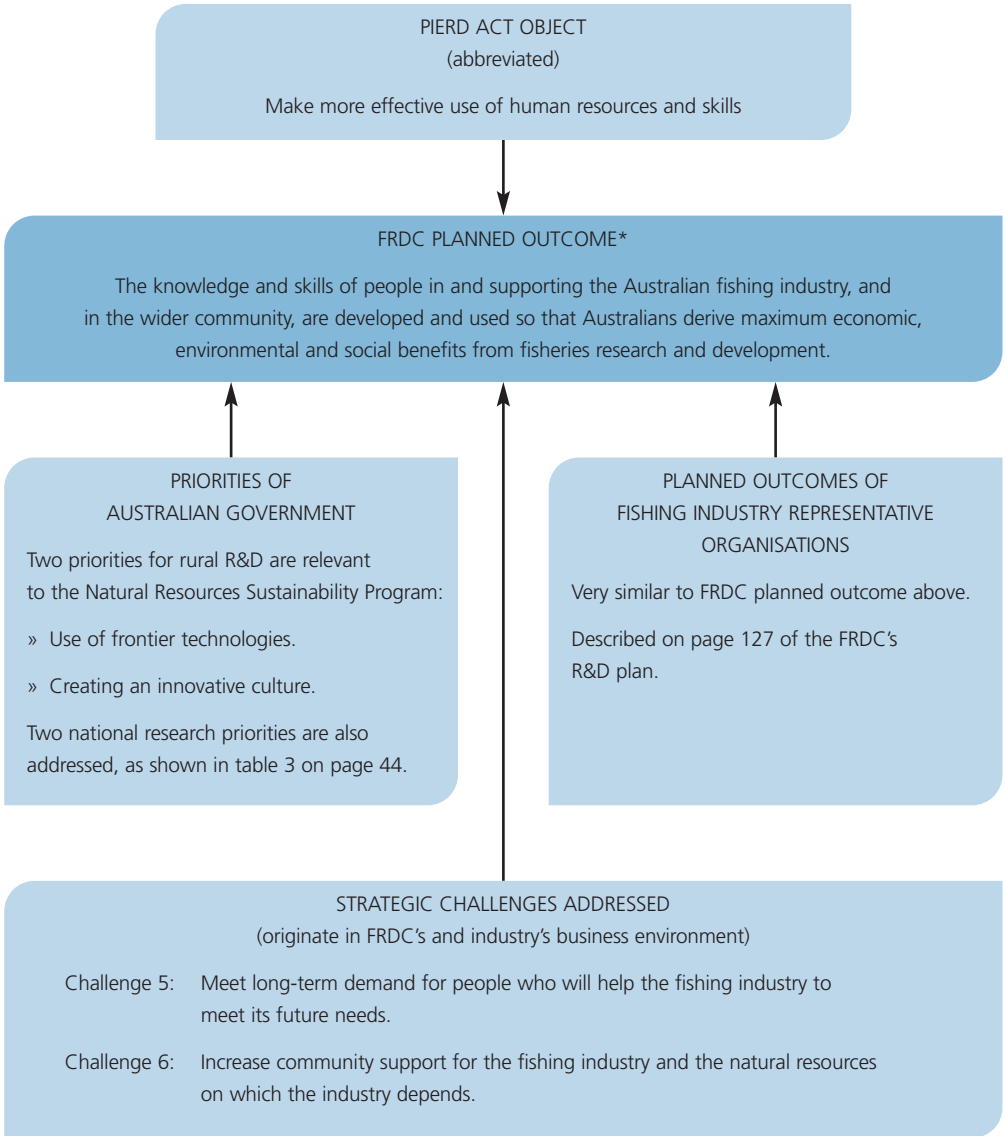
R&D PROGRAM

3

People Development

Program 3: People Development

FIGURE 14: STRATEGIC ELEMENTS ON WHICH PROGRAM 3 IS BASED



* Projects funded under Program 3 primarily address the FRDC's planned outcome for people development. However, this outcome is also addressed, as a secondary but very important element, by projects within Programs 1 and 2.

Principal inputs

During 2003–04, $0.6 million (about 2 per cent of the FRDC's R&D investment) was invested in R&D activities within this program, through 27 projects listed in **appendix D** (page 175).

Principal outputs and outcomes by areas of FRDC investment to meet Strategic Challenge 5

DEVELOP LEADERS AMONG PEOPLE IN AND SUPPORTING THE INDUSTRY

CHALLENGE 5: MEET LONG-TERM DEMAND FOR PEOPLE WHO WILL HELP THE FISHING INDUSTRY MEET ITS FUTURE NEEDS

The capacities of people are a crucial factor in maximising the economic, environmental and social values associated with fishing. This factor crosses all sectors and needs the support of all those working in the industry. Shortfalls can be evident in a lack of capacity in research, an ageing group of leaders, or low understanding of new influences on fisheries management.

Michelle Guadagnin, Safe Food, NSW Government at the leadership course held in March 2004.

The FRDC, in partnership with industry and other stakeholders, has invested in a wide range of initiatives to meet the industry's people development challenge. The centrepiece of its investment in leadership is its ongoing commitment to the Australian Rural Leadership Program. The FRDC sponsors two participants per course in this program. To ensure there is adequate training at different levels of industry leadership, the FRDC has invested for the third year in the *Advance in Seafood* Leadership Development Program. This program is providing an opportunity for young leaders to learn through experience about how they can become future leaders. The FRDC also sponsors one graduate from this program (this year: Jo-Anne Ruscoe — see page 77) to undertake a course conducted by the Australian Institute of Company Directors, funded by the Department of Agriculture, Fisheries and Forestry, under the *Industry Partnerships — Corporate Governance for Rural Women* initiative.

The capacities of people are a crucial factor in maximising the economic, environmental and social values associated with fishing.

The skills and experience of the pool of leaders working within and supporting the fishing industry further increased during the year, including through the Australian Rural Leadership Program (four people) and the *Advance in Seafood* Leadership Development Program (15 people).

The FRDC-funded participants in the Australian Rural Leadership Program (Steven Gill, Jenny Shaw, Martin Breen and Tim Mirabella) have senior leadership positions in the fishing industry. They are very well placed to extend into the industry the knowledge, skills and contacts derived from the program.

Seafood industry candidates who have completed the *Advance in Seafood* Leadership Development Program may be selected for the higher-level Australian Rural Leadership Program.

CHALLENGE 5: MEET LONG-TERM DEMAND FOR PEOPLE WHO WILL HELP THE FISHING INDUSTRY MEET ITS FUTURE NEEDS

DEVELOP THE VOCATIONAL COMPETENCE OF PEOPLE IN AND SUPPORTING THE INDUSTRY

The FRDC continues to invest in projects for which there is a strategic need and in which a component will develop people for future industry needs. The Board has identified that gaps in capability exist in aquatic animal health, fisheries management, ecosystem-based modelling, and economic and social sciences.

The FRDC contributed significantly to developing the capacities of people in the industry and the R&D community by supporting people involved directly in R&D projects. In addition, staff were employed on FRDC projects through in-kind contributions of project partners. The Corporation has also continued to involve end-users directly in research projects, increasing their ability to undertake research and to maximise their utilisation of R&D results.

The FRDC also sponsored a PhD student in the Department of Agriculture, Fisheries and Forestry-funded *Science Awards for Young People*.

Conferences and workshops to which the FRDC made a financial contribution included:

» the *Seafood Directions* biennial conference of the commercial sector of the fishing industry,
» the 2nd National Abalone Convention,
» the 7th International Conference on Lobster Biology and Management,
» the *Deep Seas 2003* international biodiversity conference,
» the 32nd conference of the Australian Society of Fish Biologists,
» a national Prawn and Barramundi Conference,
» a Nutrition Subprogram workshop, and
» a southern bluefin tuna health workshop.

More people need to be developed, especially in aquatic animal health, fisheries management, ecosystem-based modelling, and economic and social sciences.

Some of the people the FRDC has helped to develop

Grant Leeworthy — FRDC prize winner, Science and Innovation Awards for Young People in Agriculture, Fisheries and Forestry

Grant Leeworthy of Tasmanian Seafoods, Victoria has won the FRDC prize in this year's Science and Innovation Awards for Young People in Agriculture, Fisheries and Forestry.

He plans to use his prize money of $8,000 to develop a booklet that explains the key points of stock assessment modelling in plain language. "I'm looking forward to helping more fishers take part in the stock assessment process. "I want to help them work together to create a more sustainable industry," Grant said.

He said an increasing amount of information was available on fisheries stock assessments, but much of it was complex and based on mathematical models. This left people in industry more confused than informed about the status of fish stocks and reduced their ability to take part in the assessment process. He said he intended to model the booklet on the FRDC publication *Bycatch solutions*.

Jenny Shaw — graduate of Australian Rural Leadership Program; Aquaculture Subprogram Manager, WA Department of Fisheries

Jenny reports:

"FRDC investment has been of tremendous benefit to my development, professionally as well as personally.

"Recently I graduated from the Australian Rural Leadership Program (ARLP), a world-class leadership program run over two years. The FRDC sponsored my place on the program that builds on existing leadership skills and certainly enabled me to further develop professionally and expand my knowledge of critical issues facing industries such as fishing in regional and rural Australia.

"I work for the Department of Fisheries, Government of Western Australia as the Aquaculture Subprogram Manager. Within the department I have also benefited from FRDC investment in a number of projects, most recently the design and implementation of bycatch reduction devices in WA prawn trawl fisheries. This project was of great benefit to the fishers, researchers and the community. I represent the Department on the Rock Lobster Industry Advisory Committee, a statutory committee that provides advice for the Minister for Fisheries, and on the Port Kennedy Development Management Board.

"In my voluntary commitments, I have benefited from FRDC support of the Women's Industry Network Seafood Community. As WA director on the national board and current vice-president of the organisation, I acknowledge the support of FRDC in strengthening an organisation that strives to represent all women in the fishing industry.

"My working life has been spent in marine and fishing related areas in both government and the private sector in Australia and overseas. The fishing industry is rapidly changing to reflect community expectations, environmental considerations and shifting markets. The FRDC's investment in a diversity of areas has been of great benefit to me personally and I hope has equipped me to effectively participate in the industry and the challenges ahead."

Alex Wells — PhD Student

Alex reports:

"When I started at the FRDC in 1996, I would not have predicted that I would still be working there nearly six years later. The FRDC has an enviably low staff turnover, which says it all when it comes to a demonstration of staff confidence in an organisation's leadership and management. Being part of the FRDC team has also given me the opportunity to learn from the fishing industry and the management and research structures that aim to support it. Exposure to this great depth of natural resource management expertise has certainly assisted me to perform my current duties within the Marine Protected Areas Taskforce of the Department of Environment and Heritage.

"Just recently, I returned to the FRDC for a few months to progress a PhD project that evaluates the performance of Australian fisheries research. At the same time I was able to assist the FRDC with identifying how their research investments have resulted in outcomes. The extent to which this investment in research translates into management responses or other outcomes is a question often asked.

"On completion, this study should provide at least some of the answers. The FRDC has always provided moral support as well as resources, without which it would not have been possible to pursue this work. The commitment by the FRDC to developing the skills and capacity of people supporting the fishing industry, is an investment in a positive future for the industry and it's a future I look forward to participating in."

Dos O'Sullivan — aquaculturist and graduate of *Advance in Seafood* Leadership Development Program

Dos reports:

"I have been in the seafood industry for almost 25 years and considered that I knew how to network and all about leadership. Then I heard about the *Advance in Seafood* Leadership Development Program run by Leading Industries — I spoke to a couple of graduates who were passionate about the program. So I quickly decided that I could learn heaps.

"Despite having no spare time, a common thought by many in the course, I have been able to participate in all the activities and workshops. I have enjoyed myself immensely and I have learned so much about myself, my personality styles, how I can better interact with others, and how I can be a true leader. I have also increased my networking, particularly with people in other sectors of the seafood industry.

"What I specifically like about the program is that it shows us that leadership is about teamwork, not trying to do it all on your own. A true leader works through others and brings the whole group together on a common and agreed path. I am already benefiting from this approach.

"I will be recommending to many of my colleagues that they also undertake the course and I want to commend FRDC for their foresight in encouraging this development and supporting it with funds."

Jo-Anne Ruscoe — graduate of *Advance in Seafood* Leadership Development Program and DAFF *Corporate Governance for Rural Women* program

Jo-Anne Ruscoe has been involved in the aquaculture sector of the industry, from farming, training, research and extension for some 15 years. During 2003, Jo-Anne participated in the FRDC *Advance in Seafood* Leadership Development Program, and was awarded an FRDC scholarship to participate in the 2004 Department of Agriculture, Fisheries and Forestry *Industry Partnerships — Corporate Governance for Rural Women* initiative. This program supports women from rural industries to undertake the Australian Institute of Company Directors Course, and assists them to develop the skills, knowledge and networks required to take a more active or representative role in their industry.

Since completing the course, Jo-Anne has completed a major Community of Practice project with Seafood Training Australia and moved into the role of Primary Industries programs coordinator at the Charles Darwin University. Jo-Anne sees the development of learning partnerships as a means for rural communities to influence their futures, and says that participating in both the leadership and the corporate governance courses has provided her with the networks, skills and confidence to develop and drive initiatives to better service and promote training partnerships with primary producers.

To build on the skills and knowledge gained from the company director's course, scholarship holders receive mentoring from established industry leaders during the 12 months following completion of the course. As she has seen the benefits of such development programs first-hand, Jo-Anne is now assisting to build the capacity of other emerging leaders as a mentor for the *Advance in Seafood* Leadership Development Program.

Jo-Anne Ruscoe with Senator Judith Troeth on graduating from the Corporate Governance for Rural Women program.

Reporting by areas of FRDC investment to meet Strategic Challenge 6

CHALLENGE 6: INCREASE COMMUNITY SUPPORT FOR THE FISHING INDUSTRY AND FISHERIES NATURAL RESOURCES

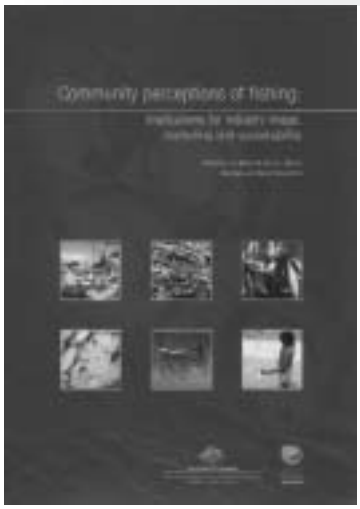
INVOLVE THE COMMUNITY IN WAYS THAT WILL BENEFIT THE FISHING INDUSTRY AND FISHERIES RESOURCES

2001/309 "Community perceptions of fishing: implications for industry image, marketing and sustainability"

Only 25% of respondents in an FRDC-funded survey by BRS of community perceptions thought that commercial wild-catch fishing is sustainable. Conversely, 77%, 56% and 64% thought fish farming, recreational fishing and traditional fishing respectively are sustainable.

This scientific study by Australia's leading social scientists at BRS has compiled a compelling tale of perceptions and use of seafood by the general public. It has been used recently by policy-makers, politicians and industry leaders to develop a more positive outlook for the fishing industry.

Australia may have the best-managed fisheries in the world, but without positive community acceptance this will mean little to decision-makers.



A matter of concern is that Australia may have the best-managed fisheries in the world, which is often touted, but without positive community acceptance this will mean little to decision-makers who determine continued access to the resource. The FRDC is using the study to guide future R&D on social issues and implement communication strategies that show the benefits of scientifically managed fisheries.

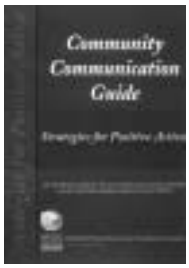
Community perceptions of the fishing industry have always been mixed. The FRDC publication *Community perceptions of fishing* provides an overview of how the broader community sees the industry. Copies are available from the FRDC website www.frdc.com.au

New publications resulting from Program 3

The FRDC also published, in partnership with other organisations:

» (With ABARE) *Australian Fisheries Statistics 2003*.

» (With Seafood Services Australia) *Developing a community communication plan and communication resources for the seafood industry*.



Summary of final reports received for Program 3

Strategic challenges	No. of projects 2003–04	FRDC investment 2003–04
Challenge 5: Meet long-term demand for people who will help the fishing industry to meet its future needs	27	$1,296,551
Challenge 6: Increase community support for the fishing industry, its products and the natural resources on which the industry depends	1	$107,000
Total	28	$1,403,551

Achievement of AOP targets

Achievements against the key performance indicators and measures specified for the program's planned outcome in the 2003–04 AOP[14] are summarised as follows:

Key performance indicator	Performance measure	Achievement
Effectiveness of people development activities	Improvement in leadership and vocational capability	Programs developing leadership and vocational capability are increasing; more people are making themselves available for leadership roles
Effectiveness of community education	Increase in community awareness of fisheries natural resources and their sustainability	Anecdotally, community awareness of fisheries natural resources and their sustainability is growing
Effectiveness of community involvement	Increase in community involvement in fisheries and their management	Anecdotally, community involvement is growing; increasingly, community stakeholders are being represented on fisheries-related advisory committees

14 Modified as a result of condensing of the strategic challenges described on page 30.

Summary of Program 3 performance

ALL AOP PERFORMANCE MEASURES WERE MET

PROGRAM

4

Management and Accountability

This program does not have a planned outcome, because its function is to enhance the inputs of the three R&D programs.

Under the Management and Accountability Program, the FRDC continually improves the activities through which it:

» plans, invests in and manages fisheries R&D throughout Australia; and

» facilitates the dissemination, adoption and commercialisation of R&D results.

The FRDC's ISO-certified quality management system encompasses all these activities.

The rationale for the strategies in this program is discussed on pages 31–34.

Program 4: Management and Accountability

Note: In the interests of improved accountability, some minor modifications have been made to the reporting structure of this program that were not incorporated into the AOP for 2003–04 when it was prepared in early 2003. However, the program's coverage remains the same.

Principal inputs

During 2003–04, $3.0 million was invested in activities within this program, including $0.7 million on communications.

Principal outputs

Planned outputs for this program are continually improving management and accountability activities. Each year, information on explicit planned outputs is provided in the AOP. Since these outputs contribute to the planned outcomes of the three R&D programs, they are crucial to the FRDC's effectiveness and efficiency.

Selected outputs achieved by the Management and Accountability program during the year were as follows, under headings of strategies specified in the R&D plan and against key performance indicators nominated in the AOP:

1. To provide leadership in fisheries R&D.
2. To invest in high-priority R&D that has the potential to deliver the highest benefits.
3. To make R&D results widely known, and to facilitate their adoption and (if appropriate) commercialisation.
4. To expand the FRDC revenue base to increase investment in fisheries R&D.
5. To develop and maintain effective, efficient, open and accountable management procedures and systems.

Strategy 1: To provide leadership in fisheries R&D

KEY PERFORMANCE INDICATOR: Influence over the development, improvement and implementation of strategic plans for fisheries R&D at federal, state, regional, fishery and species levels

PERFORMANCE MEASURE: Existence of R&D strategies

R&D strategies are in place for all jurisdictions. At a national Fisheries Research Advisory Body workshop in May 2004, the FRDC emphasised the need to further improve the planning of R&D against these strategies.

AOP PERFORMANCE MEASURE WAS MET

KEY PERFORMANCE INDICATOR: Effectiveness of the FRAB network and other FRDC-supported structures with respect to their participation in, and contribution to, the R&D planning, investment and management process

PERFORMANCE MEASURE: Evidence of FRAB influence on research providers — minimum 80% of applications submitted through FRABs

The percentage of applications submitted through FRABs was 82%.

AOP PERFORMANCE MEASURE WAS MET

PERFORMANCE MEASURE: All applications submitted through the FRABs being consistent with fisheries R&D strategies

All applications submitted through the FRABs were consistent with fisheries R&D strategies. However, this could be symptomatic of the general nature of some of the R&D strategies. the FRDC is encouraging FRABs, when revising their R&D strategies, to be more prescriptive when describing R&D priorities.

AOP PERFORMANCE MEASURE WAS MET

KEY PERFORMANCE INDICATOR: Influence over the R&D expenditure of other funding entities

PERFORMANCE MEASURE: The value of leverage resulting from FRDC funding (target: more than 1:1.5); extent of FRDC involvement in collaborative R&D; evidence of FRDC managing programs on behalf of other entities; and the establishment of strategic alliances with stakeholders

The target for the value of leverage resulting from FRDC funding (more than 1:1.5) was exceeded: see figure 2 on page 8.

AOP PERFORMANCE MEASURE WAS MET

KEY PERFORMANCE INDICATOR: Influence over the development of infrastructure that supports the sustainable development of the fishing industry

PERFORMANCE MEASURE: Evidence of FRDC-influenced infrastructure being developed

Until recently, the fishing industry lacked the infrastructure to ensure its sustainable development, unlike other primary industries. The FRDC has taken the lead role in influencing the development of the industry's infrastructure in the following ways:

- Continued support was provided to Seafood Services Australia Ltd, the company limited by guarantee that the FRDC established in conjunction with the Australian Seafood Industry Council to be a catalyst for sustainable development of the seafood industry.
- Through Australian Seafood Industries — the company the FRDC recently helped to establish — the Corporation continued to ensure that the intellectual property resulting from research to improve Pacific oysters through genetic selection is managed by the industry.

» To undertake comparable work in relation to Sydney rock oysters, the FRDC also facilitated the establishment of the Select Oyster Company.

» The Corporation worked with the National Food Industry Strategy's Seafood Trade Development Program aimed at establishing promotion infrastructure for the seafood industry.

» The Corporation continued to provide support for its two representatives organisations.

AOP PERFORMANCE MEASURE WAS MET

Strategy 2: To invest in high-priority R&D that has the potential to deliver the highest benefits

KEY PERFORMANCE INDICATOR: Regard for the views and priorities of stakeholders and research providers in the development of R&D programs

PERFORMANCE MEASURE: Evidence of consultation with stakeholders and research providers and Ministerial approval of the annual operational plan

The FRDC sought the advice of its two representative organisations in its annual review of the R&D plan.

The Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry approved the FRDC's 2004–05 annual operational plan. The plan incorporates the R&D priorities of the Australian Government and the FRDC's two representative organisations.

Relevance to federal, state and NT strategies remains a significant criterion for evaluation of R&D applications.

AOP PERFORMANCE MEASURE WAS MET

KEY PERFORMANCE INDICATOR: Investment in high-priority R&D as identified by stakeholders through FRABs, managed subprograms and other mechanisms

PERFORMANCE MEASURE: Proportion of high-priority applications submitted through the FRABs etc that are approved — minimum 75%

The number of applications received through the FRABs and ranked by them as high-priority was 61; the number approved was 30, amounting to an approval rate of 49%.

The main reason for not meeting this performance measure is discussed in the directors' review of operations and future prospects on page 13: the demand for high-priority R&D is outstripping the FRDC's investment capacity. This situation will require the Corporation to review its on-going capacity to achieve this target.

AOP PERFORMANCE MEASURE WAS NOT MET

In response to the priorities of stakeholders, spending on R&D during the year was as follows:

R&D Program	Target (% of R&D outlay)	Spent (%)	Spent ($ million)
1: Natural Resources Sustainability	60%	57.5%	13.8
2: Industry Development	35%	40%	9.6
3: People Development	5%	2.5%	0.6
Total:	100%	100%	24.0

Note: Aquatic animal health activities funded under the 2001 Federal Budget Initiative are not included above; they totalled $1.1 million, making a grand total of $25.1 million on R&D spending.

For further information, see 'Project expenditure by program', starting on page 175.

KEY PERFORMANCE INDICATOR: Return on investment for nominated high-cost projects

PERFORMANCE MEASURE: Average greater than 5:1 in benefit–cost ratios; at least five projects subjected to benefit–cost analyses

Benefit-cost analyses were conducted on five projects, as nominated in the AOP. The aim is to use the analyses to review activities and ensure that investment is targeted on R&D applications that return positive benefits to the industry. The results are summarised below and on the next five pages.

The FRDC is continuing to review the way in which future benefit-cost analyses will be undertaken to broaden their methods and reduce their cost.

Four analyses, dealing with aspects of the Northern Prawn Fishery, yielded a combined benefit–cost ratio of 9.5:1.

Benefit–cost analysis of project 1999/128: Research to develop and manage the sea urchin fisheries of NSW and eastern Victoria

This project was developed in the context of rapidly growing catches of sea urchin in New South Wales and to a lesser extent Victoria; the initial development of Australian sea urchin exports to Japan; capital investment in new processing facilities; and significant changes in management arrangements in NSW that resulted in the sea urchin and turban shell fishery being established as a restricted fishery in its own right. Development prospects for the fishery appeared bright.

Total costs of the project were just over $1 million, of which FRDC contributed about 35 per cent.

A stratified survey program was undertaken to estimate sea urchin density, stock-structure, and roe quality in NSW, eastern Victoria and Port Phillip Bay.

In the case of red sea urchins, the results from the project on the estimated biomass (1195 tonnes), likely productivity of the resource (between 1% and 5%), and the sustainability of current fishing levels, were provided to the NSW TAC Setting and Review Committee in 2001. The committee accepted advice, based on the project's findings, that the existing catches coming from regions 3 and 4 were not sustainable and that the fishery be managed using regionally based commercial catch limits. The committee recommended regional total allowable commercial catch (TACC) limits totalling 60 tonnes per year across the state, and recommended that these TACCs remain in place for the next five years. These recommendations were implemented by the NSW Government.

In the absence of the project, it is assumed that the introduction of quotas by NSW Fisheries would have been delayed by several years, increasing the risk of more extensive and widespread depletion of the red sea urchin population.

The project also enabled NSW Fisheries to gain a better scientific understanding of the stock abundance, distribution and sustainable harvest levels for purple sea urchins, enabling the TAC Setting and Review Committee to decide that the estimated sustainable yield was far greater than current catch levels such that quotas were not warranted.

There has been less interest in the sea urchin fishery in Victoria compared to NSW, such that the fishery continues to be managed as a developing fishery and quotas have not been considered necessary, given the present low harvest levels.

The expected development of the sea urchin fishery anticipated at the time the project started has failed to materialise. The rapid initial growth in catches was based on the harvesting and processing of red sea urchin. However, the surveys undertaken in this project demonstrated that the red urchin resource was insufficient to sustain these higher catch levels. The subsequent downturn in product volumes, together with problems in maintaining quality, adversely affected the export markets, such that most of the catch is now sold domestically. This in turn has led to a glut of product on the domestic market, forcing prices down. Prices to fishers have dropped by almost 40%, from a high of about $5/kg in 2000 to their current level below $3/kg, further negating any industry growth.

Development of the purple urchin sector of the industry has also failed to gain momentum. The purples are considered to be bitter in taste, such that they are not highly sought after by consumers, with prices to fishers being about $1/kg wholeweight. Market demand for the roe from purple urchins has increased slowly, and only at the domestic level, such that profit margins in the harvesting and processing of purple urchins are too low to sustain a viable industry. Of the 37 endorsements in the NSW fishery, only five are currently active, most of whom have other sources of income, either from other fishing interests or from non-fishing sources. Sea urchin production in NSW is valued at only about $30,000/year.

The project found that that there was scope to improve the yield and colour of purple sea urchin roe, and thereby increase industry profits, by transplanting urchins from less productive Barrens grounds to more productive fringe habitat areas. Discussions with sea urchin fishers indicated that some transplanting of urchins does take place, though it is the reds — not the purples studied in the project — that are transplanted, and that in any case, such transplanting was occurring before the study. Given the low demand — and hence $1/kg price — for purple sea urchins, divers consider the potential gains insufficient to make transplanting of purple urchins worthwhile.

The main benefits from the project are environmental, in that the fisheries agencies of both NSW and Victoria now have the necessary scientific information on stock abundance, distribution and sustainable harvest levels to properly manage their respective sea urchin fisheries. Should it be possible to overcome the current marketing problems, the fisheries agencies of both states are well placed as a result of this project to properly manage the future sustainable development of their respective sea urchin fisheries.

The main benefits from the project were environmental … Should it be possible to overcome the current marketing problems, fisheries agencies are well placed to properly manage the future sustainable development of these sea urchin fisheries.

Benefit–cost analysis of project 1999/421: Development of an automated oyster grading machine

A prototype oyster grading machine was designed, constructed and tested in multiple runs involving the grading of more than 20,000 live oysters. The length grading unit performed successfully, but problems were experienced with the weight grading unit, and apart from the one prototype model there were no further sales to industry. Based on the results from this project in isolation, few if any economic benefits would be realised.

However, the knowledge and experience gained from the FRDC project were pre-requisites to the subsequent successful development of a grading machine under a separate Government-supported program (the New Industries Development Program, NIDP). This subsequent project successfully developed a prototype grading unit — the SED Mark III — which has been successfully commercialised and a number of units have been sold to oyster farmers in Australia and overseas.

The approach taken in this analysis was to assess the benefits resulting from the commercial development of the SED Mark III oyster grading machine against the combined costs of the FRDC and NIDP projects. The total cost of the two projects was $288,000 — of which the FRDC contributed $40,000, the applicants $148,000 and the Australian Government, through NIDP, $100,000.

The use of automated grading machines is forecast to generate considerable economic benefits to the oyster industry. Based on an estimated domestic market of 130 units, the cost savings in labour alone over the 15-year period 2004–2018 may be as much as $3.4 million. Automated grading is also likely to generate fewer on-farm mortalities since growers will be able to grade individual oysters much more frequently throughout the season and take appropriate remedial action (such as moving any weaker oysters to a more desirable location) earlier than otherwise would have been possible. There are also potential marketing benefits as growers will be able to provide buyers with a more consistent product in accordance with the buyers' specifications.

If the SED grader were the only grading machine on the market, then all the benefits generated from the use of grading machines would be attributable to the project. However, the SED machine is not the only grading machine available: while the SED project was under way, a second oyster grading machine was being successfully developed independently of the SED project. Both types of machines have since been commercialised; comparable numbers of the two machines are in use in the Australian industry, and both machines have demonstrated their ability to accurately grade and count oysters to the satisfaction of their respective owners.

Despite this project resulting in the successful development of an automated oyster grader, and despite the subsequent commercialisation and sale of a number of these units to domestic oyster farmers, it is anticipated that had this project not been implemented, those oyster growers wanting an automated grader would have purchased the alternative grader developed independently of this project. The benefits attributable to the project are thus not represented by the total benefits generated from the use of the SED machines but instead are limited to the difference in the benefits generated from using the SED machine as opposed to the benefits generated from using the alternative machine. This differential benefit is considered in most cases to be negligible.

In the absence of this project, the developers of the alternative oyster grader would have had no effective competition on the Australian market. The existing situation — two suppliers and a competitive market for the supply of grading machines — is more beneficial from a grower's perspective than had either SED or the alternative grader enjoyed a monopoly position. Implementation of the project also increased the general level of industry awareness, particularly in Tasmania, about the potential benefits from using automated grading machines.

If the more competitive market for the supply of the graders and the increased industry awareness — two factors attributable to the project — has led to faster adoption of the grading technology by industry than would otherwise have occurred, benefits will have been generated. These benefits, which are directly attributable to the project, are estimated to range between $70,000 and $390,000, depending on the extent to which adoption was accelerated and the cost savings realised from using the automated graders.

Benefits directly attributable to the oyster grading machine project are estimated to range between $70,000 and $390,000.

Benefit–cost analysis of four projects in the Northern Prawn Fishery

Project 1994/128: Assessment of the Impact of Environmental Factors and New Technology on the Northern Prawn Fishery

Project 1995/014: Indices of recruitment and effective spawning for tiger prawn stocks in the Northern Prawn Fishery

Project 1998/109: Risk analysis and sustainability indicators for prawn stocks in the Northern Prawn Fishery

Project 1999/100: Spatial and seasonal stock dynamics of Northern Tiger Prawns using fine scale commercial catch-effort data

Management arrangements in the Northern Prawn Fishery (NPF) — the most valuable Commonwealth fishery — have undergone fundamental change in the past few years, largely in response to increasing concerns about the status of tiger prawn stocks. For example:

» in July 2000, the former system of vessel units was replaced by a system of gear units, with the change-over resulting in a 15% reduction in the length of net that could have been towed under the former vessel unit system; and

» two years later, the total gear pool was reduced by a further 25% and the timing of the fishing seasons adjusted, with these measures anticipated to reduce effort on brown tiger prawns by 43% and on grooved tiger prawns by 26%.

The purpose of this analysis was to assess the extent to which four FRDC-supported projects contributed to these management decisions and to assess the benefits resulting from such decisions that are attributable to these four projects.

The of analysis effort reduction measures implemented in 2000 reaffirmed the approach taken in a previous FERM cost-benefit analysis of project 1994/128 that the impact of that project was to hasten the effort reduction program by one year, although an adjustment was made to reflect the delay in implementation (the previous analysis assumed the change would become effective in 1999, whereas it did not take effect until 2000).

The changes implemented in 2002 were the a culmination of six separate analyses: the three remaining FRDC projects included in this analysis; the 2000 and 2001 Northern Prawn Fishery Advisory Group (NPFAG) reports on the status of the tiger prawn stocks at the end of the 1999 and 2000 seasons respectively; and an independent AFMA-commissioned review of the NPF stock assessment model (the Deriso report).

Discussions with the AFMA manager, industry and representatives from the Northern Prawn Management Advisory Committee (NORMAC) indicated that the Deriso report was a very significant influence on NORMAC's decision to reduce effort. However, it is considered unlikely that AFMA would have commissioned the report in as timely a fashion had there not been the collaborating influences of both the NPFAG assessments and the three FRDC reports, all of which indicated that the tiger prawn stocks were overfished. It is assumed that had the FRDC reports not proceeded, both AFMA's decision to involve an independent reviewer and NORMAC's recommendation to reduce effort would have been delayed by two years.

The effort reduction measures have proven effective. Nominal effort in the tiger prawn fishery, in terms of days fished, fell by more than 5000 days — nearly 40% — between 1999 and 2003, while the latest stock assessment advice suggests that both tiger prawn stocks have recovered such that neither stock is now considered over-exploited.

The increasing biomass of both tiger prawn species creates the opportunity for increased future catches. The FRDC projects, by hastening the implementation of the effort reductions, generated the opportunity to realise these increased catches two years sooner than otherwise would have occurred. The net impact of the reduced short-term catches and increased future catches as a result of earlier stock recovery is estimated at an extra 500 mt of catch.

The lower level of effort in the fishery has generated a direct economic benefit in terms of lower fishing costs. There were 129 vessels active in the fishery in 1999. By 2003, this had dropped by 25% to 97. Total fishing costs have fallen considerably, and the benefits from the realising of these cost savings two years earlier than otherwise would have occurred is attributable to the projects. These cost savings are estimated at $20.6 million.

The potential exists to realise other cost savings in the form of lower management costs, but the magnitude of the cost savings is small relative to these other benefits.

The more rapid effort reduction is also likely to have generated environmental benefits in the form of a more rapid recovery of the tiger prawn stocks, reduced bycatch and less trawling; and social benefits in terms of making the industry more resilient and less vulnerable to the inherent volatility in the fishery such as experienced in 2002–03, neither of which have been quantified.

The net present value of the economic benefits realised from the four projects are estimated at $28.6 million. Given that the net present value of the research investment is $3 million, the four projects combined are estimated to have had a benefit cost ratio of 9.5:1.

The four projects combined are estimated to have had a benefit cost ratio of 9.5:1.

AOP PERFORMANCE MEASURE WAS MET

Strategy 3: To make R&D results widely known, and to facilitate their adoption and (if appropriate) commercialisation

Principal publications released during the year are listed on pages 53, 69 and 79. Other publications, and access to publications via the FRDC's website, are described on page 228.

KEY PERFORMANCE INDICATOR: Dissemination of R&D results, and their availability

PERFORMANCE MEASURE: Evidence of R&D results disseminated in *R&D News*, the World Wide Web, the Australian Natural Resources Online databases and other media

During the year, 122 final reports were received from FRDC-funded projects: 56, 38 and 28 respectively for Programs 1–3.

Most research providers widely distribute final reports to beneficiaries in accordance with FRDC policy.

The FRDC has put a high priority on the translation and dissemination of research findings with key stakeholder groups. The Corporation is continuing to integrate communication and extension activities into the entire duration of a project and to develop new methods to ensure that investments are outcome-focused. Staff have given talks nationally on the need for research providers and stakeholders to identify pathways that will lead to achievement of planned outcomes. When evaluating applications, the Board carefully examines the proposed adoption methods.

The FRDC website is one of the Corporation's key communication tools, providing a variety of users with comprehensive information on how the FRDC plans, invests in and manages fisheries R&D. Information on the funding cycle and application process is now more accessible to potential applicants. During 2003–04 the Corporation improved access to final reports on the Internet by setting up an online "bookstore". Stakeholders can now view non-technical summaries on all completed projects or purchase full final reports in either electronic or hard-copy format. The FRDC website is continually updated to ensure information is correct and up to date.

The website has been certified by the National Archives of Australia to be compliant with the Australian Government Locator Service Metadata Standard, which improves the visibility and accessibility of an organisation's services and information over the Internet.

Four editions of the FRDC's *R&D News* were published during 2003–04. An average circulation of 31,500 was achieved for each edition by distributing the magazine with industry magazines; at trade events, conferences and workshops; and by direct mailing. *R&D News* reports on the activities of the Corporation and of other entities of interest to its readers.

Four issues of the FRDC's *R&D News* (left), each with a circulation of 31,500, were distributed — mainly through industry magazines.

The FRDC was recognised in a variety of publications: industry magazines, state and national newspapers, state seafood industry council magazines and newsletters, scientific publications and press releases.

All active projects funded by the FRDC are listed on a searchable Australian Natural Resources Online database, which is also accessible via the Corporation's website.

AOP PERFORMANCE MEASURE WAS MET

KEY PERFORMANCE INDICATOR: Influence over the adoption of R&D results by stakeholders, especially potential beneficiaries

PERFORMANCE MEASURE: Evidence of adoption taken from post-project evaluations, benefit–cost analyses and other sources

Each new project is categorised according to its likely communication, extension or commercialisation requirements. To ensure that appropriate communication and extension activities are adopted for each new project, applications must include a communication and extension plan. This has resulted in a significant increase in communication of continuing and completed R&D projects to beneficiaries.

AOP PERFORMANCE MEASURE WAS MET

PERFORMANCE MEASURE: Evidence of adoption of R&D results, such as evidence gained through other forms of meetings with beneficiaries

Recently, valuable information on R&D performance evaluation has started to become available from a PhD project by Alex Wells, as discussed in the directors' review of operations and future prospects on page 16.

AOP PERFORMANCE MEASURE WAS MET

PERFORMANCE MEASURE: Workshops and other activities aimed at facilitating adoption of R&D results

The FRDC has actively involved fisheries extension providers in developing effective extension components of R&D projects. However, the Corporation has identified a lack of service providers in the industry in comparison with land-based rural industries as a significant barrier to facilitating adoption of R&D results. Efforts are being made to overcome this deficiency. The FRDC has actively supported SeaNet, an organisation funded by the Natural Heritage Trust through the Department of Agriculture, Fisheries and Forestry. It comprises a network of people who work with the commercial wild-catch sector to ensure the adoption of fishing technologies aimed at environmental sustainability.

The FRDC also produced a range of communication and extension outputs designed to encourage adoption of R&D results, listed on pages 53, 69 and 79.

AOP PERFORMANCE MEASURE WAS MET

PERFORMANCE MEASURE: Patents and other forms of protection of intellectual property as a precursor to commercialisation

The FRDC's focus is on adoption; commercialisation is only one of a number of paths to adoption, and is not inherently better than any other path. The FRDC has a standard IP clause in its project agreement and manages a suite of projects where protection is afforded the results achieved by those projects. Many research results are adopted without commercialisation. The FRDC has copyright over a number of commercially available publications. The FRDC receives royalties on the sale of an oyster grader; has a licence agreement with Pacific oyster breeders and a commercialisation agreement to develop a prawn cooker; and is developing a commercialisation agreement around prawn domestication. The Corporation has no registered patents.

AOP PERFORMANCE MEASURE WAS MET

Strategy 4: To expand the FRDC revenue base to increase investment in fisheries R&D

KEY PERFORMANCE INDICATOR: Contributions from fishers and aquaculturists above that which will be matched by the Australian Government

PERFORMANCE MEASURE: Minimum of 80% of the contributions paid by industry to the FRDC that can be matched by the Australian Government

This year, the target was exceeded by 29%. **Table 7** shows the level of industry support of the FRDC as indicated by financial contributions during the year. Contributions are by jurisdiction, and within jurisdictions when special arrangements have been put in place in the form of memoranda of understanding or (in the case of prawn aquaculture) a compulsory levy.

Note: The FRDC's principal revenue base, which is the context for table 7, is described on page 168.

NOTES FOR TABLE 7, OVERLEAF:

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 168 (including when industry contributions exceed 0.25% of average GVP).
2. Distribution of FRDC R&D investments is based on the estimated flow of R&D benefits to the respective fisheries.
3. Ratios in column F are derived from the distribution of FRDC investments (column D) for 2003–04 and the previous four years. The figures for these five years are relevant to the 1995 Ministerial direction, summarised on page 122, concerning spending of industry contributions.
4. The Northern Prawn Fishery contributes to the FRDC under the terms of a memorandum of understanding.
5. Production figures for prawn aquaculture are only available to the FRDC for Queensland and New South Wales (via ABARE's *Australia Fisheries Statistics*).
6. Contributions refer only to Australian Prawn Farmers' Association levies and do not include moneys paid via government licences.
7. All Australian Prawn Farmers Association contributions are currently attributed to Queensland because a break-down by states is not yet available from the Levies Revenue Service of the Department of Agriculture, Fisheries and Forestry.
8. The Tuna Boat Owners Association contributes to the FRDC under the terms of a memorandum of understanding.
9. The Tasmanian Salmon Growers Association contributes to the FRDC under the terms of a memorandum of understanding.

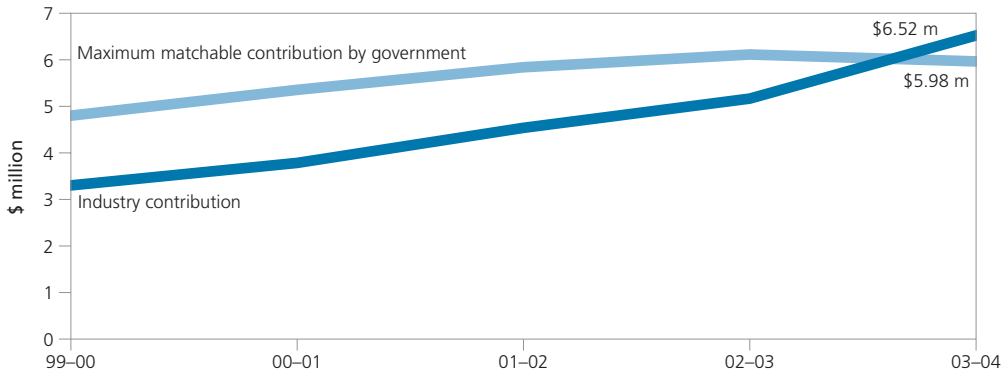
TABLE 7: INDUSTRY CONTRIBUTIONS, MAXIMUM MATCHABLE CONTRIBUTIONS BY THE AUSTRALIAN GOVERNMENT AND RETURNS ON INVESTMENT, 2003–04

	A	B	C	D	E	F
	Maximum matchable contribution (0.25% of AGVP) ($) [see note 1]	Actual industry contribution 2003–04 ($)	B÷A as percent	Distribution of FRDC R&D investments ($) 2003–04 [see note 2]	Return on contribution (D:B) [see note 3] 2003–04	5 yrs
C'wealth Northern Prawn Fishery [note 4]	318,203	928,368	292%	1,568,080	1.7:1	2.1:1
Commonwealth fisheries other	828,813	829,540	100%			
Commonwealth fisheries total	1,147,016	1,757,908	153%	5,074,542	2.9:1	2.9:1
NSW prawn aquaculture	13,933	15,301	110%	73,800	4.8:1	No data
NSW other	321,913	335,807	104%			
New South Wales fisheries total	335,845	335,807	100%	2,016,336	6.0:1	7.4:1
NT prawn aquaculture	Not known [note 5]	Not available [notes 6, 7]	Cannot be calculated	5,024	Cannot be calculated	Cannot be calculated
Northern Territory fisheries total	147,190	155,000	105%	676,805	4.4:1	8.4:1
Qld prawn aquaculture	129,417	215,341 [notes 6, 7]	166%	496,874	2.3:1	6.0:1
Qld other	575,636	530,000	92%			
Queensland fisheries total	705,053	745,341	106%	2,920,488	3.9:1	5.2:1
SA southern bluefin tuna [note 8]	436,911	464,263	106%	2,632,430	5.7:1	5.2:1
SA other	604,754	681,128	113%			
South Australia fisheries total	1,041,665	1,145,391	110%	5,469,572	4.8:1	4.6:1
Tas salmon aquaculture [note 9]	265,953	313,000	118%	1,653,571	5.3:1	4.0:1
Tas Pacific oysters	30,618	31,000	101%	184,907	6.0:1	22.8:1
Tas other	480,941	292,000	61%			
Tasmania fisheries total	777,512	636,000	82%	3,553,476	5.6:1	5.2:1
Victoria fisheries total	292,379	235,470	81%	1,434,480	6.1:1	6.4:1
Western Australia fisheries total	1,531,428	1,511,406	99%	3,974,436	2.6:1	3.7:1
Total	5,978,087	6,522,323	109%			

For every dollar that industry contributed to the FRDC during the past year, the FRDC invested $3.85 in R&D that benefited the contributor.

The $6.5 million industry contribution was 27% more than last year's contribution. As a proportion of total FRDC revenue, industry contributions were 23%, up from 19% last year.

The following graph shows improvement in contributions over time:



Note: The graph reflects two occurrences during 2003–04:

1. for the first time, industry contributions to the FRDC exceeded the maximum level that the Australian Government will match (discussed in the directors' review on page 14); and
2. the average gross value of production, on which the Australian Government's contributions are based (discussed on page 168), declined in 2003–04.

The FRDC has jointly developed a range of contribution mechanisms that are more suited to the individual preferences of various industry sectors. The development of memoranda of understanding for the southern bluefin tuna, Atlantic salmon and northern prawn fisheries has significantly increased R&D contributions from these sectors. Importantly, the sectors have confidence that their investments will result in benefit.

AOP PERFORMANCE MEASURE WAS MET

PERFORMANCE MEASURE: A minimum of four sub-sectors contributing more than the maximum matchable contribution

Eight sub-sectors sectors contributed more than the maximum matchable contribution, as shown in table 7.

AOP PERFORMANCE MEASURE WAS MET

KEY PERFORMANCE INDICATOR: Contributions from other parties with an interest in fisheries and the fishing industry

PERFORMANCE MEASURE: Evidence of other parties' contributions

Primary Industries and Resources South Australia asked the FRDC to manage $1.1 million of their funds for 2003–04 through the Innovative Solutions for Aquaculture initiative.

The FRDC also managed $0.9 million of aquatic animal health activities funded under the 2001 Federal Budget Initiative.

AOP PERFORMANCE MEASURE WAS MET

KEY PERFORMANCE INDICATOR: Definition of AGVP expanded to recognise the economic value of the natural resources used by the recreational and customary sectors

PERFORMANCE MEASURE: Evidence of work being undertaken to expand the definition of AGVP

Expansion of the definition of AGVP[15] was not achieved.

15 More information is on page 206 under "average gross value of production".

AOP PERFORMANCE MEASURE WAS NOT MET

KEY PERFORMANCE INDICATOR: The level of revenue received for other services and products

PERFORMANCE MEASURE: Value of revenue received through interest on investments, sales, and other sources — minimum of $200,000

The FRDC received $304,000 (against a target of $200,000) of revenue from interest, sales and cash paid direct to the FRDC by other parties, including commercial collaborators in projects.

AOP PERFORMANCE MEASURE WAS MET

Strategy 5: To develop and maintain effective, efficient, open and accountable management procedures and systems

KEY PERFORMANCE INDICATOR: Compliance with all acts, regulations, ordinances and by-laws of federal, state, territory and local governments as well as with government policies and FRDC policies/procedures

PERFORMANCE MEASURE: Minimal non-compliance

The FRDC fully complied.

AOP PERFORMANCE MEASURE WAS MET

KEY PERFORMANCE INDICATOR: Maximum FRDC expenditure on R&D programs

PERFORMANCE MEASURE: Proportion of expenditure on R&D programs, communications and programs support — respectively minimum 85%, minimum 3% and maximum 8%

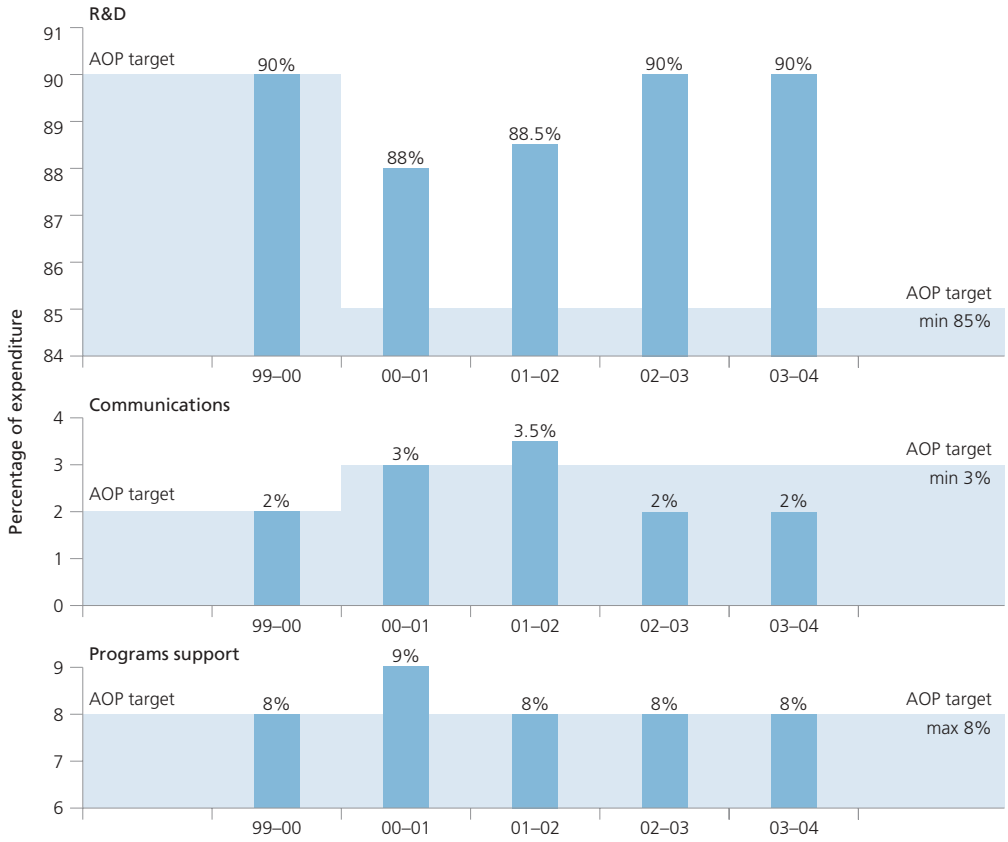
The targets for the FRDC's expenditure in 2003–04, which took into account R&D priorities, were as follows:

» R&D programs: minimum 85 per cent,

» communications: minimum 3 per cent, and

» programs support: maximum 8 per cent.

The proportions spent on each of these three expenditure classifications were:



Note: Communications expenditure includes extension activities undertaken by the Secretariat. Programs support expenditure includes all other activities undertaken by the FRDC, including all salaries and operating expenses of the Secretariat and the Board.

AOP PERFORMANCE MEASURE WAS MET

KEY PERFORMANCE INDICATOR: Results of external quality and financial audits

PERFORMANCE MEASURE: Unqualified audits by the Australian National Audit Office; certification to AS/NZS ISO 9001:2000 maintained; favourable comparisons with other procedures and systems, e.g. benchmarking

All programs management and administrative procedures have been documented. They were audited in November 2003 by an external quality auditor, Quality Assurance Services Pty Ltd.

The FRDC's quality management system remained certified to AS/NZS ISO 9001:2000.

The August 2004 audit report by the Australian National Audit Office confirmed that the FRDC's 2003–04 financial statements gave a true and fair view of the financial position of the FRDC.

The Australian National Audit Office conducted an on-site audit of the FRDC's aquatic animal health activities.

The FRDC collaborated with all other R&D corporations in a project to identify best practice in the corporations' "triple bottom line" reporting, coordinated by Land & Water Australia.

AOP PERFORMANCE MEASURES WERE MET

KEY PERFORMANCE INDICATOR: Accountability to industry, governments and other stakeholders

PERFORMANCE MEASURE: Acceptance of the annual report by the Minister or Parliamentary Secretary and the FRDC's representative organisations

The 2002–03 annual report was presented to the Minister before the stipulated deadline and the Minister tabled it in Parliament on time. Details of the award won by the report are on page 19.

The FRDC's two representative organisations (the Australian Seafood Industry Council and Recfish Australia) accepted the FRDC's 2003–04 annual report at their respective annual meetings.

The FRDC meets its obligations to be accountable to its stakeholders through many channels. For example, key elements of this annual report are repeated in each January edition of *R&D News* — including table 7 on page 94, showing the return on industry investment in R&D through the FRDC. Accountability in this respect accords with the Minister's direction for spending industry contributions (page 122).

Industry financial contributions, maximum matchable contributions by the Australian Government and returns on investment for 2003–04 are shown in table 7.

AOP PERFORMANCE MEASURE WAS MET

Report of Operations

PART 3

Corporate governance

This final part of the report of operations covers:

The FRDC's commitment to good corporate governance

"Governance" refers to processes by which organisations are directed and controlled — including, among others, 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.[16]

The Board and staff are strongly committed to ensuring good corporate governance of the FRDC. In doing so, the focus is on structures, processes, controls and behaviour, as follows.

16 Adapted from Australian National Audit Office 1997, *Applying Principles and Practice of Corporate Governance in Budget Funded Agencies*, [online] http://www.anao.gov.au

Structures

Key elements of the FRDC's legislative foundation (the PIERD Act) are summarised in appendix C (page 172).

The FRDC also operates under the provisions of the CAC 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 PIERD Act and shown in appendix C, are incorporated in the FRDC's visions, mission and planned outcomes. As reflected in figure 9 on page 38, the FRDC's three 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 R&D planning, implementation and reporting, and that of many of the organisations with which it does business. Importantly, the alignment ensures that the R&D outputs resulting from the Corporation's investments fully address the legislative objects.

The functions of the FRDC, deriving from section 11 of the PIERD Act, are also described on page 172.

The FRDC's organisation and the context in which it operates are shown in figure 1 on page 5. Ten staff cooperatively manage the functions of programs, business, communications, and quality. Staff names and titles are shown on pages 123 and 124.

The FRDC has no fully owned subsidiaries. Its major activities and facilities are located in Canberra.

The Board

The Board comprises nine directors who are appointed, in accordance with sections 17 and 77 of the *Primary Industries and Energy Research and Development Act 1989* (the PIERD Act), as follows:

- The Chair and the Government Director are selected and appointed by the Minister for Fisheries, Forestry and Conservation.
- The Executive Director is appointed by the Board on terms and conditions determined by the Board.
- The other six directors are appointed by the Minister for Fisheries, Forestry and Conservation on the nomination of an independent selection committee convened under section 123 of the PIERD Act. The Minister appoints the selection committee based on nominations from the FRDC's representative organisations.

Directors are selected on the basis of their expertise in one or more of the following fields derived from the PIERD Act:

» commodity production,
» commodity processing,
» marketing,
» conservation of natural resources,
» management of natural resources,
» science,
» technology and technology transfer,
» environmental and ecological matters,
» economics,
» administration of research and development,
» finance,
» business management,
» sociology, and
» government policy and public administration.

Directors are appointed for a term not exceeding three years, except for the Government Director and the Executive Director. All directors except the Executive Director are appointed on a part-time basis.

A finance and audit committee and a remuneration committee, and other ad hoc committees of the Board as deemed necessary from time to time, act on the Board's behalf.

The Board ensures that FRDC staff are provided with strong leadership, and that their qualifications, skills and experience are enhanced with formal, and on-the-job, training.

Details of the directors who held office during the year are shown on the following pages. Mr Peter Dundas-Smith is the only executive director.

On 28 August 2003, the Minister for Fisheries, Forestry and Conservation approved recommendations by the committee to select FRDC directors (reported in appendix A of last year's annual report). Two existing directors were re-appointed and four retired from the Board. (This selection process applies to the six directors nominated by the selection committee for appointment by the Minister; the Chairman, Executive Director and Government Director's appointments lie outside the process.)

Directors' biographies

Mr Denis Byrne: Chairman (non-executive)

Appointed as Chairman from 1 January 2002; re-appointed in 2004.
Appointment ends 31 August 2007.
Chairman of the Remuneration Committee and the Business Development Committee.

Denis Byrne is a commercial lawyer and consultant with wide corporate, infrastructure and resources experience. Formerly Managing Partner of Freehill Hollingdale & Page, he has been President of the Queensland Law Society and the Law Council of Australia. He has lectured extensively on corporate governance.

Denis has been a member of the Australian Takeovers Panel since 1997 and was recently appointed to the New Zealand Takeovers Panel: these panels adjudicate on disputes in takeovers of publicly listed companies. He chairs the Downlands College Foundation. He is a director of Total Care Technologies Pty Ltd, Birkdale Nursery Holdings Pty Ltd, and the Ball Solutions group of companies. He is a member of the Queensland advisory board of the Starlight Children's Foundation.

Denis served on the Prime Minister's Rail Projects Taskforce and on the Wool Working Party, which was involved in determining the level of wool tax payable by wool producers. He chaired industry committees to devise a single entity to deliver horticulture R&D and marketing services. In early 2001 he became a director of the resulting company, Horticulture Australia Ltd.

Until recently, Denis served as the chair of the Queensland Gas Appeals Tribunal; the tribunal's jurisdiction is to be assumed by a new, single body dealing with all land and resource issues in Queensland.

Mr Stuart Richey: director (non-executive), Deputy Chairman

Appointed as a director from 1 September 2003 until 31 August 2006.
Appointed as Deputy Chairman from 20 October 2003.
Member of the Remuneration Committee.

Stuart Richey has been actively involved in the fishing industry for more than 30 years and has considerable experience in most fishing methods. He brings a wealth of corporate and industry knowledge to the Board. He is Managing Director of two family companies — Richey Fishing Company Pty Ltd and Richey Services Pty Ltd — which operate modern multi-purpose fishing vessels in several south-east Australian fisheries. He also holds directorships of Seafish Tasmania Pty Ltd and R.F. McLaughlin & Consolidated Fishermen (Aust) Pty Ltd. He holds Skipper Class 1 (fishing) and Master Class 4 (trading) qualifications.

Currently Stuart is a director of Marine and Safety Tasmania and a member of the National Marine Safety Committee Industry Advisory Panel. He is also a director of the Tasmanian Fishing Industry Council, a council member of the Australian Maritime College, and Chairman of the Northern Prawn Management Advisory Committee. He has previously held a number of senior positions related to the industry, including as a director, Deputy Chair and acting Chair of the Australian Fisheries Management Authority and as a

director of the Tasmanian Aquaculture and Fisheries Institute. He has participated in numerous overseas delegations and consultations, including those convened by the FAO and World Bank.

He is a Fellow of the Australian Institute of Company Directors.

Mr Peter Dundas-Smith: Executive Director

The Corporation's inaugural Executive Director, appointed in 1992.
Holds office during the Corporation's pleasure.
Member of the Business Development Committee.

Immediately before his appointment, Peter Dundas-Smith was a senior manager with Telecom Australia and, before that, an RAAF Wing Commander. In these roles he had wide experience of large-scale project management, logistics and human resources management, and strategic planning. He has extensive knowledge of the operations and interests of the commercial and non-commercial components of the fishing industry, and of the research sector. He has been Vice President of the Australian Fisheries Academy. He is a director of the Cooperative Research Centre for Sustainable Aquaculture of Finfish and of Seafood Services Australia Ltd, and serves on a number of industry-related advisory bodies.

Peter is a graduate of the Advanced Command and Staff Course of the RAAF Staff College, holds a Graduate Diploma in Management Studies and a Diploma of Company Directorship, and is a Fellow of the Australian Institute of Company Directors. In 2003 he was awarded the Centenary Medal, in the General List, for guiding the research philosophies of the FRDC for the betterment of the Australian fishing industry.

NOMINATED DIRECTORS RE-APPOINTED IN 2003

"Nominated directors" are those nominated to the Minister by a selection committee in accordance with section 127 of the PIERD Act — that is, they do not include the Chair, Executive Director and Government Director.

Mr Simon Bennison: director (non-executive)

Appointed from 1 January 1998; re-appointed in 2001 and 2003.
Appointment ends 31 August 2006.
Chairman of the Finance and Audit Committee.

Simon Bennison's extensive experience in the aquaculture industry has been gained, in part, as a producer for 20 years. He has been the Executive Director of the Aquaculture Council of Western Australia for the past ten years, has represented the aquaculture industry on the National Aquaculture Council since its inception, and was a director of the Western Australian Fishing Industry Council for eight years.

Simon is the chairman of the Yabby Producers Association of WA and executive officer of several other producer associations. He is a member of the Australian Shellfish Quality Assurance Committee and Co-Chair of the FRDC Aquatic Animal Health Subprogram, and has been a member of the National Aquaculture Development Committee. He is a former chairman of the WA Fishing Industry Training Advisory Board. He has been involved in many projects relating to industry and market development.

A science graduate of Curtin University, Simon maintains a strong interest in the development and management of aquaculture industries and their environment in Australia. He also has ten years' experience in the mining industry in environmental management. He has a Diploma of Company Directorship and is a Fellow of the Australian Institute of Company Directors.

Mr Ian Cartwright: director (non-executive)

Appointed from 1 January 2001;
re-appointed in 2003 until 31 August 2006.
Member of the Finance and Audit Committee.

Ian Cartwright has had a lifetime association with the fishing industry: initially in inshore fishing and, after coming ashore, through a career in fisheries education and management.

Currently Ian is a fisheries consultant working within Australia and the Asia-Pacific region through his company, Thalassa Consulting Pty Ltd, specialising in fisheries management issues. He is also chairman of two Commonwealth fisheries management advisory committees — Bass Strait Scallops MAC and Southern and Western Tuna and Billfish MAC.

Formerly, Ian was Director of the Faculty of Fisheries and Marine Environment at the Australian Maritime College and held the post of Deputy Director of a multinational tuna management agency, the Forum Fisheries Agency in Honiara, Solomon Islands.

He has an honours degree in fisheries science and a master's degree in economics.

NOMINATED DIRECTORS NEWLY APPOINTED IN 2003

Mr John Harrison: director (non-executive)

Appointed from 1 September 2003 until 31 August 2006.
Member of the Remuneration Committee and the Business Development Committee.

John Harrison has a wealth of experience in recreational and sport fishing and its management. He also has a strong interest in issues concerning the whole fishing industry and its broader natural resources management and policy backgrounds.

As Executive Officer of the Amateur Fishermen's Association of the Northern Territory, John has managed the business of the recreational and sport fishing sector in the Northern Territory since 1998. He is a member of numerous advisory, management, technical and consultative bodies relating to fisheries, catchments, other land-based natural resources management, customary/indigenous fishing, and primary industry. He was instrumental in staging the 3rd World Recreational Fishing Conference at Darwin in 2002.

John's experience of national and international industry matters was gained firstly as National Executive Director (from 1995 to 1998) of Recfish Australia, the national peak body for recreational and sport fishing, and as President from 2001 to 2003. On behalf of Recfish Australia he participated in many forums related

to the recreational sector. He also took part in wider activities such as advising on policy related to wetlands, oceans and imported fish products. He developed the world's first national recreational and sport fishing code of practice during this period.

John is a graduate of the Australian Rural Leadership Program and a Member of the Australian Institute of Management.

Professor Tor Hundloe AM: director (non-executive)

Appointed from 1 September 2003 until 31 August 2006.
Member of the Business Development Committee.

Tor Hundloe wrote his PhD on fisheries economics and is one of very few people in Australia with this qualification. His initial interest in fishing developed while spending part of his childhood trip in Norway; nowadays his expertise ranges across an extremely wide range of fisheries and marine matters. He has been involved in researching the economics of commercial and recreational fishing for more than 25 years, has written three books on fisheries economics and fisheries management, and has organised various conferences and seminars on these topics. When the first zoning plan was prepared for the multi-purpose Great Barrier Reef Marine Park in 1979, he was the Marine Park Planning Officer; and in 1997 he worked for the Victorian Fisheries Co-management Council to resolve resource sharing in the Bay and Inlets fisheries.

Since 1996, Tor has been Professor of Environmental Management at the University of Queensland. For the previous six years he was the Environment Commissioner with the Industry Commission (now the Productivity Commission) and before that he was Director of the Institute of Applied Environmental Research at Griffith University, Brisbane. He was a member of the panel for structural adjustment of Great Barrier Reef fisheries and is an assessor of Seafood Services Australia's seafood Environmental Management System program.

In 2003, Tor was appointed as a Member of the General Division of the Order of Australia for his contribution to fisheries, coastal management, eco-tourism and environmental economics, and was awarded a Centenary Medal for services to education.

Dr Nick Rayns: director (non-executive)

Appointed from 1 September 2003 until 31 August 2006.

During his career, Nick Rayns has accumulated a great deal of knowledge of Australasian fisheries. He has worked for fisheries agencies in New Zealand and Australia, managing commercial, recreational and indigenous fisheries from cool temperate to tropical latitudes.

After completing a PhD in rock lobster aquaculture, Nick worked as a fisheries management scientist for the New Zealand Government on southern oyster, abalone, crab and sea urchin fisheries. He moved to Australia in 1992, briefly working as the aquaculture manager at NSW Fisheries before joining the Australian Fisheries Management Authority as fisheries manager for the South-East Trawl Fishery, followed

by Commonwealth tuna fisheries. Nick then took up a senior fishery management role with the Northern Territory Government, becoming Director of Fisheries shortly afterward. This role included working on regional fisheries issues with Indonesia and East Timor. He recently moved back to the east coast, where he is now Executive Director of Aquaculture and Sustainable Fisheries with NSW Fisheries.

Mr Stuart Richey:
director (non-executive), Deputy Chairman

Stuart Richey's biography is on page 102

GOVERNMENT DIRECTOR

Mr Glenn Hurry:
Government Director (non-executive) from 13 September 2002

Holds office during the Minister's pleasure.

Glenn is the General Manager Fisheries and Aquaculture in the Department of Agriculture, Fisheries and Forestry. He holds a master's degree in aquaculture from Deakin University.

NOMINATED DIRECTORS WHOSE APPOINTMENTS ENDED IN 2003

Dr Diana Day:
director (non-executive)

Appointed to the Board from 1 January 1995; re-appointed in 1998 and 2001. Appointment ended 31 August 2003.
Was a member of the Finance and Audit Committee until 31 August 2003.

Diana Day is a research and management specialist in land and water resource systems, with expertise in natural resources security and environmental futures. She is Associate Professor, Academic Development at the University of Sydney. She is a director of the Sugar Research and Development Corporation and has held directorships of the Land and Water Resources Research and Development Corporation and the Grape and Wine Research and Development Corporation. She is a member of the council of the Australian Maritime College. Former appointments include senior research fellow in Environmental Management with the University of Newcastle, and senior policy strategist with the NSW Department of Land and Water Conservation.

Diana has led many cross-sectoral and multi-disciplinary research and executive management programs in university, private sector and government spheres. She has wide experience of developing community and stakeholder consultation and extension programs in the primary industries sector, and has been involved in developing industry and government research and strategy plans.

Diana holds a Doctorate of Philosophy in catchment and river geomorphology, hydrology and water quality, an honours degree in geography, a Diploma in Education and a Diploma of Company Directorship. She is a Fellow of the Australian Institute of Company Directors and is a member of the Environment Institute of Australia and the International Water Resources Association.

Mr David Newton: director (non-executive)

Appointed from 1 January 2001 until 31 August 2003.
Was a member of the Remuneration Committee until 31 August 2003.

David Newton is a company director and bio-technology consultant with a background in chemicals and human, plant and animal health. He is a principal of Melbourne BioBusiness and a director of Nuplex Industries Limited, Stem Cell Sciences Limited and Stem Cell Sciences KK [Japan]. He is a member of the Advisory Board of the Animal Gene Resource Bank, and a member of the French- Australian Industrial Research Committee. He was previously on the Boards of Aventis Australia Holdings Pty Ltd and Boron Molecular Pty Ltd and chairman of the Australia France Foundation.

David was formerly CEO of the Rhône-Poulenc Group for Australia and New Zealand (1987–1998), Commercial Director of Coopers Animal Health, UK, and General Manager of ICI Australia's Biologicals Group. He has also undertaken a consultancy on salmon cultivation in Victoria. He brings to the FRDC senior management experience at board and management level, an understanding of bio-technology and its implications, project selection and management skills, and experience in community consultation.

David holds degrees of Bachelor of Commerce and Bachelor of Arts and is a graduate of the Advanced Management Program, MIT. He is a Fellow of the Australian Institute of Company Directors.

Mr Bill Sawynok: director (non-executive)

Appointed from 1 January 1998; re-appointed in 2001 until 31 August 2003.
Was a member of the Remuneration Committee until 31 August 2003.

Bill Sawynok has wide experience in recreational fisheries spanning 30 years. For the last six years he has been manager of InfoFish Services, which provides an information service on recreational fishing. Before that, he was a senior regional manager in what is now the Queensland Department of Natural Resources and Mines, dealing with a range of natural resources management issues. He has a background in surveying, mapping and geographic information systems.

Bill is a director of the Cooperative Research Centre for the Great Barrier Reef World Heritage Area, a director of the Australian National Sportfishing Association and a member of several organisations related to the recreational sector of the fishing industry. Through the Australian National Sportfishing Association he established Austag, a program for recreational fish tagging and catch-and-effort data collection that now operates in all states.

Bill is involved in recreational fishing, and he maintains an active role in catchment management and natural resources research in the Fitzroy Basin in Queensland.

Mr Sandy Wood-Meredith: director (non-executive), Deputy Chairman

Appointed from 1 January 1998; re-appointed in 2001 until 31 August 2003. Sandy Wood-Meredith was Deputy Chairman during 2003–04 until his appointment as a director ended.

A commercial fisherman for 30 years, Sandy Wood-Meredith has fished in most states and has extensive knowledge of fishing operations, quality assurance, and local and overseas seafood marketing. He is Managing Director of Wood Fisheries Pty Ltd and a director of De Brett Holdings Pty Ltd.

Sandy is an Honorary Ambassador for Trade for the Maroochy Shire. He has been honoured as an "export hero" by the Australian Institute of Export. He is also a graduate of the Australian Rural Leadership Program.

BOARD MEETINGS AND VISITS

During 2003–04 the Board held six meetings as follows:

Date	Location and main activities
28 July 2003	Teleconference.
	Discussed the business plan and legal structure of the newly formed company, Australian Seafood Co-products Pty Ltd, and the FRDC's signing of the Shareholder Agreement.
12–13 August 2003	Townsville.
	Evaluated R&D applications; considered 2002–03 annual report, including the 30 June 2003 financial statements. Participated in presentations on FRDC-funded R&D projects from the CRC Reef Research Centre, the Australian Institute of Marine Science, James Cook University and the leader of the FRDC's Rock Lobster Enhancement and Aquaculture Subprogram.
	Visited two prawn farms in the Ingham area.
	Convened a meeting with local stakeholders (government, industry and researchers); discussed industry issues and R&D opportunities.
15–19 September 2003	Perth.
	First meeting at which newly appointed directors attended. The Board held elections for Deputy Chairman, members of the Finance and Audit Committee and members of the Remuneration Committee.
	Evaluated R&D applications.
	Participated in the 3rd National Rock Lobster Congress, Seafood Directions 2003 and associated meetings.

Date	Location and main activities
9–10 December 2003	Bundaberg.
	Formed the Business Development Committee and agreed on its terms of reference.
	Undertook a strategic planning and gap analysis exercise to provide guidance to stakeholders and research providers on areas of prospective R&D that the Board considered nationally important.
	Convened a meeting with local stakeholders (government, industry and researchers); discussed industry issues and R&D opportunities.
	Visited a number of industry facilities, including a vessel re-fit, a slipway, boat building, chandlery, seafood processing and cold stores.
9–11 March 2004	Canberra.
	Evaluated 2004–05 R&D applications, considered 2004–05 draft annual operational plan.
	Met with the board of the CRC for Sustainable Finfish Aquaculture to discuss the joint R&D investment portfolio.
20–21 April 2004	Canberra.
	Further evaluated 2004–05 R&D applications; finalised 2004–05 annual operational plan and portfolio budget statement.
	Met with the Australian Fisheries Management Forum (comprising the directors of Commonwealth, state and Northern Territory fisheries) to discuss future R&D needs.
	The Chairman and ED met with Senator Judith Troeth (Parliamentary Secretary) to discuss the FRDC's recent activities and future directions.
8–9 June 2004	Lakes Entrance.
	Evaluated R&D applications; considered draft 2003–04 annual report; reviewed the Executive Director's remuneration.
	Visited a fishery cooperative and an aquaculture operation.
	Participated in presentations on FRDC-funded R&D projects.
	Convened a meeting with local stakeholders (government, industry and researchers), which was also attended by the federal Minister for Science, the Hon. Peter McGauran MP; discussed industry issues and R&D opportunities.

Currently the Board has three committees:

» *The Finance and Audit committee*. Its main responsibilities are concerned with helping the FRDC and its directors to comply with their obligations and providing a forum for communications between the directors, the senior managers and the internal and external auditors.

» *The Remuneration Committee*. Its main responsibilities are concerned with reviewing staff remuneration policy and practices and the annual staff remuneration budget, reviewing the Executive Director's remuneration and recommending his remuneration to the Board for approval, and ensuring that remuneration payments made are consistent with approvals.

» *The Business Development Committee*. Its main responsibilities are concerned with monitoring and developing the FRDC's main income streams and exploring opportunities for developing new income streams.

As with their other roles as directors, members of the Board committees retain their rights to gain access to all information held by the FRDC and to seek independent third-party advice.

The Board's Finance and Audit Committee held three meetings as follows:

12 August 2003	Examined the 30 June 2003 financial statements; reviewed associated compliance checklists signed by Corporation officers; reviewed the draft 2002–03 annual report for compliance with the FRDC's legislative responsibilities; made appropriate recommendations to the Board.
8 March 2004	Examined the 31 December 2003 (internally audited) and 31 January 2004 financial statements; met with Acumen Alliance (internal auditors) and reviewed the 2004–05 internal audit plan; met with ANAO (external auditors) to discuss the 30 June 2004 financial audit; reviewed the risk management policy (including the fraud control framework) and the compliance register; reviewed the draft 2004–05 budget for incorporation in the AOP; made appropriate recommendations to the Board.
14 April 2004	Reviewed 31 March 2004 financial statements; reviewed the risk management policy (including the fraud control framework) and the compliance register; met with representatives of ANAO and Deloitte Touche Tohmatsu (selected service providers to ANAO) and reviewed the engagement letter and related audit strategy for the 30 June 2004 financial statements audit; made appropriate recommendations to the Board.

The Finance and Audit Committee's operation is consistent with the Australian National Audit Office *Better Practice Guide*, July 1997 (Audit Report No. 39 of 1996–97).

The Board's Remuneration Committee held two meetings as follows:

8 March 2004	Examined the proposed remuneration budget for the 2004–05 AOP; made appropriate recommendations to the Board through the Finance and Audit Committee.
7 June 2004	Reviewed the Executive Director's performance in 2003–04; made appropriate recommendations to the Board for his remuneration in 2004–05. Reviewed the Executive Director's recommendations for remuneration of two of the three managers who report directly to him.

The Board's Business Development Committee held two meetings as follows since being formed on 10 December 2003:

8 March 2004	Identified potential new sources of income.
14 April 2004	Identified actions to develop opportunities for new sources of income.

Directors' and officers' attendance at Board meetings held in 2003–04 was as follows.

KEY TO TABLES SHOWING ATTENDANCE

* One less than the maximum attendance that was possible during the director's tenure.

** Three less than the maximum attendance that was possible during the director's tenure.

† Chair of Business Development Committee.

§ Chair of Remuneration Committee.

Chair of Finance and Audit Committee.

ATTENDANCE — CONTINUING DIRECTORS AND OFFICER

"Continuing directors" refers to directors whose appointment continued through the whole year.

	Board meetings	Finance and Audit Committee meetings	Remuneration Committee meetings	Business Development Committee meetings
No. of meetings held during directors' tenure →	7	2	2	2
Mr Denis Byrne † §	7	1	2	2
Mr Simon Bennison Δ	6*	2		1*
Mr Ian Cartwright	7	1		
Mr Peter Dundas-Smith	7			2
Mr Glenn Hurry	4**			
Mr John Wilson (Business Development Manager)		2		1

ATTENDANCE — DIRECTORS APPOINTED ON 1 SEPTEMBER 2003

	Board meetings	Finance and Audit Committee meetings	Remuneration Committee meetings	Business Development Committee meetings
No. of meetings held during directors' tenure –>	5	nil	2	2
Mr John Harrison	5		2	2
Prof. Tor Hundloe Δ	4*			2
Dr Nick Rayns	5			
Mr Stuart Richey	5		2	

ATTENDANCE — DIRECTORS WHOSE APPOINTMENTS ENDED ON 31 AUGUST 2003

	Board meetings	Finance and Audit Committee meetings	Remuneration Committee meetings
No. of meetings held during directors' tenure –>	1	1	nil
Dr Diana Day	1*	1	
Mr David NewtonΔ	2		
Mr Bill Sawynok	2		
Mr Sandy Wood-Meredith	1*		

The Chairman approved all absences from Board meetings in accordance with section 71(2) of the PIERD Act.

Representative organisations and other stakeholders

To enhance the FRDC's accountability to its stakeholders, the Minister has declared the Australian Seafood Industry Council (ASIC) and the Australian Recreational and Sport Fishing Industry Confederation (trading as Recfish Australia) to be representative organisations for the purposes of section 7 of the PIERD Act. The FRDC formally reports to the representative organisations at their annual general meetings in keeping with section 29 of the PIERD Act and has regard to their expectations of the FRDC and to their R&D needs. Reporting covers the Corporation's activities for the previous 12 months and activities planned for the next financial year.

In response to the FRDC report to ASIC at the Council's annual general meeting on 15 September 2003, ASIC directors expressed an interest in continuing dialogue with the FRDC to ensure maximum feedback on, and involvement with, the broad range of matters covered in the report.

Recfish Australia acknowledged the role that the Corporation has played in increasing understanding of the impact of recreational fishing on fisheries sustainability.

The FRDC reported to Recfish Australia at the organisation's annual meeting on 14 November 2003. Recfish Australia thanked the FRDC for its continuing support and acknowledged the role that the Corporation has played in increasing understanding of the impact of recreational fishing on fisheries sustainability. The members also discussed with the FRDC how the recreational sector can increase its financial contributions to the FRDC.

Under section 15(2) of the PIERD Act and the *Guidelines on Funding of Consultation Costs by Primary Industries and Energy Portfolio Statutory Authorities*, the FRDC may meet travel and other expenses incurred in connection with consultation between the Corporation and its representative organisations. During 2003–04 the FRDC incurred $7,937 in such expenses; planned expenditure during 2004–05 is $5,000.

The *Guidelines* also specify that when a representative organisation conducts a project or consultancy, details are to be included in the annual report. During the year the FRDC did not expend funds on such a project or consultancy.

Fisheries Research Advisory Bodies

The FRDC supports a network of FRABs covering Commonwealth fisheries and the fisheries of each state and the Northern Territory.

The FRABs have an extremely important role in maximising the efficiency of the FRDC's planning and investment processes. Their role is to:

» develop strategic plans for R&D that take into account other strategic plans, and subsequently maintain strategic directions and be responsive to changing circumstances;

» set R&D priorities to maximise investment, avoid duplication and achieve the greatest potential return;

» invite R&D applications to address those priorities;

» encourage collaboration between researchers, and between researchers, fisheries managers and fishing industry interests;

» identify appropriate funding sources (including the FRDC);

» advise the FRDC on the priority and appropriateness of applications attributing benefit to their related fisheries or industry sectors; and

» assist the FRDC with communication and extension of R&D results.

The FRDC meets some of the costs of operating the FRABs. However, the FRDC is not the sole beneficiary of their outputs: other beneficiaries include fisheries management agencies, other research funding agencies, research providers and industry. Some FRABs are responsible for advising the respective state or Northern Territory ministers on fisheries R&D matters.

Fisheries Research Advisory Bodies (FRABs) set research priorities for R&D at the federal and state/NT level, and communicate those priorities to funding agencies. In April, the FRDC held a National FRAB Workshop at which participants identified best practice for FRAB operations and assisted the FRDC in identifying the industry's future challenges.

The FRABs represent all sectors of the fishing industry, fisheries managers and researchers; most also include environmental and other community interests. Their Chairs at 30 June 2003 were as follows.

CHAIRS OF FRABS AT 30 JUNE 2004

Commonwealth	Mr Ian Cartwright: fisheries consultant; an FRDC director; a director of the Australian Fisheries Management Authority.
New South Wales	Professor Derek Anderson: Professor Emeritus, the Universities of Sydney and New South Wales; Chair of the Centre for Plant Biodiversity Research.
Northern Territory	Mr Richard Sellars: Director of Fisheries, Department of Primary Industry and Fisheries, Northern Territory.
Queensland	Dr Burke Hill: former Deputy Chief of CSIRO Division of Marine Research; a former FRDC director.
South Australia	Mr Richard Stevens: a former FRDC director and former Managing Director of the Australian Fisheries Management Authority.
Victoria	Associate Professor John Sherwood: Chair, Victorian Fisheries Co-Management Council; Associate Professor, School of Ecology and Environment, Deakin University.
Western Australia	Mr Angus Callander: General Manager, Australian Lobster Division, M.G. Kailis Group; Chairman of WAFIC R&D Committee.
Tasmania	Mr Tony Ibbott: management consultant.

Other structures

A number of other structures reinforce effective and ethical performance by the FRDC in addition to the Corporation's fundamental operating philosophy of openness and accountability to stakeholders. They include steering committees at project and subprogram level, conferences, workshops and meetings.

To increase their effectiveness at the strategic level and to share information the rural R&D corporations — including the FRDC — collaborate through a committee of their Chairs, supported by a part-time secretariat. The Chairs Committee also provides continuity and consistency in communication about the role and contribution of RDCs, and in representation, networking and participation in formulation of policy.

Processes

The starting points for the FRDC's planning, operating and reporting processes are set by legislation, especially the PIERD Act and CAC Act. Four documents, including this annual report, are key elements in the framework. The others are as follows:

» *The R&D plan*. This is the FRDC's strategic plan, prepared under the provisions of the PIERD Act with appropriate regard for ministerial directions, Australian Government policy, and consultation with the fishing industry — including the FRDC's representative organisations.

» *The annual operational plan (AOP)*. This document, also prepared under the provisions of the PIERD Act, gives effect to the R&D plan by seeking to achieve, in the best way possible, the planned outcomes of the R&D programs. The Parliamentary Secretary approved the 2004–05 AOP on 25 May 2004.

» *The FRDC's component of the Department of Agriculture, Fisheries and Forestry portfolio budget statement*. This document, which is consistent with the AOP, is also prepared annually. Unlike the R&D plan and AOP, the portfolio budget statement is tabled in the Parliament of Australia. Thus, as with the annual report, it is an important element of parliamentary scrutiny.

Figure 15, overleaf, shows the planning, operating and reporting processes involved.

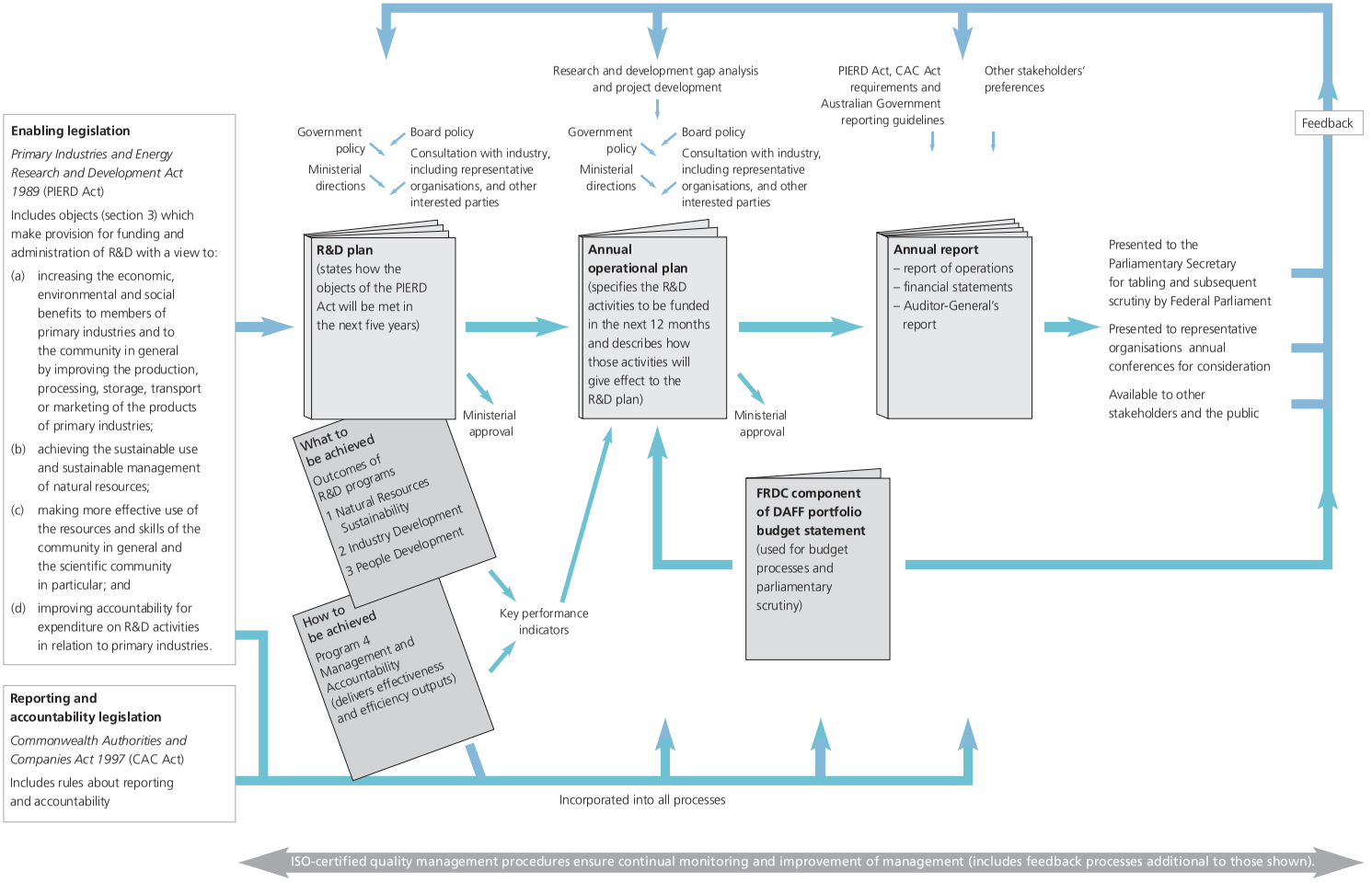
The FRDC ensures that all core processes dealing with planning, investing in and managing R&D are documented in procedures and workguides, and that documentation meets the requirements of the FRDC's quality policy (page 118) and Standard AS/NZS ISO 9001:2000.

The FRDC's finances are audited internally twice a year and externally (by the Australian National Audit Office) once a year. Quality management processes are audited internally and externally, in both cases once a year.

All new directors and staff undergo comprehensive induction training, which includes a briefing on the requirements of the CAC Act. This Act, which significantly influences the conduct of the FRDC's affairs, is the basis for much of the corporate governance that is addressed in this annual report. All directors also received appropriate updates of a book, published by the Australian Institute of Company Directors, on the duties and responsibilities of directors. Five people (the Executive Director and two other directors, and two senior staff) have completed the Diploma Course of the Australian Institute of Company Directors.[17]

17 More information on director and staff development is on pages 124–125.

FIGURE 15: KEY PROCESSES IN THE FRDC'S PLANNING, OPERATING AND REPORTING FRAMEWORK



In keeping with the Board's commitment to good corporate governance each director, after participating in the evaluation of new R&D funding applications, certifies that the process used was consistent with the FRDC's quality management procedures and that he/she agrees with the evaluation results.

Directors are entitled to obtain independent professional advice about the affairs of the FRDC or their director responsibilities. A director who considers such advice is necessary will first consult the Chairman and, having done so, will be free to proceed. Subject to the prior approval of the Chairman, the FRDC will reimburse the reasonable cost of such advice.

Controls

Risk management

The FRDC incorporates risk management in all activities in accordance with its risk management policy, which is integrated into the FRDC's quality management system and internal audit program. The policy seeks to protect the FRDC's public and commercial positions and the FRDC's employees, information and property. A risk registry identifies each risk, describes its probability, likely severity and mitigation strategy, and records the status of the mitigation strategy.

The Board further improved its management of compliance risk during the year by introducing a compliance registry, which will be reviewed annually.

The risk management policy also incorporates a fraud control framework in accordance with the *Fraud Control Policy of the Commonwealth — Best Practice Guide for Fraud Control* (ANAO Audit Report No. 39 of 1996–97), which seeks to minimise the likelihood and impact of fraud. The policy is a standing item at each Board meeting and is updated annually by the Board's Finance and Audit Committee to ensure that it remains relevant to the FRDC's business.

Project audits, an important part of the fraud control framework, ensure that research providers have appropriate systems and controls in place for managing FRDC projects.

No incidence of fraud was detected during 2003–04.

Directors' interests

The FRDC's policy on directors' interests, of which the following is a summary, complies with section 21 of the CAC 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.

Since directors are appointed on the basis of their expertise in accordance with section 131 of the PIERD Act, they do not represent any particular organisation or interest group. Therefore, the Board recognises that a director's connection with any particular organisation or interest group does not necessarily imply a conflict of interests, including a material personal interest. The Board also recognises that it may wish to avail itself of directors' individual skills and to make use of their expertise.

A director who considers that he/she has a direct financial, indirect financial, or non-financial interest in a matter to be discussed by the Board must disclose the existence and nature of the interest before the discussion takes place. The following table describes subsequent action:

PARTICIPATION BY DIRECTOR WITH CONFLICT OF INTERESTS

Category of material personal interest	Discussion and decision on nature of interest	Discussion of matter	Decision on matter
Direct and indirect financial	Absent	May be invited back to provide input based on the director's related expertise and to answer related questions	Absent
Non-financial	May participate unless the Board (without participation by the director concerned) considers that the director should not participate, or unless the director chooses not to participate.		

The Government Director is subject to the same conflict-of-interests requirements as other Board members, but may also face a potential conflict of interests in circumstances unique to the position. The Government Director will inform the Board of any such possible conflict of interests and leave the meeting while the Board determines the status of the potential conflict. Although the Government Director may choose to be absent from a particular discussion, it is unlikely that the Board would require him/her to be absent from a discussion.

The Government Director, in relation to any matter, may:

» request that her/his concerns are recorded in the minutes of the meeting,

» request that a formal vote be taken on the issue,

» ask the Chairperson to inform the Minister of the Board's intended action, or

» inform the Chairperson that she/he intends to inform the Minister of the Board's decision.

A standing notice about directors' interests is updated at each Board meeting. All declarations of interests, and their consideration by the Board, are recorded in the minutes.

The FRDC encourages FRABs, and other committees that provide the Corporation with advice, to adopt this policy.

Commitment to quality

The FRDC aims to meet or exceed the expectations of stakeholders and other people and organisations with whom it does business. To do so, the FRDC has adopted Total Quality Management (TQM) as its operating philosophy. TQM impels an energetic, continuing focus on the needs of the people the FRDC serves.

The FRDC integrates into all its activities a "quality approach", ensuring that all work is performed according to a systematic process in a corporate environment conducive to continual improvement. The process is determined by the quality requirements of AS/NZS ISO 9001:2000, to which the FRDC is certified.

"Your quality management system is on a par with the best I have audited. It is pragmatic and tailored to the continual improvement of the way you do business."

— independent quality auditor

The FRDC's quality policy recognises that excellent performance by staff is essential to fulfilment of the Corporation's mission, and consequently that the highest level of staff satisfaction, health and safety must be maintained. The policy obliges the FRDC to train all staff in the principles and requirements of TQM. It also presupposes that all staff and directors are dedicated to the philosophy of continual improvement at the corporate and individual level.

In addition to providing a basis for continual improvement, the FRDC's quality management procedures provide important controls for corporate governance.

The FRDC's quality management system also encompasses the features of a service charter.

Indemnities and insurance premiums for officers

When appropriate, the FRDC takes out insurance policies to mitigate insurable risk.

The FRDC is required by the Australian Government's self-insurance provisions to use ComCover for its insurance needs. ComCover's confidentiality requirements prohibit the release of information on the nature and limits of liabilities covered and the amount of contribution paid.

Liabilities to staff

The FRDC provides for liabilities to its staff by ensuring that its financial assets (cash, receivables and investments) are always greater than its employee provisions. Fulfilment of this policy is evidenced in the Statement of Financial Position in the Corporation's monthly financial statements.

See also note 1.5 of the financial statements (page 140).

Selection of suppliers

When selecting suppliers of goods and services, the FRDC seeks to achieve value for money and to deal fairly and impartially.

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.

When possible, preference is given to goods and services supplied from Australian or New Zealand sources. All project agreements for R&D are currently with Australian or New Zealand research providers.

The following processes normally apply to FRDC procurement:

More than $100,000	Open tender.
$30,000 to $100,000	Selective tender, with at least three written quotations.
Less than $30,000	Competitive tender is not required.

These processes may be varied when:

» a specific proprietary item must be obtained to retain warranty services or to ensure technical integrity;

» urgency precludes the quotation or tender process;

» a prospective supplier appears to be the sole available source of the goods or services, or the prospective supplier's goods or services are considered to be superior to those of any likely alternative supplier;

» the cost of selecting alternative suppliers would negate the benefits to be derived from a competitive process;

» goods or services are available under a Government panel contract; and/or

» the FRDC has previously registered the interest of prospective suppliers.

In the open tender process, the FRDC sends suppliers a request for tender after:

» deploying appropriate advertising;

» preparing documentation that specifies the requirement, tender conditions, contract conditions and other administrative information; and

» determining criteria for evaluation of tenders.

Consistent with the FRDC's conflict-of-interests policy (page 117) and section 21 of the CAC Act, if a procurement directly or indirectly involves an FRDC director or staff member or an immediate member of their family, the director or staff member is excluded from decision-making relating to the procurement.

Consultancy services

During the year, the FRDC engaged three consultancies (as defined in the Department of Prime Minister and Cabinet document, *Requirements for departmental annual reports)* to the value of $10,000 or more:

Name of consultant:	Blake Dawson Waldron Lawyers
Nature and purpose of consultancy:	Legal advice — particularly in relation to development of best-practice project agreements and project management agreements, a proposed promotion initiative, purchase of a shareholding in Australian Seafood Co-products Pty Ltd, and contracts with the Department of Agriculture, Fisheries and Forestry.
Cost:	$77,650
Name of consultant:	Fisheries Economics Research and Management Specialists
Nature and purpose of consultancy:	Benefit-cost analysis of five completed FRDC projects
Cost:	$29,000

None of the consultancies was publicly advertised. The reasons for engaging the consultancy services, consistent with the FRDC's supplier selection policy, were the need for independence in carrying out the services; unavailability among FRDC staff of the skills and time required to perform the task; and availability of consultants known to have the requisite skills where the value of the project did not justify the expense or delay associated with seeking tenders.

Behaviour

Corporate governance practices are evolving rapidly, both in Australia and overseas. The FRDC is proactive in integrating these practices, including those governing ethical behaviour, into its own processes.

The directors and staff have built a culture of transparency, trust and candour that is well suited to the needs of a small organisation with a high output and an eight per cent limit to overhead costs. This culture has resulted in large measure from a strong philosophical commitment to good corporate governance and from implementation of continual improvement as part of the Corporation's quality management system. It is widely recognised, and highly valued, among stakeholders.

In the wake of spectacular corporate collapses of the late 1990s, much research has been conducted into the performance of boards and senior management. Although governance structures have improved significantly in Australia and overseas — including in the FRDC — a recent comparison of failed boards and successful ones showed that all the boards passed the structural tests — concerned with rules, procedures, committee composition and the like — that would normally be applied to ascertain whether a board of directors was likely to do a good job.[18] However, exemplary boards were distinguished from the others by being "robust, effective social systems". They embodied respect, trust, candour and tolerance of open dissent; required directors to play a variety of roles; ensured individual accountability; and evaluated directors' performance.

18 Sonnenfeld, Prof. Jeffrey A., 'What makes great boards great', *Harvard Business Review*, September 2002. Available from http://doi.contentdirections.com/mr/hbsp.jsp? doi=10.1225/R0209H or www.trynice.com/pdfs/HBE_article.pdf

Given the close correlation between these findings and the characteristics of the corporate governance culture which the FRDC directors and staff have developed, the Corporation is encouraged to continue its efforts in this respect. Accordingly, during the year the Corporation researched current best practice in codes of conduct and developed a new code for directors and staff that is appropriate to the Corporation's structure and activities and complies with division 4 of the CAC Act.

Enabling legislation and responsible ministers

The FRDC was formed as a statutory corporation on 2 July 1991 under the provisions of the *Primary Industries and Energy Research and Development Act 1989* (the PIERD Act). Information about the FRDC's legislative foundation is in appendix C, from page 172.

The Ministers responsible for the FRDC are the Minister for Agriculture, Fisheries and Forestry; the Parliamentary Secretary to the Minister; and the Minister for Fisheries, Forestry and Conservation.

Throughout the year the Minister for Agriculture, Fisheries and Forestry was the Hon. Warren Truss, MP. The Parliamentary Secretary to the Minister was Senator the Hon. Judith Troeth. The Minister for Fisheries, Forestry and Conservation was Senator the Hon. Ian Macdonald. All three ministers exercise ministerial powers in their own right.

Exercise of ministerial powers

Ministerial powers under the enabling legislation are described on pages 173–174. The powers may be exercised by any of the three ministers.

During 2003–04, ministerial powers were exercised as follows:

» causing a coordination meeting to be held of all R&D corporations,

» approving the 2004–05 annual operational plan, and

» re-appointing the Chair of the Corporation.

The following tables summarise a ministerial direction and notifications of Australian Government general policies and administrative matters that have been issued to the FRDC by responsible ministers and have not been superseded. All the matters stipulated have been incorporated into the FRDC's policies and procedures.

MINISTERIAL DIRECTION

The following ministerial direction made under the provisions of s. 143(1) of the PIERD Act in a previous year had continuing effect:

Date	Subject
11 May 1995	Spending of industry contributions is to be of direct relevance, within a five-year period, to the fishery, industry sector, or state / territory in which funds were collected. The FRDC is to have regard to advice from management agencies and industry sectors, including FRABs.
	[The full text of the direction is reproduced on page 144 of the R&D plan.]

NOTIFICATION OF GOVERNMENT GENERAL POLICIES AND ADMINISTRATIVE MATTERS

During the year, the Minister for Agriculture, Fisheries and Forestry notified a Government general policy to the FRDC as follows:

Date	Subject
13 October 2003	Application of the National Code of Practice for the Construction Industry and associated Implementation Guidelines to all construction projects that have Australian Government funding.

The following notifications by the Ministers in previous years had continuing effect:

Date	Subject
14 April 2003	New cost recovery policy.
12 March 2003	Updated Australian Government priorities for rural R&D.
5 December 2002	Australian Government national research priorities.[19]
21 August 2002	Need to adopt the Commonwealth Fraud Control Guidelines.
30 July 2001	Need to exercise the highest standards of corporate governance; findings of the NSW Parliament's Public Accounts Committee concerning the collapse of the NSW Grains Board.
27 July 2001	Encouragement to adopt the principles of the COAG framework to advance indigenous reconciliation.
11 January 1999	Accountability arrangements for statutory authorities.
6 July 1998	Guidelines for payment of representative organisations' costs in consulting with the FRDC.

19 Reporting against the Australian Government's priorities starts on page 41.

Policy and administration

Minimisation of administration

To increase its production of outputs in the face of greatly increasing demand for fisheries R&D, the FRDC continually strives to improve the way in which it goes about its business. Productivity has been increased through improved management procedures, aided by the FRDC quality management system, and through the innovation, application and professional development of staff members. As part of this process, the FRDC aims to maximise the proportion of funds expended on R&D programs by minimising the cost of administration.

Staff

At 30 June 2004, the FRDC had 9.6 full-time-equivalent staff members, Jane Graham having changed to three days a week on return from maternity leave.

All staff are employed under terms and conditions determined by the FRDC. No staff member is employed under the *Public Service Act 1999*.

The Executive Director, Peter Dundas-Smith (at rear) with the Programs team: Dr Patrick Hone (Programs Manager, front right) and his Projects Managers — Research: Crispian Ashby (front left) and Jane Graham (standing right) and Annette Lyons (Projects Manager — Finance). Annette is also the FRDC Quality Manager.

The Business team: John Wilson (Business Development Manager); Debbie Bowden (Office Manager); Cheryl Cole (Office Administrator).

The Communications Team: Peter Horvat (Communications Manager) and Tara Ryan (Communications Officer).

During the year, Michael Parolin resigned to take up a position with the Australian Fisheries Management Authority and Peter Horvat was recruited as the new Communications Manager. Kylie Paulsen resigned to take up a position with the Bureau of Rural Sciences and Tara Ryan became Communications Officer. Cheryl Cole joined the FRDC as Office Administrator, replacing Tara Ryan.

Simon Prattley, formerly the FRDC's Programs Manager, returned to the Corporation for three months during Jane Graham's absence on maternity leave.

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, and is administered through the Board's Remuneration Committee. The amount of individual remuneration of the Executive Director and staff is based on advice by Mercer Human Resource Consulting Pty Ltd, which includes the value of each staff position in the market. 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.

Measurement occurs through a personal performance assessment process that involves staff and the Executive Director[20] in reaching agreement on key performance indicators against which the staff member will be evaluated. The performance component of remuneration variations and individual development needs are also identified. Personal performance assessment agreements constitute individual performance agreements. Since they are based fundamentally on the FRDC's key performance indicators described in the R&D Plan, the performance measures forecast in the AOP and the performance achievements reported in the annual report, there is a direct link between individual performance and that of the FRDC as a whole.

20 In the case of the Executive Director, the other party is the Chairman.

Staff and director development

The FRDC recognises that excellent performance by staff and directors is essential to fulfilment of the Corporation's mission, and consequently that the highest level of staff satisfaction, health and safety must be maintained. Personal and skills development of staff and directors is therefore a very high priority. Training is based on assessment of, and agreement on, individual and group development needs.

During 2003–04, one staff member continued fisheries management studies at Master level, one continued studies of fishing gear selectivity at Master level, and one continued studies for a Bachelor of Business degree. One director and one staff member commenced the Australian Institute of Company Directors diploma course. Staff undertook job-related training, attended conferences relevant to FRDC activities and the fishing industry, and worked with researchers and industry people on various aspects of project management.

In September, the Corporation's four new directors undertook a two-day induction course, the second day of which was a pilot course conducted by the Australian Institute of Company Directors, which was also attended by all staff. Two new staff members also undertook induction briefings early in 2004.

Staff members are also encouraged to maintain professional affiliations. They have memberships of the Australian Institute of Company Directors, the Australian Society of Certified Practising Accountants, the Australian Society of Fish Biologists, the Public Relations Institute of Australia, the Institute of Public Administration Australia, the Australian Institute of Management, the Data Management Association, and the Women's Industry Network — Seafood Community.

Equal employment opportunity

The FRDC has a policy of equal employment opportunity. Merit-based principles are applied in recruitment and promotion to ensure that discrimination does not occur. Of the FRDC's staff of ten, five are female and one has a non-English speaking background.

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 (page 118) and the attendant emphasis on continual improvement.

Occupational health and safety

Consistent with its commitment to quality, the FRDC is committed to providing its staff with a safe and healthy environment. Staff deal with occupational health and safety matters as they arise. Occupational health and safety is a standing agenda item for weekly staff meetings.

FRDC staff undertook fire safety training with a specialist provider, covering basic fire safety (emergency evacuation and fire control techniques), emergency control and warden awareness.

Three staff members competed the Red Cross first aid training during the year.

The FRDC working environment is reviewed periodically by occupational health and safety consultants. This year, a workplace safety and injury management company made an ergonomic assessment of each staff member's immediate working environment and provided training in workplace health and prevention of injury.

No injuries occurred on FRDC premises during 2003–04.

Disabilities

The Commonwealth Disability Strategy is a framework to help Australian Government agencies to improve access to programs, services and facilities by people with disabilities. The FRDC implements the Commonwealth Disability Strategy on two levels: as a provider of services resulting from R&D and as an employer. During the year the FRDC implemented the Strategy to an extent appropriate to the functions and size of the Corporation.

In providing information and other services about R&D in which it has invested, the Corporation ensures that the graphic design of its publications and the presentation of its word-processed papers have good legibility. PDF versions of the publications on the FRDC website (such as this annual report) can be readily magnified. Conference and workshop participants are asked to nominate facilities they desire to minimise hearing, visual and mobility disability, and FRDC staff consult with them to provide appropriate facilities.

The FRDC's premises have been designed for easy, safe access by people with special orientation, mobility and hearing requirements. The FRDC also provides guidance to its employees on appropriate ways to minimise inconvenience to people with disabilities and facilitating two-way communication with them.

The FRDC's recruitment and staff development practices seek to eliminate disadvantage that may be contributed by disabilities. The FRDC's policy is to consultation with people with a disability and, when required, with appropriate specialist organisations, recognising that 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.

Energy efficiency

The policy for *Improving Energy Efficiency in Commonwealth Government Operations* seeks to improve energy efficiency in relation to vehicles, equipment and building design.

The FRDC follows the policy with respect to factors relevant to the Corporation. The Corporation 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 office.

Privacy of information

The FRDC manages personal information in accordance with the *Privacy Act 1988*. In particular, the Corporation's privacy policy explicitly implements the Information Privacy Principles set out in section 14 of the Privacy Act, which specify how organisations should collect, use, keep secure and disclose personal information. The principles also give individuals a right to know what information an organisation holds about them and a right to correct that information if it is wrong.

In keeping with the Privacy Principles, therefore, the FRDC's privacy policy covers soliciting, collecting, storing, gaining access to, altering and using personal information. The policy, which is accessible from the homepage of the FRDC website, also includes privacy of personal information provided electronically to the FRDC.

Freedom of information

During 2003–04, the FRDC did not receive any inquiry pursuant to the *Freedom of Information Act 1982*.

A statement in accordance with the *Freedom of Information Act 1982*, giving information about the FRDC and about making a Freedom of Information request, is in appendix E (page 203).

Auditor-General's REPORT

Australian National
Audit Office

INDEPENDENT AUDIT REPORT

To the Minister for Agriculture, Fisheries and Forestry

Scope

The financial statements comprise:

- Statement by Directors;
- Statements of Financial Performance, Financial Position and Cash Flows;
- Schedules of Commitments and Contingencies; and
- Notes to and forming part of the Financial Statements

of the Fisheries Research and Development Corporation, for the year ended 30 June 2004.

The members of the Board of the Fisheries Research and Development Corporation are responsible for the preparation and true and fair presentation of the financial statements in accordance with the Finance Minister's Orders. This includes responsibility for the maintenance of adequate accounting records and internal controls that are designed to prevent and detect fraud and error, and for the accounting policies and accounting estimates inherent in the financial statements.

Audit approach

I have conducted an independent audit of the financial statements in order to express an opinion on them to you. My audit has been conducted in accordance with the Australian National Audit Office Auditing Standards, which incorporate the Australian Auditing and Assurance Standards, in order to provide reasonable assurance as to whether the financial report is free of material misstatement. The nature of an audit is influenced by factors such as the use of professional judgement, selective testing, the inherent limitations of internal control, and the availability of persuasive, rather than conclusive, evidence. Therefore, an audit cannot guarantee that all material misstatements have been detected.

While the effectiveness of management's internal controls over financial reporting was considered when determining the nature and extent of audit procedures, the audit was not designed to provide assurance on internal controls.

I have performed procedures to assess whether, in all material respects, the financial statements present fairly, in accordance with the Finance Minister's Orders made under the

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Commonwealth Authorities and Companies Act 1997, Accounting Standards and other mandatory financial reporting requirements in Australia, a view which is consistent with my understanding of the Fisheries Research and Development Corporation's financial position, and of its performance as represented by the statements of financial performance, and cash flows.

The audit opinion is formed on the basis of these procedures, which included:

- examining, on a test basis, information to provide evidence supporting the amounts and disclosures in the financial report; and
- assessing the appropriateness of the accounting policies and disclosures used, and the reasonableness of significant accounting estimates made by the Board of the Fisheries Research and Development Corporation.

Independence

In conducting the audit, I have followed the independence requirements of the ANAO, which incorporate Australian professional ethical pronouncements.

Audit Opinion

In my opinion, the financial statements:

(i) have been prepared in accordance with the Finance Minister's Orders made under the *Commonwealth Authorities and Companies Act 1997* and applicable Accounting Standards; and

(ii) give a true and fair view, of the matters required by applicable Accounting Standards and other mandatory professional reporting requirements in Australia, and the Finance Minister's Orders, of the financial position of the Fisheries Research and Development Corporation as at 30 June 2004, and its financial performance and cash flows for the year then ended.

Australian National Audit Office

Ian P. Goodwin
Executive Director

Delegate of the Auditor-General
CANBERRA

9 August 2004

Financial statements

as at 30 June 2004

STATEMENT BY DIRECTORS

In our opinion, the attached financial statements of the Fisheries Research and Development Corporation (FRDC) for the year ended 30 June 2004 are based on properly maintained financial records and give a true and fair view of the matters required by the Finance Minister's Orders made under the *Commonwealth Authorities and Companies Act* 1997."

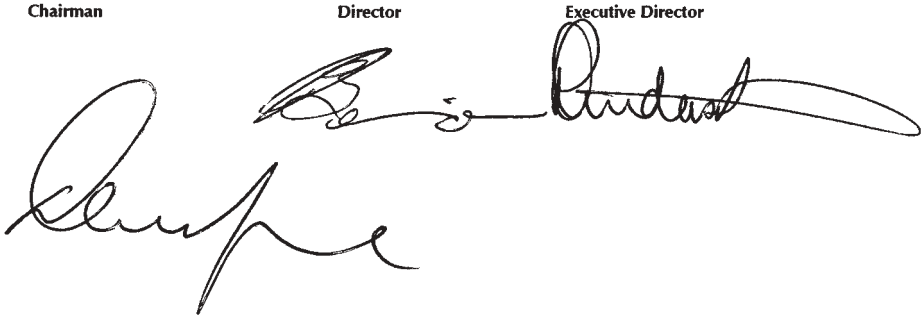
In our opinion, at the date of this statement, there are reasonable grounds to believe that the FRDC will be able to pay its debts as and when they become due and payable.

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

Signed..... /8/2004
Denis Byrne
Chairman

Signed..... /8/2004
Simon Bennison
Director

Signed..... /8/2004
Peter Dundas-Smith
Executive Director



STATEMENT OF FINANCIAL PERFORMANCE

for the year ended 30 June 2004

	Notes	30 June 2004 $	30 June 2003 $
REVENUE			
Revenues from ordinary activities			
Revenues from Government	6A	**17,719,893**	17,391,216
Contributions	6B	**11,552,834**	8,409,740
Goods and services	6E	**53,150**	68,760
Revenue from sale of assets		**0**	599
Interest	6C	**304,150**	242,912
Other Revenues	6D	**293**	11,057
Revenues from ordinary activities		**29,630,320**	26,124,284
EXPENSE			
Expenses from ordinary activities (excluding borrowing costs expense)			
Employees	7A	**1,294,246**	1,252,026
Suppliers	7B	**852,064**	623,247
Depreciation and amortisation	7C	**165,184**	119,640
Value of assets sold	7D	**0**	3,152
Projects expenditure	8	**25,127,430**	22,816,387
Write-down of assets	7E	**23,180**	13,964
Other expenses	9	**642,875**	576,802
Expenses from ordinary activities (excluding borrowing costs expense)		**28,104,979**	25,405,218
Borrowing costs expense	10	**199**	0
Operating profit from ordinary activities		**1,525,142**	719,066
Net profit	15	**1,525,142**	719,066
Net credit/(debit) to asset revaluation reserve	15	**0**	(13,127)
Total revenues, expenses and valuation adjustments recognised directly in equity		**0**	(13,127)
Total changes in equity other than those resulting from transactions with the Australian Government as owner		**1,525,142**	705,939

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

STATEMENT OF FINANCIAL POSITION

as at 30 June 2004

	Notes	30 June 2004 $	30 June 2003 $
ASSETS			
Financial assets			
Cash	16B	**881,140**	1,177,660
Receivables	11A	**2,181,343**	525,587
Investments	11B	**5,001**	626,094
Total financial assets		**3,067,484**	2,329,341
Non-financial assets			
Infrastructure, plant and equipment	12A,C	**137,381**	178,886
Intangibles	12B,C	**963,698**	677,896
Other non-financial assets	12D	**25,137**	20,876
Total non-financial assets		**1,126,216**	877,658
Total assets		**4,193,700**	3,206,999
LIABILITIES			
Provisions			
Employees	13A	**344,888**	304,324
Total provisions		**344,888**	304,324
Payables			
Suppliers	14A	**66,842**	63,891
Projects	14B	**111,404**	0
Other payables	14C	**1,291,210**	1,984,570
Total payables		**1,469,456**	2,048,461
Total liabilities		**1,814,344**	2,352,785
NET ASSETS		**2,379,356**	854,214
EQUITY			
Parent entity interest			
Reserves	15	**0**	0
Accumulated surpluses	15	**2,379,356**	854,214
Total parent entity interest		**2,379,356**	854,214
Total equity		**2,379,356**	854,214
Current assets		**3,092,621**	2,350,217
Non-current assets		**1,101,079**	856,782
Current liabilities		**1,683,673**	2,199,628
Non-current liabilities		**130,671**	153,157

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

STATEMENT OF CASHFLOWS

for the year ended 30 June 2004

	Notes	30 June 2004 $	30 June 2003 $
Operating activities			
Cash received			
Revenues from Government		**17,719,893**	18,166,971
Contributions		**10,079,963**	10,203,993
Goods and services		**53,150**	68,760
Interest		**312,265**	242,912
GST received from ATO		**1,989,586**	1,324,295
Other		**293**	11,057
Total cash received		**30,155,150**	30,017,988
Cash used			
Employees		**(1,253,682)**	(1,187,373)
Suppliers		**(853,374)**	(628,916)
Project expenditure		**(27,889,972)**	(25,424,079)
Borrowing costs		**(199)**	0
Other		**(642,875)**	(576,802)
Total cash used		**(30,640,102)**	(27,817,170)
Net cash from operating activities	16A	**(484,952)**	2,200,818
Investing activities			
Cash received			
Proceeds from sale of infrastructure, plant and equipment		**0**	599
Total cash received		**0**	599
Cash used			
Purchase of investments		**(5,001)**	0
Purchase of infrastructure, plant and equipment		**(47,789)**	(78,703)
Purchase of intangibles		**(384,872)**	(476,243)
Total cash used		**(437,662)**	(554,946)
Net cash (used by) investing activities		**(437,662)**	(554,347)
Net increase in cash held		**(922,614)**	1,646,471
Cash at the beginning of the reporting period		**1,803,754**	157,283
Cash at the end of the reporting period	16B	**881,140**	1,803,754

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

SCHEDULE OF COMMITMENTS
as at 30 June 2004

	Notes	30 June 2004 $	30 June 2003 $
By Type			
Other commitments			
Operating leases[1]		**88,490**	170,485
Other commitments[2]		**62,729,699**	59,938,177
Total other commitments		**62,818,189**	60,108,662
Commitments receivable		**(5,710,744)**	(5,464,424)
Net commitments		**57,107,445**	54,644,238
By Maturity			
Operating lease commitments			
One year or less		**80,446**	80,544
From one to five years		**8,044**	89,941
Over five years		**0**	0
Total operating lease commitments		**88,490**	170,485
Other commitments			
One year or less		**33,594,459**	29,383,583
From one to five years		**28,895,207**	30,139,971
Over five years		**240,033**	414,623
Total other commitments		**62,729,699**	59,938,177
Commitments receivable		**(5,710,744)**	(5,464,424)
Net commitments		**57,107,445**	54,644,238
The amount of rental expense recognised in the category 'Supplier expenses' in the reporting period is as follows:		**73,132**	73,132

NB: All commitments are GST inclusive where relevant.

1. Operating leases are effectively non-cancellable and comprise:

- lease for office accommodation on premises at 25 Geils Court Deakin, which expires 31 July 2005.

2. Other commitments comprise the future funding of approved projects that is contingent on achievement of agreed milestones over the life of the projects (project agreements are exchanged prior to release of the first payment on a project). Projects for which an amount was payable but that 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. It manages this risk by having the project agreement allow for termination due to insufficient funds or change of Government policy. If the FRDC were to terminate a project agreement, it would only be liable to compensate the research provider for reasonable costs in respect of unavoidable loss incurred by the research provider and directly attributable to the termination.

The above schedule should be read in conjunction with the accompanying notes

SCHEDULE OF CONTINGENCIES
as at 30 June 2004

At 30 June 2004, the FRDC had no contingent assets or liabilities.

The above schedule should be read in conjunction with the accompanying notes

Notes to and forming part of the financial statements for the year ended 30 June 2004

Note Description

Notes to and forming part of the financial statements for the year ended 30 June 2004

Note 1: Summary of significant accounting policies

1.1 — Basis of accounting

The financial statements are required by clause 1 (b) of Schedule 1 of the *Commonwealth Authorities and Companies Act 1997* and are a general purpose financial report.

The statements have been prepared in accordance with the:

- Finance Minister's Orders *(being the Commonwealth Authorities and Companies Orders (Financial Statements for reporting periods ending on or after 30 June 2004))*;
- Australian Accounting Standards and Accounting Interpretations issued by the Accounting Standards Board; and
- Consensus Views of the Urgent Issues Group.

The Statements of Financial Performance and Financial Position have been prepared on an accrual basis and are in accordance with the historical cost convention, except for certain assets which, as noted, are at valuation. Except where stated, no allowance is made for the effect of changing prices on the results or the financial position of the FRDC.

Assets and liabilities are recognised in the FRDC`s Statement of Financial Position when and only when it is probable that future economic benefits will flow and the amounts of the assets or liabilities can be reliably measured. Assets and liabilities arising under agreements equally proportionately unperformed are not, however, recognised unless required by an Accounting Standard. Liabilities and assets that are unrecognised are reported in the Schedule of Commitments and the Schedule of Contingencies.

Revenues and expenses are recognised in the FRDC`s Statement of Financial Performance when, and only when, the flow or consumption or loss of economic benefits has occurred and can be reliably measured.

1.2 — Changes in accounting policy

The accounting policies used in the preparation of these financial statements are consistent with those used in 2002-03.

1.3 — Reporting by outcomes

A comparison of Budget and Actual figures by outcome specified in the Appropriation Acts relevant to the FRDC is presented in Note 3. Any intra-government costs included in the figure "net cost to Budget outcomes" are eliminated in calculating the actual budget outcome for the Australian Government overall.

1.4 – Revenue

The revenues described in this note are revenues relating to core operating activities of the FRDC.

Revenue from the sale of goods is recognised upon delivery of the goods to customers.

Interest revenue is recognised on a time proportionate basis that takes into account the effective yield on the relevant asset.

Revenue from the disposal of non-current assets is recognised when control of the asset has passed to the buyer.

Refunds from research organisations are taken into account when received.

Notes to and forming part of the financial statements for the year ended 30 June 2004

1.4 – Revenue (cont'd)

Revenues from Government – output revenue

The full amount of the revenue from government for agency outputs for the year is recognised as revenue.

Resources received free of charge

Services received free of charge are recognised as revenue when and only when a fair value can be reliably determined and the services would have been purchased if they had not been donated. Use of those resources is recognised as an expense.

Contributions of assets at no cost of acquisition or for nominal consideration are recognised at their fair value when the asset qualifies for recognition.

1.5 – Employee benefits

Benefits

Liabilities for services rendered by employees are recognised at the reporting date to the extent that they have not been settled.

Liabilities for wages and salaries (including non-monetary benefits), annual leave and sick leave are measured at their nominal amounts. Other employee benefits expected to be settled within 12 months of their reporting date are also measured at their nominal amounts.

The nominal amount is calculated with regard to the rates expected to be paid on settlement of the liability. Since the pay rates under FRDC's employment contracts are reviewed on 1 July each year, pay rates as at 1 July 2004 have been used to determine leave liabilities.

All other employee benefit liabilities are measured as the present value of the estimated future cash outflows to be made in respect of services provided by employees up to the reporting date.

The FRDC has a policy that it will act to ensure its financial assets are greater than its employee provisions.

Leave

The liability for employee benefits includes provision for annual leave and long service leave. No provision has been made for sick leave, as all sick leave is non-vesting and the average sick leave taken in future years by employees is estimated to be less than the annual entitlement for sick leave.

Leave liabilities are calculated on the basis of employees' remuneration, including the FRDC's employer superannuation contribution rates, to the extent that the leave is likely to be taken during service rather than paid out on termination.

Long service leave is accrued for all staff, from their commencement date, at the rate of 9 days per year of service with the entitlement generally becoming due after completion of 10 years' service.

All leave provision calculations are based on remuneration packages as at 1 July 2004. See Notes 13 Provisions, 17 Directors' remuneration and 19 Remuneration of officers.

In determining the present value of the liability, attrition rates and remuneration increases have been taken into account.

Notes to and forming part of the financial statements for the year ended 30 June 2004

Separation and redundancy

Provision is made for separation and redundancy benefit payments in circumstances where the FRDC has formally identified positions as excess to requirements and a reliable estimate of the amount of the payments can be determined.

Superannuation

The FRDC is an approved Authority under the *Superannuation Act 1976* and the *Superannuation Act 1990*.

FRDC staff contribute to the Commonwealth Superannuation Scheme (CSS), the Public Sector Superannuation Scheme (PSS) or other elected schemes as appropriate. The liability for their superannuation benefits is recognised in the financial statements of the Australian Government and is settled by the Australian Government in due course.

FRDC makes employer contributions to the Australian Government at rates determined by an actuary to be sufficient to meet the cost to the Government of the superannuation entitlements of FRDC's employees.

No liability for superannuation benefits is recognised at 30 June 2004 as the employer contributions fully extinguish the accruing liability which is assumed by the Australian Government.

1.6 – Leases

A distinction is made between finance leases, which in effect transfer from the lessor to the lessee substantially all the risks and benefits incidental to ownership of leased non-current assets, and operating leases, under which the lessor effectively retains substantially all such risks and benefits.

Operating lease payments are expensed on a basis which is representative of the pattern of benefits derived from the leased assets. The net present value of future net outlays in respect of surplus space under non-cancellable lease agreements is expensed in the period in which the space becomes surplus. FRDC currently has no surplus space under non-cancellable lease agreements.

The FRDC is not currently involved in any finance leases.

1.7 – Projects

The FRDC recognises project liabilities as follows.

Project agreements require the research provider 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 or the eligibility criteria have been satisfied by the research provider.

1.8 – Borrowing costs

All borrowing costs are expensed as incurred except to the extent that they are directly attributable to qualifying assets, in which case they are capitalised. The amount capitalised in a reporting period does not exceed the amounts of costs incurred in that period.

FRDC has no qualifying assets.

Notes to and forming part of the financial statements for the year ended 30 June 2004

1.9 – Cash

Cash means notes and coins held and any deposits held at call with a bank or financial institution. Cash is recognised at its nominal amount. Interest is credited to revenue as it accrues.

For the purposes of the Statement of Cash Flows, cash is net of any outstanding bank overdrafts.

In accordance with section 42 of the *Primary Industries and Energy Research and Development Act 1989* (PIERD Act), the Treasurer has approved the FRDC overdrawing its bank account to a limit of $900,000 on the basis that sufficient funds are held in related accounts to offset any overdrawing, with these funds to be transferred as soon as possible to clear any debt.

1.10 – Financial instruments

Accounting policies for financial instruments are stated at Note 22.

1.11 – Acquisition of assets

Assets are recorded at the cost of acquisition except as stated below. The cost of acquisition includes the fair value of assets transferred in exchange and liabilities undertaken.

Assets acquired at no cost, or for nominal consideration, are initially recognised as assets and revenues at their fair value at the date of acquisition, unless acquired as a consequence of restructuring of administrative arrangements. In the latter case, assets are initially recognised as contributions by owners at the amounts at which they were recognised in the transferor entity's accounts immediately prior to the restructuring.

1.12 – Infrastructure, plant and equipment

Asset recognition threshold

Purchases of infrastructure, plant and equipment and off-the-shelf computer software are recognised initially at cost of acquisition in the Statement of Financial Position, except for purchases costing less than $5,000, which are expensed in the year of acquisition (other than where they form part of a group of similar items which are significant in total).

Revaluations

All infrastructure, plant and equipment were revalued as at 30 June 2004 by the Australian Valuation Office.

Infrastructure, plant and equipment are carried at valuation. Revaluations are done on a fair value basis.

Under fair value, assets which are surplus to requirement are measured at their net realisable value. At 30 June 2004 FRDC held no surplus assets. (30 June 2003: $0)

Frequency

Valuations are conducted every twelve months for the purpose of ensuring that infrastructure, plant and equipment are measured at fair value.

Conduct

All valuations are conducted by an independent qualified valuer.

Notes to and forming part of the financial statements for the year ended 30 June 2004

Depreciation and amortisation

Depreciable infrastructure, plant and equipment assets are written-off to their estimated residual value over their estimated useful economic lives using, in all cases, the straight line method of depreciation.

Depreciation and amortisation rates (useful lives) and the methods used are reviewed at each balance date and necessary adjustments are recognised in the current period, or current and future periods, as appropriate. Residual values are re-estimated for a change in price only when an asset is revalued.

Depreciation and amortisation rates applying to each class of depreciable asset are based on the following useful lives:

	2003–04	2002–03
Infrastructure, plant and equipment	**3–5 years**	3–5 years
Computer software developed in-house	**10 years**	10 years
Trademarks	**10 years**	10 years

The aggregate amount of depreciation and amortisation allocated for each class of asset during the reporting period is disclosed at Note 7C.

1.13 – Impairment of Non-Current Assets

Non-current assets carried at up-to-date fair value at the reporting date are not subject to impairment testing.

Non-current assets carried at cost and held to generate net cash inflows have been tested for their recoverable amounts at the reporting date. The test compared the carrying amounts against the net present value of future net cash inflows.

A write-down to recoverable value of $10,620 was required (30 June 2003: nil).

The non-current assets carried at cost, which are not held to generate net cash inflows, have been assessed for indications of impairment. Where indications of impairment exist, the carrying amount of the asset is compared to its selling price and depreciated replacement cost and is written down to its higher of the two amounts, if necessary.

No items have been identified as being carried above the cost of replacement and $10,620 has been written down at the current reporting date.

1.14 – Taxation

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

Revenues, expenses and assets are recognised net of GST:

- except where the amount of GST incurred is not recoverable from the Australian Taxation Office; and
- except for receivables and payables.

1.15 – Comparative figures

Comparative figures have been adjusted to conform to changes in presentation in these financial statements where required.

1.16 – Insurance

The FRDC has insured for risks through the Government's insurable risk managed fund, 'Comcover'. Workers compensation is insured through Comcare Australia.

Notes to and forming part of the financial statements for the year ended 30 June 2004

1.17 – Intangibles

The FRDC's intangibles are made up of internally developed software for internal use. The assets are carried at cost.

Software is amortised on a straight line basis over its anticipated useful life. Based on historical experience, the useful life of FRDC's software is 10 years. This is unchanged from the previous year.

All software assets were assessed for impairment as at 30 June 2004. None were found to be impaired.

Trademarks shown as intangible assets in 2002-03 were fully expensed in 2003-04.

Note 2: Adoption of Australian Equivalents to International Financial Reporting Standards from 2005-2006

The Australian Accounting Standards Board has issued replacement Australian Accounting Standards to apply from 2005-06. The new standards are the Australian Equivalents to International Financial Reporting Standards (IFRSs) which are issued by the International Accounting Standards Board. The new standards cannot be adopted early. The standards being replaced are to be withdrawn with effect from 2005-06, but continue to apply in the meantime.

The purpose of issuing Australian Equivalents to IFRSs is to enable Australian entities reporting under the Corporations Act 2001 to be able to more readily access overseas capital markets by preparing their financial reports according to accounting standards more widely used overseas.

For-profit entities complying fully with the Australian Equivalents will be able to make an explicit and unreserved statement of compliance with IFRSs as well as with the Australian Equivalents.

It is expected that the Finance Minister will continue to require compliance with Accounting Standards issued by the AASB, including the Australian Equivalents to IFRSs, in his Orders for the Preparation of Authorities' financial statements for 2005-06 and beyond.

The Australian Equivalents contain certain additional provisions which will apply to not-for-profit entities, including FRDC. Some of these provisions are in conflict with the IFRSs and therefore FRDC will only be able to assert compliance with the Australian Equivalents to the IFRSs.

Existing AASB standards that have no IFRS equivalent will continue to apply.

Accounting Standard AASB 1047 *Disclosing the Impact of Adopting Australian Equivalents to IFRSs* requires that the financial statements for 2003-04 disclose:

- An explanation of how the transition to the Australian Equivalents is being managed, and
- A narrative explanation of the key differences in accounting policies arising from the transition.

The purpose of this Note is to make these disclosures.

Notes to and forming part of the financial statements for the year ended 30 June 2004

Note 2: Adoption of Australian Equivalents to International Financial Reporting Standards from 2005-2006 (cont'd)

Management of the transition to AASB Equivalents to IFRSs

FRDC has taken the following steps in preparation towards the implementation of Australian Equivalents:

- FRDC's Audit Committee is tasked with oversight of the transition to and implementation of the Australian Equivalents to IFRSs. The Business Development Manager is formally responsible for the project and reports regularly to the Audit Committee on progress against the formal plan approved by the Committee.
- The plan requires the following key steps to be undertaken and sets deadlines for their achievement:
    - Identification of all major accounting policy differences between current AASB standards and the Australian Equivalents to IFRSs progressively to 30 June 2004.
    - Identification of systems changes necessary to be able to report under the Australian Equivalents, including those necessary to enable capture of data under both sets of rules for 2004-05, and testing and implementation of those changes.
    - Preparation of a transitional balance sheet as at 1 July 2004, under Australian Equivalents, within 3 months of 30 June 2004.
    - Preparation of an Australian Equivalent balance sheet at the same time as the 30 June 2005 statements are prepared.
    - Meeting reporting deadlines set by Finance for 2005-06 balance sheet under Australian Equivalent Standards.
- The plan also addresses the risks to successful achievement of the above objectives and includes strategies to keep implementation on track to meet deadlines.
- To date, all major accounting and disclosure differences and system changes have been identified and the system changes have been tested successfully. The changes are expected to be implemented by 1 July 2004.
- Consultants have been engaged where necessary to assist with each of the above steps.

Major changes in accounting policy

Changes in accounting policies under Australian Equivalents are applied retrospectively i.e. as if the new policy had always applied. This rule means that a balance sheet prepared under the Australian Equivalents must be made as at 1 July 2004, except as permitted in particular circumstances by AASB 1 *First-time Adoption of Australian Equivalents to International Financial Reporting Standards*. This will enable the 2005-06 financial statements to report comparatives under the Australian Equivalents also.

Changes to major accounting policies are discussed in the following paragraphs.

Property plant and equipment

It is expected that the Finance Minister's Orders will require property plant and equipment assets carried at valuation in 2003-04 to be measured at up-to-date fair value from 2005-06. This does not differ from the accounting policies currently in place for these assets.

Intangible Assets

The FRDC recognises internally developed software assets on a cost basis. This is consistent with IFRS.

Notes to and forming part of the financial statements for the year ended 30 June 2004

Note 2: Adoption of Australian Equivalents to International Financial Reporting Standards from 2005-2006 (cont'd)

Impairment of Non-Current Assets

FRDC's policy on impairment of non-current assets is at note 1.13.

Under the new Australian Equivalent Standard, these assets will be subject to assessment for impairment and, if there are any indications of impairment, measurement of any impairment (impairment measurement must also be done, irrespective of any indications of impairment, for intangible assets not yet available for use). The impairment test is that the carrying amount of an asset must not exceed the greater of (a) its fair value less costs to sell and (b) its value in use. 'Value in use' is the net present value of net cash inflows for for-profit assets of FRDC and depreciated replacement costs for other assets which would be replaced if FRDC were deprived of them.

The most significant changes are that, for FRDC's for-profit assets, the recoverable amount is only generally to be measured where there is an indication of impairment and that assets carried at up-to-date fair value, whether for-profit or not, may nevertheless be required to be written down if costs to sell are significant.

Employee Benefits

The provision for long service leave is measured at the present value of estimated future cash outflows using market yields as at the reporting date on national government bonds.

Under the new Australian Equivalent Standard, the same discount rate will be used unless there is a deep market in high quality corporate bonds, in which case the market yield on such bonds must be used.

Financial Instruments

Financial assets and liabilities are likely to be accounted for as 'held at fair value through net profit and loss' or available-for-sale where the fair value can be reliably measured (in which case, changes in value are initially taken to equity). Fair values will be published prices where an active market exists or by appraisal.

Cash and receivables are expected to continue to be measured at cost information.

Financial assets, except those classified as 'held at fair value through profit and loss', will be subject to impairment testing.

Notes to and forming part of the financial statements for the year ended 30 June 2004

Note 3: Reporting by outcomes

The FRDC operates primarily in a single industry and geographic segment, namely the Australian fishing industry. It is a federal statutory authority jointly funded by the Australian Government and the fishing industry. It is responsible to its stakeholders to:

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

The FRDC is structured to meet three outcomes:

Outcome 1: The natural resources on which the commercial, recreational and traditional sectors of the fishing industry depend are used in an ecologically sustainable way.

Outcome 2: The commercial sector of the Australian fishing industry is profitable and internationally competitive; the commercial, recreational and traditional sectors are socially resilient.

Outcome 3: The knowledge and skills of people in and supporting the Australian fishing industry, and in the wider community, are developed and used so that Australians derive maximum economic, environmental and social benefits from fisheries R&D.

One Output Group is identified for each Outcome.

Output 1: Knowledge, processes and technology that contribute to the use, in an ecologically sustainable way, of the natural resources on which the fishing industry depends.

Output 2: Knowledge, processes and technology that contribute to making the:

- commercial sector of the Australian fishing industry profitable and internationally competitive; and
- commercial, recreational and traditional sectors socially resilient.

Output 3: Knowledge, processes and technology that contribute to developing the knowledge and skills of people in and supporting the Australian fishing industry and in the wider community, so that Australians derive maximum economic, environmental and social benefits from fisheries research and development.

Notes to and forming part of the financial statements

for the year ended 30 June 2004

Note 3: Reporting by outcomes

	Outcome Group 1		Outcome Group 2		Outcome Group 3		Total	
	2003-04	2002-03	2003-04	2002-03	2003-04	2002-03	2003-04	2002-03
	$000	$000	$000	$000	$000	$000	$000	$000
Operating revenues								
Revenues from Government	10,632	10,435	6,202	6,087	886	870	17,720	17,392
Contributions	6,932	5,046	4,043	2,943	578	421	11,553	8,410
Sale of goods and services	32	41	19	24	3	3	54	68
Other non taxation revenues	182	153	106	89	15	13	303	255
Total operating revenues	17,778	15,675	10,370	9,143	1,482	1,307	29,630	26,125
Operating expenses								
Employees	777	752	453	438	65	62	1,295	1,252
Suppliers	511	374	298	218	43	31	852	623
Depreciation and amortisation	99	72	58	42	8	6	165	120
Projects expenditure	15,076	13,690	8,795	7,986	1,256	1,141	25,127	22,817
Other	400	356	233	208	33	30	666	594
Total operating expenses	16,863	15,244	9,837	8,892	1,405	1,270	28,105	25,406
Total assets deployed as at 30 June 2004	2,516	1,924	1,468	1,122	210	160	4,194	3,206
Total net assets deployed as at 30 June 2004	1,428	513	833	299	119	43	2,380	855

Revenues and expenses have been allocated to each outcome group based on the FRDC's historical experience of them of 60%,35% and 5% respectively.

Notes to and forming part of the financial statements for the year ended 30 June 2004

Note 4: Economic dependency

The FRDC was established on 2 July 1991 under the PIERD Act. The Corporation is responsible to the Minister for Agriculture, Fisheries and Forestry; the Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry; and the Minister for Fisheries, Forestry and Conservation.

The FRDC is dependent on appropriations from the Parliament of the Australia for its continued existence and ability to carry out its normal activities.

Note 5: Events occurring after reporting date

There are no events occurring after reporting date to report.

Note 6: Operating revenues

6A – Revenues from Government

	30 June 2004 $	30 June 2003 $
Revenues from Government		
- 0.5% of AGVP *	**11,956,175**	12,170,000
- matching of industry contributions	**5,763,718**	5,221,216
Total revenues from government	**17,719,893**	17,391,216

* AGVP is the average gross value of fisheries production for the three preceding financial years.

The Australian Government's contribution of 0.5 % of AGVP is made on the grounds that it exercises a stewardship role in relation to fisheries resources on behalf of the Australian community.

The matching of the industry contribution (up to 0.25 % of AGVP) by the Australian Government is in line with policy principles that:

- beneficiaries from research should pay roughly in proportion to the benefits received; and
- the greater the spill-over benefits, the greater the proportion the Australian Government should contribute.†

† As described on page 13 of the FRDC's R&D Plan 2000 to 2005.

Notes to and forming part of the financial statements for the year ended 30 June 2004

6B – Contributions revenue

	30 June 2004 $	30 June 2003 $
Fisheries managed by:		
Australian Government	**1,757,908**	1,148,766
Australian Capital Territory	**19,000**	0
New South Wales	**335,807**	274,875
Northern Territory	**155,000**	80,720
Queensland	**745,341**	747,193
South Australia	**1,145,391**	834,186
Tasmania	**636,000**	511,000
Victoria	**235,470**	240,289
Western Australia	**1,511,406**	1,281,108
Sub-total	**6,541,323**	5,118,137
Projects		
Project funds received from other parties	**4,890,630**	3,165,617
Project refunds of prior years' expenditure	**120,881**	125,986
Sub-total	**5,011,511**	3,291,603
Total contributions revenue	**11,552,834**	8,409,740

Industry's contribution to the FRDC recognises the need for R&D that will be commercially oriented and that will deliver results that will improve industry performance and profitability.

6C – Interest revenue

	30 June 2004 $	30 June 2003 $
Deposits	**304,150**	242,912
Total interest revenue	**304,150**	242,912

6D – Other revenue

	30 June 2004 $	30 June 2003 $
Other – miscellaneous	**293**	11,057
Total other revenue	**293**	11,057

6E – Sales of goods and services

	30 June 2004 $	30 June 2003 $
Sale of goods to external entities	**53,150**	68,760
Total sales of goods and services	**53,150**	68,760

Cost of Sales

Sales of goods and services includes the sale of reports published as a result of projects and licencing fees for the use of FRDC developed software. No meaningful cost of sales figure can be determined due to the nature of these sales.

Notes to and forming part of the financial statements for the year ended 30 June 2004

Note 7: Operating expenses

7A – Employee expenses

The basis for employee remuneration is detailed at Note 1.5.

	30 June 2004 $	30 June 2003 $
Remuneration (for services provided)		
Wages and salaries (includes leave and other entitlements and separation and redundancy)	**1,082,828**	1,080,912
Superannuation	**195,469**	169,252
Other employee benefits-recruitment costs	**10,680**	0
Total employee benefits expenses	**1,288,977**	1,250,164
Workers compensation premiums	**5,269**	1,862
Total employee expenses	**1,294,246**	1,252,026

FRDC staff contribute to the Commonwealth Superannuation Scheme (CSS), the Public Sector Superannuation Scheme (PSS) or other elected schemes as appropriate, which provide retirement, death and disability benefits to employees.

Contributions to the schemes are at rates calculated to cover existing and emerging obligations. Contribution rates from 1 July 2003 to 30 June 2004 are 25.3% of salary for CSS members and 12.4% of salary for PSS members.

The FRDC also pays an employer productivity superannuation contribution for its employees in accordance with the *Superannuation (Productivity Benefit) Act 1988.*

7B – Supplier expenses

	30 June 2004 $	30 June 2003 $
Board		
Travel	**117,269**	99,222
Other	**58,466**	35,976
Secretariat		
Audit fees	**9,000**	9,000
External service providers	**349,117**	204,772
Insurance	**24,690**	23,875
Office supplies	**41,327**	25,934
Property	**88,724**	87,646
Telecommunications	**35,825**	27,489
Training	**31,175**	18,943
Travel	**24,310**	17,849
Other	**72,161**	72,541
Total suppliers expenses	**852,064**	623,247

Notes to and forming part of the financial statements for the year ended 30 June 2004

7C – Depreciation and amortisation

	30 June 2004 $	30 June 2003 $
Amortisation of intangibles	**86,510**	41,105
Depreciation of infrastructure, plant and equipment	**78,674**	78,535
Total depreciation and amortisation	**165,184**	119,640

The aggregate amounts of depreciation or amortisation expensed during the reporting period for each class of depreciable asset are as follows:

Infrastructure, plant and equipment	**78,674**	78,535
Trademarks	**0**	800
Computer software	**86,510**	40,305
Total depreciation and amortisation	**165,184**	119,640

7D – Net gain/(loss) from sale of assets

	30 June 2004 $	30 June 2003 $
Infrastructure, plant and equipment		
Proceeds from sale	**0**	599
Net book value of assets disposed	**0**	(3,152)
Net gain/(loss) from disposal of infrastructure, plant and equipment	**0**	(2,553)

7E – Write-down of assets

	30 June 2004 $	30 June 2003 $
Infrastructure, plant and equipment – revaluation decrement	**10,620**	13,964
Write down of trademarks	**12,560**	0
Total write-down of assets	**23,180**	13,964

Note 8: Projects expenditure

	30 June 2004 $	30 June 2003 $
Projects (1)		
Natural Resources Sustainability	**13,838,321**	12,729,103
Industry Development	**9,610,616**	8,487,255
People Development	**624,607**	787,303
Aquatic animal health activities funded by the Australian Government initiative 'Building a national approach to animal and plant health'	**1,053,886**	812,726
Total project expenditure	**25,127,430**	22,816,387

(1) Project expenditure is consistent with the expenditure classification of "Grants" according to Schedule 1 of the Finance Minister's Orders made under the *Commonwealth Authorities and Companies Act 1997.*

Notes to and forming part of the financial statements for the year ended 30 June 2004

Note 9: Operating expenses – other

	30 June 2004 $	30 June 2003 $
Communications		
Annual Report	**67,912**	57,897
ANRO	**23,488**	9,663
Fisheries Research Advisory Bodies	**169,992**	169,491
FRDC initiated project extension	**66,338**	62,451
Other	**116,711**	91,113
R&D News	**164,560**	164,932
R&D Plan	**4,440**	480
Representative organisations consultation[1]	**7,937**	4,155
Website	**21,497**	16,619
Total other expenditure	**642,875**	576,802

(1) Representative organisations consultation relates to expenses incurred by the FRDC in accordance with section 15 of the PIERD Act.

Note 10: Borrowing costs expense

	30 June 2004 $	30 June 2003 $
Interest on overdraft facilities	**199**	0
Total interest expense	**199**	0

Note 11: Financial assets

11A – Receivables

	30 June 2004 $	30 June 2003 $
GST receivable	**338,548**	380,279
Other receivables	**1,842,795**	145,308
Total receivables	**2,181,343**	525,587

All receivables are current assets.

Receivables are aged as follows:		
Not overdue	**2,181,343**	525,587
Overdue by:		
Less than 30 days	**0**	0
30 to 60 days	**0**	0
60 to 90 days	**0**	0
More than 90 days	**0**	0
	0	0
Total receivables	**2,181,343**	525,587

Included in other receivables are deposits which the FRDC has paid to underwrite conferences. In the event that conference revenues do not exceed conference expenditure, the excess expenditure will be recovered from from these deposits. However, the FRDC expects that all conferences will generate sufficient revenues to cover expenditure and that the deposits will be refunded.

Notes to and forming part of the financial statements for the year ended 30 June 2004

11B – Investments

	30 June 2004 $	30 June 2003 $
Funds on deposit	**0**	626,094
Shares in other company - unlisted	**5,001**	0
Total investments	**5,001**	626,094

All investments are current assets.

Shares in unlisted company

Australian Seafood Co-Products Pty Ltd (ASCO) is an unlisted company in which FRDC owns a one fifteenth share. The FRDC is not represented on the ASCO Board. The principal activity of ASCO is to invest in ASCO Fertilisers Pty Ltd which carries on the business of commercialisation of know-how and technical information relating to the conversion of fish waste and fish nutrient into agriculture fertiliser products and the development of production facilities for those products. The shares are carried at cost.

Note 12: Non-financial assets

12A – Infrastructure, plant and equipment

	30 June 2004 $	30 June 2003 $
Infrastructure, plant and equipment – at fair value	**339,177**	312,540
Accumulated depreciation	**(201,796)**	(133,654)
Total infrastructure, plant and equipment	**137,381**	178,886

All revaluations are independent and are conducted in accordance with the revaluation policy stated in Note 1. In 2003–04 the revaluations were conducted by the Australian Valuations Office.

12B – Intangibles

	30 June 2004 $	30 June 2003 $
Trademarks	**0**	13,360
Accumulated amortisation	**0**	(800)
	0	12,560
Computer software (internally developed in use)	**1,103,168**	718,296
Accumulated amortisation	**(139,470)**	(52,960)
	963,698	665,336
Total intangibles	**963,698**	677,896

Notes to and forming part of the financial statements for the year ended 30 June 2004

Note 12C – Analysis of infrastructure, plant and equipment and intangibles.

		Infrastructure, plant and equipment $	Intangibles $	Total $
Gross value at 1 July 2003		312,540	731,656	**1,044,196**
Additions - purchase of assets		47,789	384,872	**432,661**
Write off			(13,360)	**(13,360)**
Net revaluation increment/decrement		(21,152)	0	**(21,152)**
Disposals		0	0	**0**
Gross value at 30 June 2004		339,177	1,103,168	**1,442,345**
Accumulated depreciation/amortisation at	**30 June 2003**	133,654	53,760	**187,414**
Adjustment for disposals		0	0	**0**
Depreciation/amortisation expense		78,674	86,510	**165,184**
Adjustment for write–offs			(800)	**(800)**
Net revaluation increment/decrement		(10,532)	0	**(10,532)**
Accumulated depreciation/amortisation at	**30 June 2004**	201,796	139,470	**341,266**
Net book value at	**30 June 2004**	137,381	963,698	**1,101,079**
Net book value at	**30 June 2003**	178,886	677,896	**856,782**

In accordance with the FRDC's accounting policy (refer Note 1.12), items under the infrastructure, plant and equipment heading were revalued at their fair value, effective 30 June 2004, by the Australian Valuations Office.

Notes to and forming part of the financial statements for the year ended 30 June 2004

12D – Other Non-Financial Assets

	30 June 2004 $	30 June 2003 $
Prepayments	**25,137**	20,876
Total other non-financial assets	**25,137**	20,876

Note 13: Provisions

13A – Employee Provisions

	30 June 2004 $	30 June 2003 $
Leave	**344,888**	304,324
Aggregate employee entitlement liability	**344,888**	304,324
Current	**214,217**	151,167
Non-current	**130,671**	153,157
	344,888	304,324

Note 14: Payables

14A – Supplier Payables

	30 June 2004 $	30 June 2003 $
Trade creditors	**35,717**	63,113
FBT Payable	**2,504**	778
PAYG payable	**28,621**	0
Total supplier payables	**66,842**	63,891

All supplier payables are current liabilities.

Trade Creditors
Settlement is usually made net 30 days.

14B – Project Payables

	30 June 2004 $	30 June 2003 $
Project creditors	**111,404**	0
Total project creditors	**111,404**	0

All project payables are current liabilities.

Project creditors 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 milestones but were unpaid at the end of the period. Settlement is usually made within 60 days.

14C – Other Payables

	30 June 2004 $	30 June 2003 $
Unearned revenue:		
Aquatic Animal Health	**431,661**	866,570
South Australian Government	**829,549**	1,118,000
Other	**30,000**	0
Total unearned revenue	**1,291,210**	1,984,570

All unearned revenue is recognised as a current liability.

Moneys paid by:
- DAFF (against the Aquatic Animal Health contract), and
- the South Australian Government (against "The Initiative to develop outputs relating to the ecological sustainable development of aquaculture")

are initially shown as revenue received in advance in the Statement of Financial Position. When project payments are made for milestones achieved, unearned revenue is recognised as project income received from other parties.

Notes to and forming part of the financial statements for the year ended 30 June 2004

Note 15: Analysis of equity

Item	Accumulated surpluses		Asset revaluation reserve		Total equity	
	2003–04	2002–03	**2003–04**	2002–03	**2003–04**	2002–03
	$	$	**$**	$	**$**	$
Opening balance at 1 July	**854,214**	135,148	**0**	13,127	**854,214**	148,275
Net surplus/deficit	**1,525,142**	719,066	**0**	0	**1,525,142**	719,066
Net revaluation increment/(decrement)	**0**	0	**0**	(13,127)	**0**	(13,127)
Closing balance at 30 June 2004	**2,379,356**	854,214	**0**	0	**2,379,356**	854,214
Less: outside equity interests	**0**	0	**0**	0	**0**	0
Total equity attributable to the Australian Government	**2,379,356**	854,214	**0**	0	**2,379,356**	854,214

Notes to and forming part of the financial statements for the year ended 30 June 2004

Note 16: Cash flow reconciliation

16A – Reconciliation of operating surplus to net cash from operating activities

	30 June 2004 $	30 June 2003 $
Operating surplus before extraordinary items	**1,525,142**	719,066
Non-cash items		
Depreciation and amortisation	**165,184**	119,640
Assets revalued	**0**	0
Net write down of non-current assets	**23,180**	13,964
Revaluation of assets	**0**	0
(Gain)/loss on disposal of assets	**0**	2,553
Changes in assets and liabilities		
(Increase)/decrease in receivables and other non-financial assets	**(1,660,017)**	526,500
Increase/(decrease) in supplier payables	**2,951**	9,182
Increase/(decrease) in other payables	**(693,360)**	983,171
Increase/(decrease) in employee provisions	**40,564**	64,653
Increase/(decrease) in project payables	**111,404**	(237,911)
Net cash from operating activities	**(484,952)**	2,200,818

16B – Reconciliation of cash

	30 June 2004 $	30 June 2003 $
Cash balance comprises:		
Cash at bank	**880,840**	1,177,360
Cash on hand	**300**	300
Total cash on hand and at bank	**881,140**	1,177,660
Deposits at call	**0**	626,094
Total cash	**881,140**	1,803,754
Balance of cash as at 30 June 2004 shown in the Statement of Cash Flows	**881,140**	1,803,754

Cash

Temporarily surplus funds are placed on deposit at call with FRDC's banker. Interest is earned on the daily balance at the prevailing daily rate for money on call and is paid at month end.

Notes to and forming part of the financial statements for the year ended 30 June 2004

Note 17: Director remuneration

	30 June 2004 $	30 June 2003 $
Other remuneration received or due and receivable by directors of FRDC	396,618	390,828
Total remuneration received, or due and receivable, by directors of FRDC	**396,618**	390,828

The basis for directors' remuneration is detailed at Note 1.5.
The Government Director, Mr G.Hurry, received no remuneration.
There were no superannuation payments in connection with the retirement of directors.

The number of directors of the FRDC included in these figures are shown below in the annual remuneration bands:

Annual remuneration bands	2003 - 04 Number	2002 - 03 Number
Directors		
0 - 9,999	**5**	2
10,000-19,999	**4**	0
20,000-29,999	**2**	6
30,000 - 39,999	**1**	1
220,000-229,999	**1**	1
Total number of directors of FRDC	**13**	10

Note 18: Related party disclosures

The Directors of the FRDC during the year were:

Mr S. Bennison	Director
Mr D. Byrne	Chair
Mr I. Cartwright	Director
Dr D. Day	Director from 1 July 2003 to 31 August 2003
Mr P. Dundas-Smith	Executive Director
Mr J. Harrison	Director from 1 September 2003
Prof. T. Hundloe	Director from 1 September 2003
Mr G. Hurry	Government Director
Mr D. Newton	Director from 1 July 2003 to 31 August 2003
Dr N. Rayns	Director from 1 September 2003
Mr S.Richey	Director from 1 September 2003 (Deputy Chair)
Mr W. Sawynok	Director from 1 July 2003 to 31 August 2003
Mr A.Wood-Meredith	Deputy Chair from 1 July 2003 to 31 August 2003

The aggregate amount of remuneration of directors is disclosed in Note 17.

Notes to and forming part of the financial statements for the year ended 30 June 2004

Note 18: Related party disclosures (cont'd)
Transactions with director-related parties

Director	Organisation & position held	Nature of interest	Income $	Expenditure $
Mr I.Cartwright	Australian Fisheries Management Authority *Director*	Research projects or work undertaken by the organisation	1,524,675	662,277
Mr S.Bennison	Aquaculture Council of Western Australia *Executive Director*	Research projects or work undertaken by the organisation	4,659	11,000
	National Aquaculture Council *Chief Executive Officer*	Research projects or work undertaken by the organisation	302	278,150
Dr D.Day	Australian Maritime College Council *Member*	Research projects or work undertaken by the organisation		13,915
Mr P. Dundas-Smith	CRC for Sustainable Aquaculture of Finfish *Director*	Research projects or work undertaken by the organisation	2,913,905	68,985
	Seafood Services Australia Ltd *Director*	Research projects or work undertaken by the organisation	20,702	907,291
Mr J.Harrison	Northern Territory Department of Business, Industry and Resource Development *Member of NT Mud Crab MAC, NT SpanishMackerel MAC & NT Barramundi MAC*	Research projects or work undertaken by the organisation	258,500	367,308
	Recfish Australia *AFANT'S Delegate*	Research projects or work undertaken by the organisation		7,700
Prof.T.Hundloe	University of Queensland *Head of Technology Management*	Research projects or work undertaken by the organisation	325	198,679

Notes to and forming part of the financial statements for the year ended 30 June 2004

Note 18: Related party disclosures (cont'd)
Transactions with director-related parties

Director	Organisation & position held	Nature of interest	Income $	Expenditure $
Mr G.Hurry	Department of Agriculture Fisheries and Forestry *General Manager Fisheries and Aquaculture*	Research projects or work undertaken by the organisation	25,037,289	6,022,712
	Bureau of Rural Sciences *General Manager Fisheries and Aquaculture*	Research projects or work undertaken by the organisation		255,209
	Deakin University *Member*	Research projects or work undertaken by the organisation		106,200
Dr N.Rayns	NSW Fisheries *Executive Director Aquaculture and Sustainable Fisheries*	Research projects or work undertaken by the organisation	371,387	879,187
Mr S.Richey	Australian Fisheries Management Authority *Chairman of Northern Prawn Management Advisory Committee*	Research projects or work undertaken by the organisation	1,355,421	662,277
	Australian Maritime College *Council Member*	Research projects or work undertaken by the organisation		11,715
	Tasmanian Fishing Industry Council *Director*	Research projects or work undertaken by the organisation		25,850
Mr W.Sawynok	CRC Reef Research Centre *Director*	Research projects or work undertaken by the organisation		189,706

All transactions were conducted under normal terms and conditions.

Notes to and forming part of the financial statements for the year ended 30 June 2004

Note 19: Remuneration of officers

The remuneration of officers includes all officers with the exception of the Executive Director who:

- are concerned with, or took part in, the management of the economic entity during 2003–04; and
- as at 30 June 2004 received total annual remuneration of $100,000 or more.

The officers meeting these criteria were the Business Development Manager and the Programs Manager. Details in relation to the Executive Director are incorporated in Note 17.

	30 June 2004 $	30 June 2003 $
The aggregate amount of total remuneration of officers shown below is	**362,852**	446,793

The basis for officers' remuneration is detailed at Note 1.5.
The number of officers of the FRDC who are expected to receive remuneration of $100,000 or more:

Annual remuneration bands	2003 - 04 Number	2002 - 03 Number
Officers		
100,000 - 109,999	**0**	1
170,000 - 179,999	**1**	2
180,000 - 189,999	**1**	0
Total	**2**	3

Note 20: Remuneration of auditors

	30 June 2004 $	30 June 2003 $
Amounts received or due and receivable by the Australian National Audit Office as auditors of FRDC	**9,000**	9,000

Deloitte Touche Tohmatsu are contracted by the Australian National Audit Office to provide audit services on the ANAO's behalf. Fees for these services are included above. No other services were provided by the Auditor-General or Deloitte Touche Tohmatsu during the reporting period.

Note 21: Average staffing levels

	2003 - 04	2002 - 03
Average staffing levels during the year	10	10

Notes to and forming part of the financial statements for the year ended 30 June 2004

Note 22: Financial instruments

22A – Terms, conditions and accounting policies

Financial instrument	Note	Accounting policies and methods (including recognition criteria and measurement basis)	Nature of underlying instrument (including significant terms and conditions affecting the amount, timing and certainty of cash flows)
Financial assets		Financial assets are recognised when control over future economic benefits is established and the amount of the benefit can be reliably measured.	
Deposits at call	16B,11B	Deposits are recognised at their nominal amounts. Interest is credited to revenue as it accrues.	Temporarily surplus funds are placed on deposit at call with the Corporation's banker. Interest is earned on the daily balance at the prevailing daily rate of money on call and is paid at the month end.
Receivables for goods and services	11A	Receivables are recognised at the nominal amounts due, less any allowance for bad and doubtful debts. Allowances are made when collection of the debt is judged to be less rather than more likely.	Credit terms are net 90 days.
Financial liabilities		Financial liabilities are recognised when a present obligation to another party is entered into and the amount of the liability can be reliably measured.	
Trade creditors	14A	Creditors and accruals are recognised at their nominal amounts being the amount at which the liabilities will settle. Liabilities are recognised to the extent that goods and services have been received (and irrespective of having been invoiced).	Settlement is normally made 60 days after receipt of an invoice.

Notes to and forming part of the financial statements for the year ended 30 June 2004

22B – Interest rate risk

Financial instrument	Note	Floating interest rate		Fixed interest rate						Non-interest bearing		Total		Weighted average effective interest rate	
				2003-04			2002-03								
		2003-04	2002-03	1 year or less	1 to 5 years	> 5 years	1 year or less	1 to 5 years	> 5 years	2003-04	2002-03	2003-04	2002-03	2003-04	2002-03
Financial assets															
Cash at bank	16B	**880,840**	1,177,360									**880,840**	1,177,360	**1.50%**	1.50%
Cash on hand	16B									**300**	300	**300**	300	**n/a**	n/a
Other receivables	11A									**1,842,795**	145,308	**1,842,795**	145,308	**n/a**	n/a
Deposits at call	11B	**0**	626,094	**0**			0					**0**	626,094	**1.75%**	4.50%
Total		**880,840**	1,803,454	**0**	**0**	**0**	0	0	0	**1,843,095**	145,608	**2,723,935**	1,949,062		
Total assets												**4,193,700**	3,206,999		
Financial liabilities															
Trade creditors	14A									**35,717**	63,113	**35,717**	63,113	**n/a**	n/a
Project creditors	14B									**111,404**	0	**111,404**	0	**n/a**	n/a
Unearned revenue	14C									**1,291,210**	1,984,570	**1,291,210**	1,984,570	**n/a**	n/a
Total		**0**	0	**0**	**0**	**0**	0	0	0	**1,438,331**	2,047,683	**1,438,331**	2,047,683		
Total liabilities												**1,814,344**	2,352,785		

Notes to and forming part of the financial statements

for the year ended 30 June 2004

22C – Net fair values of financial assets

	Notes	2003 - 04		2002 - 03	
		Total carrying amount	Aggregate net fair value	Total carrying amount	Aggregate net fair value
Financial assets					
Cash at bank	16B	**880,840**	**880,840**	1,177,360	1,177,360
Cash on hand	16B	**300**	**300**	300	300
Other receivables	11A	**1,842,795**	**1,842,795**	145,308	145,308
Deposits at call	11B	**5,001**	**5,001**	626,094	626,094
		2,728,936	**2,728,936**	1,949,062	1,949,062
Financial liabilities					
Trade creditors	14A	**35,717**	**35,717**	63,113	63,113
Project creditors	14B	**111,404**	**111,404**	0	0
Unearned revenue	14C	**1,291,210**	**1,291,210**	1,984,570	1,984,570
		1,438,331	**1,438,331**	2,047,683	2,047,683

Financial assets

The net fair values of cash, deposits at call and non-interest-bearing monetary financial assets approximate their carrying amounts

Financial liabilities

The net fair values for trade, project and other payables, all of which are short term in nature, are approximated by their carrying amounts.

Notes to and forming part of the financial statements for the year ended 30 June 2004

22D – Credit risk exposure

The FRDC's maximum exposures to credit risk at the reporting date in relation to each class of recognised financial assets is the carrying amount of those assets as indicated in the Statement of Financial Position.

The FRDC has no significant exposure to any concentration of credit risk.

All figures for credit risk referred to do not take into account the value of any collateral or other security.

Note 23: Other related parties

The FRDC is one of two members of Seafood Services Australia Limited (SSA), a company limited by guarantee. Although the FRDC has significant influence over SSA, the FRDC has no ownership interest in SSA that would require the application of AAS14 "Accounting for Investments in Associates". The constitution of SSA prohibits the distribution of any assets and income to its members, except as bona fide compensation for services rendered or expenses incurred on behalf of SSA. On the winding up of SSA, any amounts remaining after the satisfaction of all debts and liabilities must be transferred to any corporation with similar objectives to SSA that is not carried on for the profit or gain of its individual members.

During the year, the FRDC paid a total of $770,000 to SSA by way of grant funding. As at 30 June 2004 SSA had total assets of $645,279; total liabilities of $615,147; and for the year then ended made a deficit from ordinary activities of $14,392.

Appendices

Appendix A: The FRDC's principal revenue base

As stipulated in the PIERD Act, and as shown in **figure 16**, the FRDC's primary revenue source is based on:

» the Australian Government providing unmatched funds equivalent to 0.5 per cent of the average gross value of Australian fisheries production for the three preceding years (AGVP);

» fishers and aquaculturists providing contributions of at least 0.25 per cent of AGVP; and

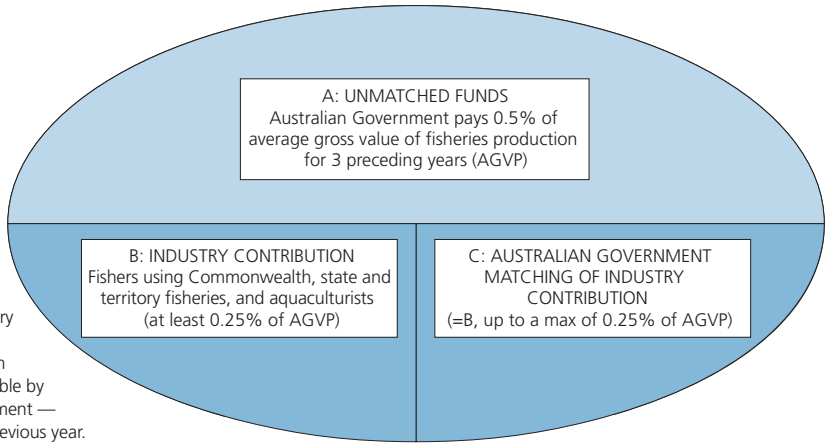
» the Australian Government matching contributions by fishers and aquaculturists up to a maximum of 0.25 per cent of AGVP.

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 94.

Details of all FRDC revenue (including investments, royalties, and sales of products, information and services) are in the financial statements starting on page 131.

FIGURE 16: PROPORTIONS OF THE FRDC'S PRINCIPAL REVENUE BASE



In 2003–04, the industry contributed more than 100% of the maximum amount that is matchable by the Australian Government — up from 84% in the previous year.

RATIONALE FOR THE FRDC'S REVENUE BASE

The high component of public good in the operating environment of wild-catch fishing, described on page 33, has significance for the FRDC's revenue base. The Australian Government's contribution of 0.5 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.

The industry makes its contributions to the FRDC recognising that fisheries R&D will be oriented to its needs and will deliver economic and social benefits to it. In turn, the Australian Government's matching of the industry contributions is in line with policy principles that:

» beneficiaries from research should pay roughly in proportion to the benefits received; and

» the greater the spill-over benefits, the greater the proportion the Australian Government should contribute.

Appendix B: Principal legislative requirements for reporting

This annual report complies with many requirements of Commonwealth legislation. The principal reporting requirements of the foremost legislation, and some of their consequences for the FRDC, are outlined in this appendix. The Acts are:

» the *Commonwealth Authorities and Companies Act 1997* (CAC Act);

» the *Primary Industries and Energy Research and Development Act 1989* (PIERD Act); and

» the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

CAC Act requirements

The CAC Act is the principal legislation that specifies the content and standards of presentation of statutory authorities' annual reports for parliamentary scrutiny.

Section 9 of the CAC Act requires the FRDC's directors to prepare an annual report in accordance with Schedule 1 each financial year, and to give it to the responsible minister by 15 October. Clause 10 of the CAC Orders specifies that the report of operations and future prospects (one of the three main elements of the annual report, the others being financial statements and a report by the Auditor-General) to include, among other things:[21]

» a review of how the FRDC has performed during the financial year in relation to its statutory objects and functions, its R&D plan and its principal outputs and contribution to outcomes;

» factors influencing its performance over the financial year and in the future;

» significant events;

» operational and financial results, including principal outputs, major investing and financing activities, and key financial and non-financial performance indicators;

» significant changes in the FRDC's state of affairs or principal activities;

» developments since the end of the financial year; and

» matters required to be included by the PIERD Act and any other legislation.

21 The sub-paragraphs are an edited version of clauses 8 to 18 of the CAC (Report of Operations) Orders 2002.

PIERD Act requirements

The PIERD Act also specifies matters that must be reported. In particular, section 28 states:

(1) The directors must include in each report on an R&D Corporation prepared under section 9 of the *Commonwealth Authorities and Companies Act 1997*:

(a) particulars of:

(i) the R&D 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

(iia) which (if any) of those activities related to ecologically sustainable development; and

(iii) revisions of its R&D plan or annual operational 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:

(A) assets, debts, liabilities and obligations under section 144; and

(B) levies attached to Research Funds under the Rural Industries Research Act 1985 under section 151 of this Act.

Further information on the PIERD Act in relation to the FRDC is in appendix C.

EPBC Act requirements

Section 516A of the EPBC Act requires the FRDC to report on ecologically sustainable development and environmental matters. The specific reporting required by section 516A, and the FRDC's responses, are as follows:

» *The extent to which the principles of ESD have been internalised in decision-making systems and processes*. The objects of the FRDC, specified in the enabling legislation and detailed overleaf, focus its activities on economic, environmental and social matters (that is, the principal elements of ESD), including "sustainable use and sustainable management of Australia's fisheries natural resources". The first three of the legislated objects underlie the FRDC's visions and mission, and are the basis for the planned outcomes of the three R&D programs. In pursuing these outcomes, the FRDC has fully internalised the principles of ESD in its decision-making systems and processes.

» *The contribution to ESD of the social, economic and environmental outcomes that the Australian Government is seeking*. Reporting of the three R&D programs (pages 35–79) addresses this requirement.

» *The environmental impacts of the FRDC's operations and actions, the measures being taken to minimise the impact on the environment, and the mechanisms for reviewing and improving performance*. The FRDC implements section 516A through two functions, as follows:

  › *R&D project management*. The FRDC identifies R&D needs, and the means of addressing them, through a planning process and by entering project agreements with research providers: it does not undertake research itself. Management of fisheries R&D involves reporting against economic, environmental and/or social outcomes — at a strategic level via this annual report and in more detail in final reports for projects. Before R&D projects start, the FRDC assesses their environmental impacts and ensures that appropriate approvals are obtained. The FRDC also has an entire R&D subprogram dedicated to developing an ESD reporting and assessment framework so that the industry can meet its obligations under the Act.

  › *FRDC internal operations*. Mechanisms for reviewing and improving performance are incorporated in the Corporation's ISO-certified quality management system, which provides a structure for continual improvement that permeates all management processes. The FRDC manages the process through Program 4 — the Management and Accountability Program.

A compliance index (on page 216) shows the page numbers in this report on which information nominated by legislation and Australian Government policies is reported.

Appendix C: The FRDC's legislative foundation and the exercise of ministerial powers

Enabling legislation

The FRDC's enabling legislation is the *Primary Industries and Energy Research and Development Act 1989* (Commonwealth)(the PIERD Act).

The FRDC Board is responsible to the Minister for Agriculture, Fisheries and Forestry; to the Parliamentary Secretary to the Minister; and to the Minister for Fisheries, Forestry and Conservation — and, through them, to the Parliament of Australia.

The objects, functions and statutory powers of R&D corporations are specified in the PIERD 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 PIERD 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 PIERD Act, are to make provision for the funding and administration of fisheries R&D with a view to:

» increasing the economic, environmental and social benefits to members of the Australian fishing industry and to the community in general by improving the production, processing, storage, transport or marketing of fish and fish products;

» achieving the sustainable use and sustainable management of Australia's fisheries natural resources;

» making more effective use of the resources and skills of the community in general and the scientific community in particular; and

» improving accountability for expenditure on fisheries R&D.

Functions

The functions of the FRDC, deriving from section 11 of the PIERD 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 R&D activities that are funded and report on them to the Parliament; the Minister for Agriculture, Fisheries and Forestry; the Parliamentary Secretary to the Minister; the Minister for Fisheries, Forestry and Conservation; the Australian Seafood Industry Council; and the Australian Recreational and Sport Fishing Industry Confederation (trading as Recfish Australia); and
- facilitate the dissemination, adoption and commercialisation of the results of fisheries R&D.

Statutory powers

Subject to the PIERD 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 devises 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 following description of ministerial powers has been drawn from several sections of the PIERD 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, Fisheries and Forestry; the Parliamentary Secretary to the Minister; and the Minister for Fisheries, Forestry and Conservation. They relate to:

- directing the FRDC in writing as to the performance of its functions and the exercise of its powers;
- approving the R&D plan and the annual operational plan;
- requesting and approving variation to the R&D 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 terms and conditions of appointment of directors (other than the Executive Director) in relation to matters not provided for by the PIERD Act;
- appointing the Chairperson and Government Director;
- appointing directors, other than the Chairperson, Government Director and Executive Director, from persons nominated by a selection committee;

- appointing a nominated director to be the Deputy Chairperson;
- 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 *Commonwealth Authorities and Companies Act 1997* relating to corporate governance and reporting are available to the Minister for Agriculture, Fisheries and Forestry; the Parliamentary Secretary to the Minister; the Minister for Fisheries, Forestry and Conservation; and the Finance Minister.

Exercise of ministerial powers during 2003–04 is described on page 122.

Appendix D: R&D project details

Summary of project expenditure

Expenditure by R&D program

R&D program	Project lists start on …	2003–04 expenditure
Program 1: Natural Resources Sustainability	page 177	$13.8 m
Program 2: Industry Development	page 189	$9.6 m
Program 3: People Development	page 198	$0.6 m
Aquatic animal health activities funded under the 2001 Federal Budget Initiative	page 200	$1.1 m
Total		**$25.1 m**

Expenditure by Australian Government priority for rural R&D

Priority	Projects on pages 177–202 are annotated …	2003–04 expenditure
Sustainable natural resource management	R1	$19.5 m
Improving competitiveness	R2	$2.1 m
Maintaining and improving confidence in the integrity of … fish … products	R3	$0.2 m
Improved trade and market access	R4	—
Use of frontier technologies	R5	$1.5 m
Protecting Australia from invasive diseases and pests	R6	$1.5 m
Creating an innovative culture	R7	$0.4 m
Total		**$25.1 m**

Expenditure by Australian Government national research priority

Priority	Projects on pages 177–202 are annotated …	2003–04 expenditure
An environmentally sustainable Australia.	N1	$19.4 m
Frontier technologies for building and transforming Australian industries	N2	$1.9 m
Promoting and maintaining good health	N3	$0.5 m
Safeguarding Australia	N4	$1.5 m
Total		**$23.3 m**

All major investing and financing activities occurred within the context of the FRDC's three R&D programs and its management and accountability activities.

Because the FRDC does not itself undertake R&D, all project expenditure is discretionary.

The organisation shown against each project is the organisation primarily responsible for undertaking the R&D. However, project expenditure may also include payments made to other parties related to the project, and cash contributions to projects from other sources paid through the FRDC. Details of each project are available from the FRDC.

Natural Resources Sustainability projects

Project ID	Project title	Australian Government research/R&D priority no. National	Rural	Organisation	$
1993/220	Fisheries biology of the giant crab, *Pseudocarcinas gigas*	N1	R1	Deakin University	26,680
1994/029.80	BCA — a collaborative investigation on the usage and stock assessment of bait fishes in southern and eastern Australian waters	N1	R1	Fisheries Economics Research and Management Specialists	5,445
1994/045.80	BCA — Development, application and evaluation of the use of remotely sensed data by Australian fisheries	N1	R1	Fisheries Economics Research and Management Specialists	5,445
1995/048	Cephalopod beak identification and biomass estimation techniques: tools for dietary studies of southern Australian finfishes	N1	R1	Museum of Victoria	4,207
1996/160	Condition and its assessment in the southern rock lobster: field application of the techniques for condition assessment	N1	R1	SA Research and Development Institute	30,759
1996/254.80	BCA — Effects of Trawling Subprogram: commercialisation of bycatch reduction strategies and devices in northern Australian prawn fishery	N1	R1	Fisheries Economics Research and Management Specialists	5,448
1997/122.80	BCA — Ecologically sustainable development of the fishery for Patagonian toothfish (*Dissostichus eleginoides*) around Macquarie Island	N1	R1	Fisheries Economics Research and Management Specialists	5,445
1997/124	Effects of line fishing on the Great Barrier Reef and evaluation of alternative potential management strategies	N1	R1	James Cook University	70,730
1997/127	Assessment of the snapper fishery in Victoria	N1	R1	Primary Industries Research Victoria	14,371
1997/128	Fisheries biology of blue-throat wrasse (*Notolabrus tetricus*) in Victorian waters	N1	R1	Seafood Industry Victoria Inc.	7,150
1997/132	Fisheries biology of the giant crab (stage 2)	N1	R1	Deakin University	45,352
1998/103	Synthesis of existing data on the early life history of southern Australian finfish	N1	R1	CSIRO Marine Research	32,010
1998/116	Fisheries biology and spatial modelling of the blue swimmer crab (*Portunus pelagicus*)	N1	R1	SA Research and Development Institute	115,860
1998/117	Fisheries biology and assessment of the blue swimmer crab (*Portunus pelagicus*) in Queensland	N1	R1	Dept of Primary Industries and Fisheries Qld	220
1998/135	Fishery biology and management of black jewfish *Proteonibea diacanthus* (Sciaenidae) aggregations near Injinoo community	N1	R1	Balkanu Cape York Development Corporation	7,942

Natural Resources Sustainabilty projects continued					
		Australian Government research/R&D priority no.			
Project ID	Project title	National	Rural	Organisation	$
1998/146	Evaluation of recreational fishery management controls of commercially important scalefish species	N1	R1	Primary Industries Research Victoria	9,250
1998/151	Fisheries biology of the cuttlefish (*Sepia apama Gray*) in South Australian waters	N1	R1	SA Research and Development Institute	14,414
1998/156	Optimising the efficiency of enforcement in commercial fisheries	N1	R1	Department of Fisheries WA	14,715
1998/204	Effects of Trawling Subprogram: maximising yield and reducing discards in the South East Trawl Fishery through gear development	N1	R1	Primary Industries Research Victoria	68,699
1998/212	Determination of the disease status of Western Australian commercial prawn stocks	N4	R6	Department of Fisheries WA	20,864
1998/215	Coastal floodplain management in eastern Australia: barriers to fish and invertebrate recruitment in acid sulphate soil catchments	N1	R1	NSW Fisheries	54,490
1998/219	Enhancement of populations of abalone in NSW using hatchery-produced seed	N1	R1	NSW Fisheries	35,769
1998/224	Assessment of the impacts associated with the harvesting of marine benthic invertebrates for use as bait by recreational anglers	N1	R1	University of Queensland	61,098
1998/225	Effects of trawling subprogram: prawn fishery bycatch and discards — fates and consequences for a marine ecosystem	N1	R1	SA Research and Development Institute	41,889
1999/104	An integrated analysis of the growth rates of southern bluefin tuna for use in estimating the catch-at-age matrix in the stock assessment	N1	R1	CSIRO Marine Research	19,208
1999/105	Improved fishery-independent estimates of southern bluefin tuna recruitment through integration of environmental, archival tag and aerial survey data	N1	R1	CSIRO Marine Research	17,411
1999/106	Size at first maturity and recruitment into egg production of southern bluefin tuna	N1	R1	CSIRO Marine Research	17,110
1999/107	Development of an operating model for evaluation of harvest strategies for the Eastern Tuna and Billfish Fishery	N1	R1	CSIRO Marine Research	42,549
1999/112	Arrow squid in southern Australian waters — supplying management needs through biological investigations	N1	R1	University of Tasmania	30,070
1999/116	Development of a spatially structured model for stock assessment and TAC decision analysis for Australian abalone fisheries	N1	R1	Primary Industries Research Victoria	41,227

1999/119	Sustainable *Penaeus monodon* (tiger prawn) populations for broodstock supply	N1	R1	Dept of Primary Industries and Fisheries Qld	1,115
1999/120	Reference point management and the role of catch-per-unit-effort in prawn and scallop fisheries	N1	R1	Dept of Primary Industries and Fisheries Qld	32,840
1999/122	Biology, management and genetic stock structure of mangrove jack (*Lutjanus argentimaculus*) in Australia	N1	R1	Dept of Primary Industries and Fisheries Qld	13,151
1999/125	Tropical Resource Assessment Program: phase II — model application and validation	N1	R1	Dept of Primary Industries and Fisheries Qld	4,154
1999/128	Research to develop and manage the sea urchin fisheries of NSW and eastern Victoria	N1	R1	NSW Fisheries	29,742
1999/134	Migratory dynamics and recruitment of snapper (*Pagrus auratus*) in Victorian waters	N1	R1	Primary Industries Research Victoria	15,000
1999/138	Jellyfish fishery development and assessment	N1	R1	Primary Industries Research Victoria	53,400
1999/140	Impact of management change to an individual transferable quota system in the Tasmanian rock lobster fishery	N1	R1	University of Tasmania	31,216
1999/142	Modelling prawn movement and spatial dynamics in the Spencer Gulf and West Coast Prawn Fisheries	N1	R1	University of Adelaide	46,125
1999/145	Stock assessment models with graphical user interfaces for key South Australian marine finfish stocks	N1	R1	SA Research and Development Institute	35,282
1999/155	Modelling Western Australian fisheries with techniques of time series analysis: examining data from a different perspective	N1	R1	Department of Fisheries WA	22,553
1999/158	Implementation of the National Recreational and Indigenous Fishing Survey	N1	R1	Dept of Agriculture, Fisheries and Forestry	21,242
1999/205	The effect of barramundi nodavirus on important freshwater fishes	N4	R6	Dept of Primary Industries and Fisheries Qld	19,962
1999/217	Stable isotope tracing of the contribution of seagrass production to sub-tropical fisheries species occurring outside seagrass areas	N1	R1	Griffith University	7,643
1999/222	Developing techniques for enhancing prawn fisheries, with a focus on brown tiger prawns (*Penaeus esculentus*) in Exmouth Gulf	N1	R1	CSIRO Marine Research	47,126
1999/227	Pilchard mortality events in Australia and related world events	N4	R6	Dept of Primary Industries and Resources SA	3,201

Natural Resources Sustainabilty projects continued					
		Australian Government research/R&D priority no.			
Project ID	Project title	National	Rural	Organisation	$
2000/100	Age and growth of bigeye tuna, Thunnus obesus, from the eastern and western AFZ	N1	R1	CSIRO Marine Research	19,135
2000/105	Preparation of a field guide to sharks and rays caught in Australian fisheries	N1	R1	CSIRO Marine Research	22,836
2000/109	Stock assessment and management strategy evaluation for sub-Antarctic fisheries	N1	R1	CSIRO Marine Research	31,849
2000/120	Population dynamics and assessment of sand and rock flathead in Victorian waters	N1	R1	Primary Industries Research Victoria	25,426
2000/121	Population dynamics and reproductive ecology of the southern calamari in Tasmania	N1	R1	University of Tasmania	15,950
2000/127	Predicting and assessing recruitment variation — a critical factor for the management of the mother-of-pearl (*Pinctada maxima*)	N1	R1	Department of Fisheries WA	103,353
2000/134	Biology and stock assessment of the thickskin (sandbar) shark, *Carcharhinus plumbeus*, in WA and further refinement of the dusky shark (*Carcharhinus obscurus*) stock assessment	N1	R1	Department of Fisheries WA	88,217
2000/135	Regrowth of pilchard (*Sardinops sagax*) stocks off southern WA following the mass mortality event of 1998–1999	N1	R1	Department of Fisheries WA	77,822
2000/137	Determination of the biological parameters required for managing the fisheries of four tuskfish species and western yellowfin bream	N1	R1	Murdoch University	27,974
2000/138	Minimising the cost of future stock monitoring, and assessment of the potential for increased yields from the oceanic snapper (*Pagrus auratus*) stock off Shark Bay	N1	R1	Department of Fisheries WA	11,636
2000/142	Methods for monitoring abundance and habitat for northern Australian mud crab *Scylla serrata*	N1	R1	Dept Business, Industries and Resource Development NT	62,077
2000/151	Control of Perkinsus disease in abalone	N4	R6	University of Queensland	21,852
2000/153	Integrating fishing industry knowledge of fishing grounds with scientific data on seabed habitats for informed spatial management and ESD evaluation in the SEF	N1	R1	CSIRO Marine Research	89,880
2000/157	Development of a fisheries habitat suitability model utilising a geographic information system	N1	R1	Primary Industries Research Victoria	19,553
2000/164	Aquafin CRC — Atlantic Salmon Aquaculture Subprogram: development of novel methods for the assessment of sediment condition and determination of management protocols for sustainable finfish cage aquaculture operations	N1	R1	University of Tasmania	129,927

2000/166	Towards an assessment of natural and human use impacts on the marine environment of the Abrolhos Islands — Phase 1: Data consolidation and scoping	N1	R1	Department of Fisheries WA	6,361
2000/170	Effects of Trawling Subprogram: bycatch weight, composition and preliminary estimates of the impact of bycatch reduction devices	N1	R1	Dept of Primary Industries and Fisheries Qld	2,594
2000/172	Bycatch assessment of the estuarine commercial gill net fishery in NSW	N1	R1	NSW Fisheries	46,226
2000/173	Effects of Trawling Subprogram: assessment and improvement of BRDs and TEDs in the NPF — a cooperative approach by fishers, scientists, fisheries technologists, economists and conservationists	N1	R1	CSIRO Marine Research	56,813
2000/185	Rock Lobster Enhancement and Aquaculture Subprogram: evaluating the release and survival of juvenile rock lobsters released for enhancement purposes	N2	R5	University of Tasmania	14,520
2000/186	Assessment of the impacts of hydro-electric dams on eel stocks in Tasmania and an evaluation and assessment of mitigation strategies	N1	R1	University of Tasmania	69,978
2000/195	Assessing the impact of proposed marine protected areas on South Australian rock lobster catches	N1	R1	SA Research and Development Institute	3,750
2001/002	A new approach to assessment in the NPF: spatial models in a management strategy environment that includes uncertainty	N1	R1	CSIRO Marine Research	60,807
2001/004	Stock structure and spatial dynamics of the warehous: a pilot study	N1	R1	Primary Industries Research Victoria	22,090
2001/005	Stock assessment for south east and southern shark fishery	N1	R1	CSIRO Marine Research	126,343
2001/008	Assessment of seal fishery interactions in the South East Trawl Fishery (SETF) and the development of fishing practices and seal exclusion devices (SEDs) in the winter blue grenadier fishery to mitigate seal bycatch by SETF trawlers	N1	R1	Bureau of Rural Sciences	20,000
2001/014	Age and growth of broadbill swordfish (*Xiphias gladius*) from Australian waters	N1	R1	CSIRO Marine Research	77,016
2001/018	Development of a genetic method to estimate effective spawner numbers in tiger prawn fisheries	N1	R1	Dept of Primary Industries and Fisheries Qld	59,766
2001/020	Modelling multi-species targeting of fishing effort in the Queensland Coral Reef Finfish Fishery	N1	R1	CRC Reef Research Centre	73,193
2001/022	Environmental flows for subtropical estuaries: understanding the freshwater needs of estuaries for sustainable fisheries production and assessing the impacts of water regulation	N1	R1	CRC Coastal Zone, Estuary and Waterway Management	86,026
2001/023	Spatial arrangement of estuarine and coastal habitats and the implications for fisheries production and diversity	N1	R1	University of Queensland	106,069

Natural Resources Sustainabilty projects continued					
		Australian Government research/R&D priority no.			
Project ID	Project title	National	Rural	Organisation	$
2001/027	Life history, reproductive biology, habitat use and fishery status of eastern sea garfish (*Hyporhamphus australis*) and river garfish (*H. regularis ardelio*) in NSW waters	N1	R1	University of Wollongong	89,216
2001/031	Reducing the discarding of small prawns in NSW's commercial and recreational prawn fisheries	N1	R1	NSW Fisheries	99,097
2001/036	Assessment of the importance of different near-shore marine habitats to important fishery species in Victoria using standardised survey methods, and in temperate and sub-tropical Australia using stable isotope analysis	N1	R1	Primary Industries Research Victoria	130,489
2001/044	Establishment of the long-spined sea urchin (*Centrostephanus rodgersii*) in Tasmania: a first assessment of the threat to abalone and rock lobster fisheries	N1	R1	University of Tasmania	13,303
2001/055	Biological and fisheries data for managing deep sea crabs in Western Australia	N1	R1	Murdoch University	67,010
2001/060	Characterising the fish habitats in the Recherche Archipelago, Western Australia	N1	R1	University of Western Australia	74,408
2001/061	Identifying nursery areas used by inner bay and oceanic snapper stocks in the Shark Bay region, in relation to the effect of prawn trawling on inner bay snapper stocks	N1	R1	Department of Fisheries WA	437
2001/064	Aboriginal fishing strategy	N3	R	Department of Fisheries WA	31,250
2001/065	Socio-economic valuation of allocation options between recreational and commercial sectors	N1	R1	Economic Research Associates Pty Ltd	48,744
2001/067	Quantification of changes in recreational catch and effort on blue swimmer crabs in Cockburn Sound and Geographe Bay	N1	R1	Department of Fisheries WA	15,383
2001/068	Development of stock allocation and assessment techniques in WA blue swimmer crab fisheries	N1	R1	Department of Fisheries WA	123,972
2001/069	Compliance program evaluation and optimisation in commercial and recreational Western Australian fisheries	N1	R1	Department of Fisheries WA	117,121
2001/070	Can production in the southern rock lobster fishery be improved? Linking juvenile growth, survival and density dependence to sustainable yield	N1	R1	Primary Industries Research Victoria	103,172
2001/074	Linking fishery-dependent and fishery-independent assessments of abalone fisheries	N1	R1	University of Tasmania	92,282

2001/076	Assessing survey methods for greenlip abalone in South Australia	N1	R1	SA Research and Development Institute	40,904
2001/082	ESD Reporting and Assessment subprogram: strategic planning, project management and adoption	N1	R1	Department of Fisheries WA	56,483
2001/093	Aquatic Animal Health Subprogram: strategic planning, project management and adoption	N4	R6	Dept of Agriculture, Fisheries and Forestry	97,742
2001/097	Aquafin CRC — Atlantic Salmon Aquaculture Subprogram: system-wide environmental issues for sustainable salmonid aquaculture	N1	R1	CSIRO Marine Research	308,561
2001/098	Effects of Trawling Subprogram: evaluation of hoppers for reduction of bycatch mortality in the Queensland East Coast Prawn Trawl fishery	N1	R1	Dept of Primary Industries and Fisheries Qld	12,189
2001/099	Environmental risk and impact assessment of the pearling industry	N1	R1	Pearl Producers Association	13,255
2001/102	Aquafin CRC — SBT Aquaculture Subprogram: tuna environment — development of novel methodologies for cost-effective assessment of the environmental impact of aquaculture	N1	R1	SA Research and Development Institute	52,938
2001/103	Aquafin CRC — SBT Aquaculture Subprogram: tuna environment subproject — evaluation of waste composition and waste mitigation	N1	R1	SA Research and Development Institute	173,627
2001/104	Aquafin CRC — SBT Aquaculture Subprogram: tuna environment — development of regional environmental sustainability	N1	R1	SA Research and Development Institute	31,719
2002/001	Adult migration, population replenishment and geographic structure for snapper in South Australia	N1	R1	SA Research and Development Institute	11,409
2002/003	Biological parameters for managing the fisheries for blue and king threadfin salmons, estuary rockcod, malabar grouper and mangrove jack in north-western Australia	N1	R1	Murdoch University	78,961
2002/004	Determination of biological parameters for managing the fisheries for mulloway and silver trevally in Western Australia	N1	R1	Murdoch University	46,626
2002/005	Arresting the decline of the commercial and recreational fisheries for mulloway (*Argyrosomus japonicus*)	N1	R1	NSW Fisheries	41,231
2002/007	Larval transport and recruitment processes of southern rock lobster	N1	R1	CSIRO Marine Research	110,111
2002/011	GENETAG: genetic mark-recapture for real-time harvest rate monitoring. Pilot studies in northern Australia Spanish mackerel fisheries	N2	R5	Dept Business, Industries and Resource Development NT	137,054
2002/014	Developing a new method of evaluating catch rates of spatially mobile and aggregating prawn resources	N1	R1	CSIRO Marine Research	179,378

Natural Resources Sustainabilty projects continued

Project ID	Project title	Australian Government research/R&D priority no. National	Rural	Organisation	$
2002/015	Estimation of mortality rates from tagging data for pelagic fisheries: analysis and experimental design	N1	R1	CSIRO Marine Research	52,047
2002/016	Synthesis and gap assessment of fish dietary data required for modelling ecosystems in south-western Australia	N1	R1	Murdoch University	57,329
2002/017	Impact of environmental changes on the biota of WA south coast estuaries	N1	R1	Murdoch University	28,992
2002/028	Trophic dynamics of the eastern shelf and slope of the South East Fishery: impacts of and on the fishery	N1	R1	CSIRO Marine Research	63,710
2002/033	Rapid assessment of sustainability for ecological risk of shark and other chondrichthyan bycatch species taken in the SSF, SENTF, SETF and GABTF	N1	R1	Primary Industries Research Victoria	117,223
2002/035	Effects of Trawling Subprogram: design, trial and implementation of an integrated long-term bycatch monitoring program, road tested in the NPF	N1	R1	CSIRO Marine Research	321,868
2002/038	Effects of Trawling Subprogram: development of biodiversity and habitat monitoring systems for key trawl fisheries in Western Australia	N1	R1	Department of Fisheries WA	319,720
2002/039	National strategy for the survival of line caught fish: assessment of post-release survival and stress physiology of barramundi (*Lates calcarifer*)	N1	R1	Dept Business, Industries and Resource Development NT	24,053
2002/040	Workshop on interactions with large marine vertebrates due to human use of the marine environment	N1	R1	Dept for Environment and Heritage SA	6,116
2002/043	Aquatic Animal Health Subprogram: the production of nodavirus-free fish fry and the nodaviruses' natural distribution	N4	R6	Dept of Primary Industries and Fisheries Qld	20,656
2002/044	Aquatic Animal Health Subprogram: pilchard herpes virus infection in wild pilchards	N4	R6	Department of Fisheries WA	90,175
2002/045	Rock Lobster Enhancement and Aquaculture Subprogram: assessing the possibilities for enhancing the natural settlement of western rock lobster	N2	R5	Department of Fisheries WA	83,652
2002/048	Enhancement of saucer scallops (*Amusium balloti*) in Western Australia	N1	R1	West Coast Scallops Pty Ltd	11,839
2002/056	Innovative stock assessment and effort mapping using VMS and electronic logbooks	N1	R1	Dept of Primary Industries and Fisheries Qld	151,801
2002/057	Sustainability of small-scale, data-poor commercial fisheries: developing assessments, performance indicators and monitoring strategies for temperate reef species	N1	R1	University of Tasmania	77,925

2002/059	Developing fishery-independent surveys for the adaptive management of NSW's estuarine fisheries	N1	R1	NSW Fisheries	307,904
2002/061	Development and evaluation of egg-based stock assessment methods for blue mackerel (*Scomber australasicus*) in southern Australia	N1	R1	SA Research and Development Institute	147,382
2002/064	Northern Australian sharks and rays: the sustainability of target and bycatch species, phase 2	N1	R1	CSIRO Marine Research	329,875
2002/072	Assessing the feasibility of an industry-based fishery-independent survey of the SEF	N1	R1	Fishwell Consulting	35,532
2002/075	Development and testing of a dynamic model for data from recreational fisheries	N1	R1	Murdoch University	43,262
2002/079	Digital video techniques for assessing population size structure and habitat of greenlip and Roe's abalone	N1	R1	Department of Fisheries WA	90,286
2002/083	Towards an industry-based abalone fishery monitoring program	N1	R1	Seafood Industry Victoria Inc.	119,285
2002/085	Development of risk assessment procedures in national fisheries compliance programs	N1	R1	Department of Fisheries WA	21,157
2002/090	Implementation of an environmental management system for Victoria's bay and inlet fisheries	N1	R1	Seafood Industry Victoria Inc.	20,000
2002/094	Using information for 'data-rich' species to inform assessments of 'data-poor' species through Bayesian stock assessment method	N1	R1	Primary Industries Research Victoria	109,254
2002/096	To review previous research on northern mackerel and to assess current and future research needs for these fisheries	N1	R1	SA Research and Development Institute	14,370
2002/099	National Strategy for the Survival of Released Line Caught Fish: planning, project management and communications	N1	R1	InfoFish Services	83,973
2002/101	Designing, implementing and assessing an integrated monitoring program for the Northern Prawn Fishery	N1	R1	CSIRO Marine Research	86,537
2002/102	Effects of Trawling Subprogram: quantifying the effects of trawling on seabed fauna in the Northern Prawn Fishery	N1	R1	CSIRO Marine Research	192,528
2002/103	Southern bluefin tuna research review	N1	R1	Shellack Pty Ltd	13,112
2003/002	Spatial interactions among juvenile southern bluefin tuna at the global scale: a large-scale archival tag experiment	N1	R1	CSIRO Marine Research	333,211
2003/003	Spawning and reproductive characteristics of Bight redfish and deepwater flathead in the Great Australian Bight trawl fishery	N1	R1	Primary Industries Research Victoria	52,678

Natural Resources Sustainabilty projects continued					
		Australian Government research/R&D priority no.			
Project ID	Project title	National	Rural	Organisation	$
2003/005	Investigating reproductive biology issues relevant to managing the western rock lobster brood stock	N1	R1	Department of Fisheries WA	165,129
2003/012	Hoppers in action: a handbook for fishers on the use of hoppers in Australian prawn trawl fisheries	N1	R1	Ocean Watch Australia Ltd	30,332
2003/013	Sea turtle mitigation for Australian pelagic longline fisheries	N1	R1	Belldi Consultancy Pty Ltd	80,337
2003/016	Reduction of toothed whale interactions with fishing gear: development and assessment of predation mitigation devices around longlines	N1	R1	Dept of Primary Industries and Fisheries Qld	107,004
2003/017	Juvenile scallop trashing rates and bed dynamics: testing the management rules for scallops in Bass Strait	N1	R1	University of Tasmania	234,399
2003/019	National Strategy for the Survival of Released Line Caught Fish: investigating survival of fish released in Australia's tropical and subtropical line fisheries	N1	R1	CRC Reef Research Centre	195,010
2003/021	Effects of Trawling Subprogram: mapping bycatch and seabed benthos assemblages in the GBR region for environmental risk assessment	N1	R1	CRC Reef Research Centre	288,721
2003/023	Effects of Trawling Subprogram: prawn fishery bycatch and discard effects on marine ecosystem populations	N1	R1	SA Research and Development Institute	234,569
2003/027	Evaluating the recreational marron fishery against environmental change and human interactions	N1	R1	Department of Fisheries WA	107,365
2003/033	Enhancement of saucer scallops (*Amusium balloti*) in Queensland and Western Australia — genetic considerations	N1	R1	Dept of Primary Industries and Fisheries Qld	46,306
2003/034	An ecological approach to re-establishing Australian freshwater cod populations: an application to trout cod in the Murrumbidgee catchment	N1	R1	Environment ACT	129,784
2003/039	Dynamic modelling of socio-economic benefits of resource allocation between commercial and recreational use	N1	R1	Economic Research Associates Pty Ltd	30,840
2003/041	Estimation of natural and fishing mortality using length composition data	N1	R1	Murdoch University	63,685
2003/042	Development of a robust suite of stock status indicators for the Southern and Western and the Eastern Tuna and Billfish fisheries	N1	R1	CSIRO Marine Research	80,458
2003/044	Development of a sustainable industry-based observation system for blue grenadier at the primary spawning sites	N1	R1	CSIRO Marine Research	242,624

2003/045	Stock discrimination of blue-eye trevalla (*Hyperglyphe antarctica*) from Australian shelf waters and offshore seamounts and New Zealand	N1	R1	Primary Industries Research Victoria	215,479
2003/046	Reducing uncertainty in the assessment of the Australian spanner crab fishery	N1	R1	Dept of Primary Industries and Fisheries Qld	107,494
2003/047	Evaluation of methods of obtaining annual catch estimates for individual Victorian bay and inlet recreational fisheries	N1	R1	Primary Industries Research Victoria	99,084
2003/050	Linking habitat mapping with fisheries assessment in key commercial fishing grounds	N1	R1	University of Tasmania	81,877
2003/051	Developing tagging models and validating assumptions for estimating key fishery assessment parameters in rock lobster fisheries	N1	R1	University of Tasmania	144,102
2003/052	Spatial scales of exploitation among populations of demersal scalefish: implications for wetline management	N1	R1	Department of Fisheries WA	167,351
2003/056	ESD Reporting and Assessment Subprogram: a social assessment handbook for use by Australian fisheries managers in ESD assessment	N1	R1	Bureau of Rural Sciences	50,579
2003/059	Developing and implementing measures of economic efficiency in Commonwealth fisheries	N1	R1	Aust Bureau of Agriculture and Resource Economics	100,867
2003/060	A review of byproduct interactions and economics in Australia's tuna and billfish fisheries	N1	R2	Bureau of Rural Sciences	67,073
2003/061	Evaluation of alternative strategies for management of Commonwealth fisheries in south-eastern Australia	N1	R1	Australian Fisheries Management Authority	568,548
2003/062	Driving innovation in environmental performance in the Qld fishing industry	N1	R1	CRC Reef Research Centre	18,858
2003/063	Adoption of an environmental management systems by NSW commercial estuary fishers and oyster farmers	N1	R1	Ocean Watch Australia Ltd	48,000
2003/064	Implementation of an environmental management system for South Australia's rock lobster and prawn fisheries	N1	R1	Seafood Council (SA) Ltd	39,600
2003/066	Comparing conventional 'social-based', and alternative output-based, management models for recreational finfish fisheries using Shark Bay pink snapper as a case study	N1	R1	Department of Fisheries WA	90,994
2003/067	Development of a DNA database for compliance and management of Western Australian sharks	N1	R1	Department of Fisheries WA	39,888
2003/072	Trophodynamics of the Great Australian Bight (GAB): assessing the need for an ecological allocation in the SA pilchard fishery	N1	R1	SA Research and Development Institute	336,552

Natural Resources Sustainabilty projects continued					
		Australian Government research/R&D priority no.			
Project ID	Project title	National	Rural	Organisation	$
2003/073	Development of a fisheries R&D response to MPA and spatial management for fisheries	N1	R1	Primary Industries Research Victoria	30,000
2003/074	National Strategy for the Survival of Released Line Caught Fish: survival of snapper and bream released by recreational fishers	N1	R1	Primary Industries Research Victoria	128,046
2003/075	Designing, implementing and assessing an integrated monitoring program for the NPF: developing an application to stock assessment	N1	R1	CSIRO Marine Research	456,222
2003/077	Evaluation of crystal crab resource from Cape Leeuwin to the WA/SA border	N1	R1	WA Fishing Industry Council	44,816
2003/220	Innovative Solutions for Aquaculture: potential for parasite interactions between wild and farmed kingfish, discrimination of farmed and wild fish, and assessment of migratory behaviour	N1	R1	Dept of Primary Industries and Resources SA	97,341
2003/222	Innovative Solutions for Aquaculture: spatial impacts and carrying capacity — further developing, refining and validating existing models of environmental effects of finfish farming	N1	R1	SA Research and Development Institute	77,289
2003/648	Aquatic Animal Health Subprogram: the revision of the Tasmanian fish health plan and incorporation into the Tasmanian Control Centre Manual	N4	R6	Dept of Primary Industries, Water and Environment Tas	8,496
2003/650	Aquatic Animal Health Subprogram: update of the AQUAVETPLAN enterprise manual (semi-open systems)	N4	R6	J. Sadler	3,000
2004/008	Improving demonstrated environmental accountability in the Northern Territory fishing industry	N1	R1	Northern Territory Seafood Council	32,000
2004/070	National Strategy for the Survival of Released Line Caught Fish: planning, project management and communications Phase 2	N1	R1	InfoFish Services	43,637
2004/071	National Strategy for the Survival of Released Line Caught Fish: maximising post-release survival of line caught flathead taken in sheltered coastal waters	N1	R1	University of Tasmania	20,860
2004/096	Development and production of EMS template documents for the salmonid, oyster and abalone aquaculture sectors in Tasmania	N1	R1	Tasmanian Fishing Industry Council	21,600
	R&D project development				7,961
Total Natural Resources Sustainability projects					**$13,838,321**

Industry Development projects

Project ID	Project title	Australian Government research/R&D priority no. National	Rural	Organisation	$
1994/136	Handbook of Australian seafood — a guide to whole fish and fillets	N1	R3	CSIRO Marine Research	41,924
1996/357	Selective breeding for disease resistance and fast growth in Sydney rock oysters	N1	R1	NSW Fisheries	16,482
1996/391	Aquaculture Diet Development Subprogram: ingredient evaluation	N1	R1	NSW Fisheries	21,109
1996/392	Aquaculture Diet Development subprogram: nutrient requirements of aquaculture species	N1	R1	CSIRO Marine Research	33,684
1996/393	Aquaculture Diet Development subprogram: diet validation and feeding strategies	N1	R1	Dept of Primary Industries and Fisheries Qld	25,810
1997/312	Assessment of eastern Australian glass eel stocks and associated eel aquaculture	N1	R1	Primary Industries Research Victoria	10,000
1997/314	Spawning and larval rearing research on King George whiting (*Sillaginodes punctata*) relevant to aquaculture and fisheries biology	N1	R1	SA Research and Development Institute	41,089
1997/341	Enhancement of ship-board survivorship of coral trout destined for the live fish market	N1	R1	James Cook University	8,832
1997/364	Southern Bluefin Tuna Aquaculture Subprogram Project 4: effect of husbandry and handling techniques on the post-harvest quality of farmed bluefin tuna	N1	R1	Dept of Primary Industries and Fisheries Qld	10,000
1998/165	Framework for valuing fisheries resource use	N1	R1	University of Queensland	48,485
1998/302	Rock Lobster Enhancement and Aquaculture Subprogram Project 2: towards establishing techniques for large-scale harvesting of pueruli and obtaining a better understanding of mortality rates	N2	R5	Department of Fisheries WA	1,224
1998/306	Abalone Aquaculture Subprogram: early life history of abalone (*Haliotis rubra*, *H. laevigata*): settlement, survival and early growth	N1	R1	Deakin University	24,514
1998/311	Application of extracellular enzyme techniques to studying the role of bacteria in the ecology of prawn ponds and diseases of *P. monodon* and *P. japonicus*	N1	R1	University of Western Sydney Macarthur	42,522
1998/322.80	BCA — Aquaculture Diet Development Subprogram: feed development for Atlantic salmon (*Salmo salar*)	N1	R1	Fisheries Economics Research and Management Specialists	5,445
1998/338	Prevention of occupationally related infections in western rock lobster fishermen	N3	R2	WA Fishing Industry Council	26,228

Industry Development projects continued					
		Australian Government research/R&D priority no.			
Project ID	Project title	National	Rural	Organisation	$
1998/354	Electronic cooking end-point determination and the effectiveness of alternative cooking methods for Crustacea	—	R2	Dept of Primary Industries and Fisheries Qld	50,029
1998/357	Update of the Australian prawn farming industry R&D plan	N1	R1	Australian Prawn Farmers Association	2,409
1998/417	Creating a shelf stable marinated jelly fish product from the under-utilised species (*Catostylus mosaicus*)	—	R2	Dept of Primary Industries and Fisheries Qld	4,900
1999/320	Factors required for the successful aquaculture of black bream in inland water bodies — extension to project 1997/309	N1	R1	Murdoch University	18,104
1999/351	Australian prawn industry quality standard: development of a third party audited seafood industry quality standard for prawn vessels and processors incorporating food safety standards	—	R2	Australian Prawn Promotion Association	931
1999/358	Evaluating effective quality monitoring methods for the Australian seafood industry	—	R2	Dept of Primary Industries and Fisheries Qld	42,747
1999/372	Off-season trial of artificial rock lobster baits	N1	R1	Department of Fisheries WA	10,150
2000/200	Abalone Aquaculture Subprogram: facilitation, administration and promotion	N1	R1	Abalone Aquaculture Consultancy Pty Ltd	14,871
2000/201	Abalone Aquaculture Subprogram: selective breeding of farmed abalone to enhance growth rates	N1	R1	SA Research and Development Institute	16,472
2000/206	Sustainable genetic improvement of Pacific oysters in Tasmania and South Australia	N1	R1	CSIRO Marine Research	251,956
2000/212	Rock Lobster Enhancement and Aquaculture Subprogram: the nutrition of juvenile and adult lobsters to optimise survival, growth and condition	N2	R5	CSIRO Marine Research	16,389
2000/215	Improved performance of marron using genetic and pond management strategies	N1	R1	Department of Fisheries WA	119,893
2000/221	Aquafin CRC — SBT Aquaculture Subprogram: quality and nutritional evaluation of baitfish used for tuna farming	N1	R1	SA Research and Development Institute	29,482
2000/223	Aquafin CRC — Atlantic Salmon Aquaculture Subprogram: facilitation, administration and promotion	N1	R1	University of Tasmania	36,476

2000/224	Atlantic Salmon Aquaculture Subprogram: molecular genetic tools for the Tasmanian Atlantic salmon industry — development and application	N1	R1	CSIRO Marine Research	35,693
2000/226	Publication of a manual for the hatchery production of snapper (*Pagrus auratus*)	N1	R1	Challenger TAFE	16,237
2000/231	New targets for aquaculture — stage 1	—	R2	Australian Institute of Marine Science	41,171
2000/250	Rock Lobster Post-Harvest Subprogram: facilitation, administration and promotion	—	R2	Curtin University of Technology	4,382
2000/252	Rock Lobster Post-Harvest Subprogram: optimising water quality in rock lobster post-harvest processes	—	R2	University of Tasmania	15,881
2000/254	Evaluation of anti-fouling products developed for the Australian pearl industry	N1	R1	James Cook University	12,844
2000/264	Australian eel aquaculture industry development strategy and associated investment analysis	N1	R1	Primary Industries Research Victoria	15,000
2000/267	Development of a health management strategy for the silver perch aquaculture industry	N1	R1	NSW Fisheries	24,570
2001/200	Aquafin CRC — SBT Aquaculture Subprogram: tuna cell line development and their application to tuna aquaculture health surveillance	N1	R1	CSIRO Livestock Industries	86,932
2001/201	Aquafin CRC — SBT Aquaculture Subprogram: commercialisation trials for a manufactured tuna feed	N1	R1	Australian Tuna Fisheries	121,661
2001/205	Aquafin CRC — Atlantic Salmon Aquaculture Subprogram: treatment and patho-physiology of amoebic gill disease	N1	R1	University of Tasmania	181,120
2001/206	Aquafin CRC — improving growth and survival of cultured marine fish larvae: striped trumpeter (*Latris lineata*); a test case for Tasmania	N1	R1	University of Tasmania	311,452
2001/208	Aquafin CRC — increasing the profitability of snapper farming by improving hatchery practices and diets	N1	R1	NSW Fisheries	61,095
2001/211	Rock Lobster Enhancement and Aquaculture Subprogram: strategic planning, project management and adoption	N2	R5	Barneveld Nutrition Pty Ltd	100,305
2001/214	Aquatic Animal Health Subprogram: development of a disease zoning policy for marteiliosis to support sustainable production, health certification and trade in the Sydney rock oyster	N4	R6	Queensland Museum	69,641
2001/220	Aquaculture Diet Development Subprogram: development of marine fish larval diets to replace *Artemia*	N1	R1	Department of Fisheries WA	94,854

Industry Development projects continued					
		Australian Government research/R&D priority no.			
Project ID	Project title	National	Rural	Organisation	$
2001/225	Development of sponge (*Spongia* spp.) farming as a viable commercial enterprise for remote Aboriginal communities	N3	R1	Charles Darwin University	5,000
2001/227	Australian fisheries statistics	N1	R1	Aust Bureau of Agriculture and Resource Economics	16,475
2001/231	Upgrade of national fisheries database to include images and common names of Australian fishes	N1	R1	CSIRO Marine Research	70,851
2001/235	Rock Lobster Post-Harvest Subprogram: striking a balance between melanosis and weight recoveries in western rock lobster (*Panulirus cygnus*)	—	R2	Curtin University of Technology	95,117
2001/238	South East Fishery Industry Development Subprogram: strategic planning, project management and adoption	—	R2	Fishwell Consulting	19,816
2001/244	Aquafin CRC — Atlantic Salmon Aquaculture Subprogram: host-pathogen interactions in amoebic gill disease	N1	R1	University of Tasmania	303,736
2001/245	Aquafin CRC — Atlantic Salmon Aquaculture Subprogram: model development for epidemiology of amoebic gill disease	N1	R1	University of Tasmania	123,857
2001/246	Aquafin CRC — Atlantic Salmon Aquaculture Subprogram: control of precocious sexual maturation in Atlantic salmon	N1	R1	University of Tasmania	83,750
2001/248	Aquafin CRC — SBT Aquaculture Subprogram: maximising the control of quality in farmed SBT	N1	R1	Flinders University	95,303
2001/250	Aquafin CRC — SBT Aquaculture Subprogram: strategic planning, project management and adoption	N1	R1	SA Research and Development Institute	98,626
2001/251	Aquaculture Nutrition Subprogram: strategic planning, project management and adoption	N1	R1	Barneveld Nutrition Pty Ltd	57,708
2001/252	Aquafin CRC — SBT Aquaculture Subprogram: infrastructure management, service delivery and technical support	N1	R1	SA Research and Development Institute	135,993
2001/253	Aquafin CRC — SBT Aquaculture Subprogram: a risk assessment of factors influencing the health of farmed southern bluefin tuna	N1	R1	University of Tasmania	7,691
2001/256	Development and establishment of a national system for minor uses of products for the protection of livestock in aquaculture	N3	R3	Crop Protections Approvals Ltd	11,680

2002/201	Abalone Aquaculture Subprogram: a national survey of diseases of commercially exploited abalone species to support trade and translocation issues and the development of health surveillance programs	N1	R1	University of Tasmania	44,806
2002/204	Development of techniques for production of homozygous Pacific oysters	N1	R1	SA Research and Development Institute	64,570
2002/206	Sydney rock oyster hatchery and nursery health workshop	N1	R1	NSW Fisheries	24,000
2002/209	Understanding and removing the barriers to *Penaeus monodon* domestication	N2	R5	Australian Prawn Farmers Association	384,422
2002/223	National atlas of fishing activities and coastal communities	N3	R1	Bureau of Rural Sciences	96,716
2002/231	Occupational health and safety national extension strategy	N3	R2	WA Fishing Industry Council	82,169
2002/232	A case study into the development of OH&S processes in the *Pinctada maxima* pearling industry to benchmark world's best industry diving practice	N3	R2	Pearl Producers Association	13,000
2002/233	Seafood Services Australia Ltd: adding value throughout the seafood supply chain	—	R2	Seafood Services Australia Ltd	797,404
2002/235	Improving post-harvest swordfish quality	—	R2	Dept of Primary Industries and Fisheries Qld	64,478
2002/236	Optimising at-sea post-harvest handling procedures for the pilchard (*Sardinops sagax*)	—	R2	SA Research and Development Institute	108,191
2002/237	Rock Lobster Post-Harvest Subprogram: a code of practice for handling rock lobster	—	R2	WA Fishing Industry Council	53,693
2002/238	Rock Lobster Post-Harvest Subprogram: quantification of shell hardness in southern rock lobster	—	R2	University of Tasmania	8,040
2002/242	A health promotion program incorporating fish for withdrawal of anti-hypertensive drugs in overweight hypertensives	N3	R3	University of Western Australia	31,091
2002/249	Aquafin CRC — SBT Aquaculture Subprogram: service delivery and infrastructure management for projects requiring Port Lincoln based R&D support	N1	R1	SA Research and Development Institute	828,952
2002/250	SEF Industry Development Subprogram: agricultural trials of a fish-based fertiliser (BioPhos) produced from Australian seafood	—	R2	Primary Industries Research Victoria	166,023
2002/251	Aquafin CRC — Atlantic Salmon Aquaculture Subprogram — development of a vaccine for amoebic gill disease: genomic and cDNA library screening for antigen discovery	N1	R1	CSIRO Livestock Industries	76,801
2002/401	Pilot project to determine the effectiveness of FoodSafe Plus as a tool in meeting FSANZ food safety standards	N3	R3	WA Fishing Industry Council	25,088

Industry Development projects continued

Project ID	Project title	Australian Government research/R&D priority no. National	Rural	Organisation	$
2002/405	SEF Industry Development Subprogram: assessing the commercial viability of utilising fish processing wastes	—	R2	Aust Seafood Co-products Ltd	25,026
2002/409	Pathogenic *Vibrio parahaemolyticus* in Australian oysters	N3	R3	University of Tasmania	200
2002/414	Development of techniques for quantification of stress-induced catecholamine changes in the hemolymph of the Pacific oyster (*Crassostrea gigas*)	N1	R1	SA Research and Development Institute	7,799
2002/418	Improving post-harvest handling to add value to farmed mussels	—	R2	Ruello & Associates Pty Ltd	22,220
2002/425	Food safety and quality assurance for cooked prawns: development and evaluation of a framework for the validation of a supply chain approach	N3	R3	SA Research and Development Institute	12,101
2002/426	APFA integrated HACCP/QA/EMS program	N1	R1	Australian Prawn Farmers Association	54,600
2002/427	National Seafood Emergency Plan — Queensland trial workshop	N3	R3	Qld Seafood Marketers Association Inc.	5,000
2002/433	A survey of key merchandising requirements of Australian seafood retailers	—	R2	Seafood Australia Pty Ltd	940
2002/434	Proactive environmental management of commercial fisheries: closing gaps in supply chain management standards	—	R2	Australian Maritime College	23,300
2003/078	Implementation of the National Recreational and Indigenous Fishing Survey	N1	R1	Recfish Australia	7,187
2003/200	Aquafin CRC — Atlantic Salmon Aquaculture Subprogram: strategic planning, project management and adoption	N1	R1	University of Tasmania	81,530
2003/202	Abalone Aquaculture Subprogram: strategic planning, project management and adoption	N1	R1	Abalone Aquaculture Consultancy Pty Ltd	94,317
2003/203	Abalone Aquaculture Subprogram: improvement and evaluation of greenlip abalone hatchery and nursery production	N1	R1	Department of Fisheries WA	100,965
2003/206	Antifouling solutions for the Australian pearling industry — coatings for shell and equipment	N1	R1	James Cook University	61,918
2003/208	Reduction in Pacific oyster mortality by improving farming and processing technologies in South Australia	N1	R1	SA Research and Development Institute	72,990

2003/209	Sydney rock oysters: overcoming constraints to commercial-scale hatchery and nursery production	N1	R1	NSW Fisheries	134,882
2003/211	Rock Lobster Enhancement and Aquaculture Subprogram: advancing hatchery propagation of tropical rock lobsters (*Panulirus ornatus*)	N2	R5	M.G. Kailis Group of Companies	414,624
2003/212	Rock Lobster Enhancement and Aquaculture Subprogram: propagation of southern rock lobster (*Jasus edwardsii*) in Tasmania	N2	R5	University of Tasmania	293,859
2003/215	The development of a strategic research and development plan for the yellowtail kingfish (*Seriola lalandi*) industry	N1	R1	SA Marine Finfish Farmers Association Inc.	5,088
2003/216	Aquatic Animal Health Subprogram: detection and management of yellowtail kingfish (*Seriola lalandi*) health issues	N1	R1	SA Marine Finfish Farmers Association Inc.	45,620
2003/221	Innovative solutions for aquaculture: assessment of *in situ* monitoring techniques and life history parameters for monogenean skin and gill parasites	N1	R1	Dept of Primary Industries and Resources SA	8,318
2003/223	Innovative solutions for aquaculture planning and management — Project 5: environmental audit of marine aquaculture development	N1	R1	SA Research and Development Institute	106,267
2003/225	Aquafin CRC — SBT Aquaculture Subprogram: investigation of the relationship between farming practices and southern bluefin tuna health	N1	R1	University of Tasmania	270,468
2003/227	Aquafin CRC — SBT Aquaculture Subprogram: development and validation of baitfish sampling methods to address international residue standards for southern bluefin tuna (*Thunnus maccoyii*)	N1	R1	SA Research and Development Institute	148,509
2003/228	Aquafin CRC — SBT Aquaculture Subprogram: activity metabolism in live-held southern bluefin tuna (*Thunnus maccoyii*)	N1	R1	University of Adelaide	83,984
2003/229	Identification and management of potential food safety issues in aquaculture-produced yellowtail kingfish (*Seriola lalandi*)	N1	R1	SA Research and Development Institute	64,609
2003/236	Accident statistic tool	N3	R2	WA Fishing Industry Council	58,960
2003/237	Development of a quality index for Australian seafoods	—	R2	Sydney Fish Market Pty Ltd	41,280
2003/240	Maximising revenue within the NT mud crab fishery by enhancing post-harvest survival of mud crabs	—	R2	Dept of Primary Industries and Fisheries Qld	49,389
2003/241	Rock Lobster Post-Harvest Subprogram: strategic planning, project management and adoption	—	R2	Curtin University of Technology	114,404
2003/242	Rock Lobster Post Harvest Subprogram: value-adding the southern rock lobster fishery — optimising flesh quality of under-valued large lobsters for the sashimi market	—	R2	SA Research and Development Institute	53,998

Industry Development projects continued					
		Australian Government research/R&D priority no.			
Project ID	Project title	National	Rural	Organisation	$
2003/246	Development and incorporation of a nutritional software program into the existing Rob de Castella's *SmartStart to Life* schools program	N3	R3	SmartStart (Australia) Pty Ltd	18,000
2003/248	Investigating sources of broodstock and grow-out sites for the farming of sponges in regional Northern Territory	N3	R1	Dept Business, Industries and Resource Development NT	13,500
2003/308	Indigenous Fishing Rights conference	N3	R1	Fisheries Research and Development Corporation	23,317
2003/401	A study on allergic health problems in the Australian seafood processing industry	N3	R3	Dept of Primary Industries and Fisheries Qld	2,930
2003/402	Identification of natural mudworm species in South Australian Pacific oyster (*Crassostrea gigas*) stocks	N1	R1	SA Oyster Research Council	1,000
2003/409	Determining survival times of blue swimmer crab using conventional live packing techniques	—	R2	Seafood Directions Pty Ltd	4,500
2003/414	A manual of best-practice handling techniques for longline caught tuna	N1	R1	Indian Ocean Fresh Australia P/L	28,567
2003/646	Aquatic Animal Health Subprogram: Australian aquatic animals diseases and pathogens database	N4	R6	F1 Solutions Pty Ltd	83,650
2004/203	Innovative Solutions for Aquaculture: extension, communication and adoption of the outputs from the PIRSA and FRDC initiative	N1	R1	The Word Hub	14,508
2004/205	Aquafin CRC — SBT Aquaculture Subprogram: provision of research platforms for projects requiring Port Lincoln based R&D support	N1	R1	Tuna Boat Owners Association of SA	230,200
2004/210	Aquafin CRC — Atlantic Salmon Aquaculture Subprogram: use of immuno-modulation to improve fish performance in Australian temperate water finfish aquaculture	N1	R1	University of Tasmania	57,792
2004/212	Aquafin CRC — SBT Aquaculture Subprogram: assessment of alternative platforms for southern bluefin tuna research	N1	R1	SA Research and Development Institute	25,643
2004/214	Aquafin CRC — Atlantic Salmon Aquaculture Subprogram: effects of husbandry on amoebic gill disease	N1	R1	University of Tasmania	41,988
2004/215	Aquafin CRC — Atlantic Salmon Aquaculture Subprogram: establishment of challenge for amoebic gill disease	N1	R1	University of Tasmania	121,005

2004/216	Aquafin CRC — SBT Aquaculture Subprogram: strategic planning, project management and adoption	N1	R1	SA Research and Development Institute	96,469
2004/241	Coordination of inland saline aquaculture R&D in Australia	N1	R1	National Aquaculture Council	215,652
2004/402	Attendance at Modified Atmosphere Packaging workshop on behalf of Seafood Services Australia	—	R2	Allan Bremner and Associates	3,100
	R&D project development	N1	R1		4,401
Total Industry Development projects					**$9,610,616**

People Development projects

Project ID	Project title	Australian Government research/R&D priority no. National	Rural	Organisation	$
1993/214	Recruitment of population dynamicist	N2	R7	NSW Fisheries	22,775
2000/192	The Third International Billfish Symposium	N2	R7	University of Queensland	5,000
2000/311	Development of research methodology and quantitative skills for integrated fisheries management in WA	N2	R7	Murdoch University	142,672
2001/306	ASFB workshop: towards sustainability for data limited multi-sector fisheries	N2	R7	Department of Fisheries WA	2,000
2001/309	Community perceptions of fishing: implications for industry image, marketing and sustainability	—	R2	Bureau of Rural Sciences	478
2001/310	Developing a community communication plan and communication resources for the seafood industry	—	R2	Judith Ham Consulting	10,700
2001/311	The Workboot Series — *Fishing: The story of the fishing industry in Australia*	—	R2	Kondinin Group	59,742
2002/300	Australian Rural Leadership Program	N2	R7	Australian Rural Leadership Foundation	88,018
2002/303	The establishment of a training resource and information service to underpin the successful adoption of EMS by the Australian seafood industry	N1	R1	Seafood Services Australia Ltd	46,018
2002/304	Seafood Directions 2003 — 3rd biennial national seafood industry conference	N2	R7	WA Fishing Industry Council	10,378
2002/306	Aquafest Australia 2002 — national aquaculture conference and trade exhibition	N2	R7	Tasmanian Aquaculture Council	4,000
2002/313	Southern rock lobster R&D plan and subprogram development	N1	R1	SA Rock Lobster Advisory Council	40,000
2002/314	3rd National Rock Lobster Congress — 2003	N2	R7	Western Rock Lobster Council Inc.	13,778
2002/321	Pilot project for a national database on fisheries R&D capacity	N1	R1	WA Fishing Industry Council	8,000
2003/300	Molluscan Fisheries and Aquaculture, World Congress of Malacology, Perth 2004	N2	R7	Western Australian Museum	5,000
2003/301	Seventh International Conference and Workshop on Lobster Biology and Management	N2	R7	University of Tasmania	18,993
2003/302	Zoological Catalogue of Australia Volume 35.2 Pisces — completion to book and electronic publication	N2	R7	Department of the Environment and Heritage	9,000

2003/304	Australasian Aquaculture 2004	N2	R7	National Aquaculture Council	30,562
2003/305	Identification of the role and long-term support of a peak industry body for the Australian aquaculture industry, and its role	N2	R7	National Aquaculture Council	29,345
2003/318	2003 Australian Prawn and Barramundi Conference	N2	R7	Fisheries Research and Development Corporation	583
2003/319	Development of the ComFRAB 2004–2009 Research Plan	N1	R1	Australian Fisheries Management Authority	10,000
2003/320	An assessment of the contribution of FRDC project outputs to fisheries management decision-making	N1	R1	Alex Wells	14,366
2004/302	Seafood Directions 2005	N2	R7	Sydney Fish Market Pty Ltd	12,000
2004/303	Contribution to the organisation and publication of ASFB 2004 Workshop entitled the National Symposium on Ecosystem Research and Management of Fisheries	N2	R7	SA Research and Development Institute	3,000
2004/304	Third National Prawn Fisheries Conference — Cairns 2004	N2	R7	Corvel Marketing and Management	9,750
2004/306	Fourth International Fisheries Observer Conference	N2	R7	NSW Fisheries	18,000
	R&D project development	N2	R7		10,448
Total People Development projects					**$624,607**

Aquatic animal health projects funded by the 2001 Federal Budget Initiative

Note: all the titles of the following project are preceded by "Aquatic Animal Health Subprogram:"

Project ID	Project title	Australian Government research/R&D priority no. National	Rural	Organisation	$
2001/620	Development of improved procedures for the identification of aquatic birnaviruses	N4	R6	CSIRO Livestock Industries	15,319
2001/621	Molecular diagnostic tests to detect epizootic ulcerative syndrome (*Aphanomyces invadens*) and crayfish plague (*Aphanomyces astaci*)	N4	R6	Murdoch University	3,217
2001/624	Development of diagnostic procedures for the detection and identification of *Piscirickettsia*	N4	R6	CSIRO Livestock Industries	31,203
2001/625	Development of diagnostic capability for priority aquatic animal diseases of national significance: spawner-isolated mortality virus	N4	R6	James Cook University	46,770
2001/626	Development of diagnostics tests for the detection of nodavirus	N4	R6	Dept of Primary Industries and Fisheries Qld	50,074
2001/628	Vibrios of aquatic animals: development of a national standard diagnostic technology	N4	R6	University of Tasmania	43,574
2002/600	Facilitating the establishment of the Aquatic Animal Health Consultative Committee as the primary industry-government interface for aquatic animal health issues in Australia	N4	R6	Dept of Agriculture, Fisheries and Forestry	3,023
2002/640	Production of AQUAVETPLAN disease strategy manual for viral haemorrhagic septicaemia	N4	R6	Dept of Agriculture, Fisheries and Forestry	22,755
2002/641	Crayfish plague disease strategy manual	N4	R6	Aquatilia Healthcare	14,613
2002/643	Viral encephalopathy and retinopathy, a disease strategy manual	N4	R6	IDEXX/VPS	6,000
2002/645	Exotic disease training manual	N4	R6	Murdoch University	31,224
2002/647	Production of an AQUAVETPLAN disease strategy manual for white spot disease of all WSV-susceptible crustaceans	N4	R6	AusVet Animal Health Services Pty Ltd	8,600
2002/651	Whirling disease: a disease strategy manual	N4	R6	Paul Hardy-Smith	13,459
2002/652	Enhancement of the emergency disease management capability in Victoria — developing a Victorian Control Centres Management Manual	N4	R6	Primary Industries Research Victoria	8,000

2002/653	Aquavet aquatic disease disinfection manual	N4	R6	Livestock and Aquaculture Vet Consulting Services	6,000
2002/654	Development of a training course on exotic diseases of aquatic animals	N4	R6	CSIRO Livestock Industries	19,473
2002/655	Design and organisation of a multi-state disease emergency simulation exercise	N4	R6	Dept of Agriculture, Fisheries and Forestry	29,473
2002/660	Enhancement of emergency disease management through the education and training of the CCEAD process	N4	R6	Dept of Agriculture, Fisheries and Forestry	24,446
2002/661	Enhancing the emergency disease response capability of NSW and Qld Government agencies and industry bodies associated with oyster culture	N4	R6	NSW Fisheries	19,424
2002/666	Training course on exotic diseases of aquatic animals	N4	R6	CSIRO Livestock Industries	36,169
2002/668	Enhancing the emergency disease response capability of Department of Fisheries and industry bodies associated with non-maxima oyster culture	N4	R6	Department of Fisheries WA	2,986
2003/600	Development of strategies for improved stock loss insurance and for development of a cost-sharing arrangement for emergency disease management in aquaculture	N4	R6	Dept of Agriculture, Fisheries and Forestry	9,591
2003/620	Establishment of diagnostic expertise for detection and identification of red sea bream iridovirus (RSIV)	N4	R6	CSIRO Livestock Industries	139,000
2003/621	Development of diagnostic and reference reagents for epizootic haematopoietic necrosis virus	N4	R6	University of Sydney	42,000
2003/622	Development of molecular diagnostic expertise for the mollusc pathogen *Bonamia* species	N4	R6	CSIRO Livestock Industries	89,852
2003/640	Subprogram conference 'Emergency Disease Response Planning and Management'	N4	R6	CSIRO Livestock Industries	61,657
2003/641	Development of the Control Centre Manual for managing aquatic disease emergencies in Queensland	N4	R6	Dept of Primary Industries and Fisheries Qld	4,000
2003/642	Revision and expansion of the Australian Aquatic Animal Disease Identification Field Guide for publishing to CD-ROM	N4	R6	Dept of Agriculture, Fisheries and Forestry	13,973
2003/644	NSW control centres manual aquatic emergencies	N4	R6	NSW Fisheries	6,000
2003/645	Development of media tools to increase the awareness of aquatic animal diseases	N4	R6	Big Time Media Pty Ltd	116,607
2003/647	Development of a database for Australian laboratory diagnostic expertise for diseases of aquatic organisms	N4	R6	Dept of Agriculture, Fisheries and Forestry	15,200

Aquatic animal health projects continued					
		Australian Government research/R&D priority no.			
Project ID	Project title	National	Rural	Organisation	$
2003/649	Industry's emergency preparedness and response to mass mortality of yellowtail kingfish Serio lalandi: development of plans and protocols	N4	R6	SA Marine Finfish Farmers Association Inc.	8,583
2003/669	Conduct of a multi-jurisdiction simulation exercise focussed on health management in Australian aquaculture	N4	R6	Dept of Agriculture, Fisheries and Forestry	80,461
2003/670	Emergency response micro-algal identification for the finfish aquaculture industry	N4	R6	University of Tasmania	9,000
2003/671	Enhancing the emergency disease response capability of WA Department of Fisheries and industry bodies associated with freshwater crayfish culture	N4	R6	Department of Fisheries WA	22,160
Total Aquatic Animal Health activities funded under the 2001 Federal Budget Initiative					**$1,053,886**
TOTAL R&D EXPENDITURE					**$25,127,430**

Appendix E:
Freedom of information statement

The *Freedom of Information Act 1982* (FOI Act) requires each Australian Government agency to publish a statement setting out its role, structure and functions, the documents available for public inspection, and access to such documents. Section 8 of the FOI Act requires each agency to publish information on the way it is organised, its powers, decisions made and arrangements for public involvement in its work.

The following statement, in conjunction with information contained this annual report, is intended to meet the requirements of section 8 of the FOI Act.

A leaflet about the FOI Act is available from the Attorney-General's Department (Robert Garran Offices, National Circuit, Barton ACT 2600; telephone 02 6250 6666; www.ag.gov.au/foi/foi%5Fact/welcome.html).

Role, structure and functions

The FRDC's role is described on the inside front cover of this annual report; its structure and functions are described respectively on pages 5 and 172–173. Further information is on pages 8–16 of the FRDC's R&D plan. Both these publications are freely available to the public from the FRDC.

The legislation under which the FRDC is established is the *Primary Industries and Energy Research and Development Act 1989*; further information is in appendix B (page 169) and appendix C (page 172).

Documents available for inspection

The following documents are available for inspection at the FRDC office:

R&D plan (the FRDC's strategic plan)	File, publication and Internet website*
FRDC policy manual	Unpublished document
Operational procedures	Files, unpublished document
Annual operational plan	File, unpublished document
Project details	Database, files
Project agreements	Files
Final project reports	Publications; hyperlinks on FRDC website **
Non-technical summaries of final project reports	Publications and FRDC website*
R&D funding applications	Files
Annual report	File, publications and FRDC website*
R&D News	File, publications and FRDC website*
Administration	Files, unpublished document
Mailing lists	Database

* The FRDC's website address is www.frdc.com.au

** Non-technical summaries of all final reports of FRDC projects are available on the FRDC website. Hyperlinks leading to other websites containing full final reports are also on the FRDC website.

Copies of publications and reports are available on request, generally free of charge except for final project reports and related products. 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.

Sources of information currently available from the FRDC in paper publications and in electronic form are described on the inside back cover.

Access to documents

To seek access to FRDC documents, please contact the FRDC's Business Development Manager: address, telephone, fax and e-mail details are shown opposite the title page 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.

Unless you are seeking access to personal information about yourself, you will need to pay the standard FOI application fee of $30.00 when making your application. Additional processing charges may also 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 mail (photocopies) to an address specified in your request, or

» at the Information Access Office (established by the Attorney-General) nearest where you live.

Organisation, powers, and decisions made

The FRDC's organisation is shown in figure 1 on page 5. The FRDC's powers are summarised in appendix C (page 172). The principal decisions made by the FRDC Board during 2002–03 are summarised in the directors' review of operations and future prospects starting on page 11. A ministerial direction is summarised on page 122, followed by ministerial notifications of policies from the Australian Government.

Arrangements for public involvement

The FRDC's relationship with its stakeholders is described on page 112 under the heading 'Representative organisations and other stakeholders'. Other aspects of public involvement are discussed in the directors' review of operations and future prospects (from page 11) and in R&D Program achievements (from page 45).

You are welcome to give your views on current policies, procedures and/or activities of the FRDC to the Executive Director; the Chairman of the FRDC Board; the Minister for Agriculture, Fisheries and Forestry; the Parliamentary Secretary; the Minister for Fisheries, Forestry and Conservation; and to any parliamentary committee that may concern itself with matters relating to the FRDC.

Glossary

2003–04	The financial year 2003–04, namely 1 July 2003 to 30 June 2004.
ABARE	The Australian Bureau of Agricultural and Resource Economics.
AFMA	See *Australian Fisheries Management Authority*.
AFMF	See *Australian Fisheries Management Forum*.
AGVP	See *average GVP*.
ANAO	The Australian National Audit Office.
annual operational plan	The ministerially approved document that gives effect to the R&D plan by describing how, and to what extent, the FRDC intends to achieve its planned outcomes in the coming financial year.
AOP	See *annual operational plan*.
aquaculture	Farming of fish or aquatic plants.
ASIC	See *Australian Seafood Industry Council*.
Australian Fisheries Management Authority	The statutory authority responsible for the management of fisheries under Australian Government jurisdiction.
Australian Fisheries Management Forum	Comprises directors of Commonwealth, state and territory fisheries.
Australian Recreational and Sport Fishing Industry Confederation	See *Recfish Australia*.
Australian Seafood Industry Council Ltd	The peak body representing the commercial sector of the fishing industry. See also *Recfish Australia*.
average GVP	Average gross value of production. The basis for the primary revenue contribution to the FRDC is the average gross value of fisheries production for the three preceding years, as described on page 168.
BCA	Benefit-cost analysis.
benchmark	Point of reference against which change may be measured.
beneficiaries of fisheries R&D	The people who receive the economic, environmental and social benefits of fisheries R&D are the three sectors of the fishing industry; seafood consumers; and the people of Australia.
biodiversity	See *ecologically sustainable development*.
CAC Act	The *Commonwealth Authorities and Companies Act 1997*, which specifies some of the Australian Government's reporting and corporate governance requirements.
CAC Orders	*Commonwealth Authorities and Companies (Report of Operations) Orders 2002* (orders made by the Finance Minister concerning the Report of Operations, in furtherance of the provisions of the CAC Act).
co-management	A more inclusive approach to fisheries management that takes into account not only the views of government agencies responsible for fisheries but also those responsible for the environment, industry development, science, and regional and urban planning; and industry, community and special-interest groups.

commercial sector of the industry	See *fishing industry*.
corporate governance	The management process concerned with structures and processes for decision-making, and with controls and behaviour within organisations that support effective accountability for performance outcomes
Corporation, the	The Fisheries Research and Development Corporation.
CRC	Centre for Research Cooperation.
Crustacea or Crustaceans	Arthropod animals, characterised by a hard, close-fitting shell that is shed periodically. Includes prawns, crabs, lobsters, shrimps, bugs and freshwater crayfish.
CSIRO	The Commonwealth Scientific and Industrial Research Organisation.
customary sector of the industry	See *fishing industry* and (for context) *fishing by Aboriginal and Torres Strait Islander people*.
Department of Agriculture, Fisheries and Forestry	The Australian Government Department of Agriculture, Fisheries and Forestry. Among other things, the department manages ministerial portfolio responsibilities for the rural R&D corporations.
development	See *sustainable development* and *ecologically sustainable development*.
during the year	During the financial year, i.e. 1 July 2003 to 30 June 2004.
ecologically sustainable development	Using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained and the total quality of life — now and in the future — can be increased. [Definition of the National Strategy for ESD, 1992] See also *sustainable development*.
ecosystem	A community of organisms interacting with each other, and the environment in which they live.
EEZ	See *exclusive economic zone*.
effectiveness	In the context of the CAC Act, the extent to which an Australian Government authority has achieved the objectives or discharged the functions, as the case requires, set out in its enabling legislation.
efficiency	In the context of the CAC Act, the extent to which an Australian Government authority has maximised the outputs produced from a given level and quality of inputs or minimised the inputs used to produce a given level and quality of outputs.
end-users of fisheries R&D	Usually are as follows: » Natural Resources Sustainability Program (Program 1): fisheries managers. » Industry Development Program (Program 2): the three sectors of the fishing industry. » People Development Program (Program 3): as for Programs 1 and 2, plus other people in the general community. End-users are distinct from beneficiaries.

EPBC Act	The *Environment Protection and Biodiversity Conservation Act 1999*, which promotes ecologically sustainable development and seeks to conserve biological diversity through an effective, efficient national approach to environmental management at all levels of government.
ESD	See *ecologically sustainable development*.
exclusive economic zone	The area between the lines 12 nautical miles and 200 nautical miles seaward of the territorial sea baselines (see *baseline* …). A lesser distance is declared where the distance between the baselines of Australia and another country is less than 400 nautical miles. The Australian Fishing Zone (AFZ) corresponds closely to the exclusive economic zone. Australia's exclusive economic zone was declared in 1994 under the *Maritime Legislation Amendment Act* (Commonwealth of Australia) in accordance with provisions of the *United Nations Convention on the Law of the Sea 1982*, the main international instrument that regulates marine fisheries. The declaration conferred on Australia sovereign rights to explore and exploit, and the responsibility to conserve and manage, the living and non-living resources of the zone.
extension	The communication of knowledge, processes and/or technology to the fishing industry, other stakeholders and the community.
final report	A report describing the inputs, outputs and expected outcomes of a completed R&D project.
financial year	1 July 2003 to 30 June 2004.
fish	In the broadest sense (which is the only context in this report), living aquatic vertebrate and invertebrate organisms, including marine mammals and reptiles, and such organisms after they have been harvested.
fish products	All products derived from fish after the fish have been harvested for sale or consumption.
fisheries managers	Persons appointed by government agencies to manage Commonwealth, state or Northern Territory fisheries.
fishery	A class of activities by way of fishing, including activities identified by reference to all or any of: » a species or type of fish; » a description of fish by reference to sex or any other characteristic; » an area of water or seabed; » a method of fishing; » a class of boats; » a class of persons; and/or » a purpose of activities, as determined by the relevant management authority.
fishing by Aboriginal and Torres Strait Islander people	Includes fishing and shell-collecting by Aboriginal and Torres Strait Islander people in accordance with their traditional customs (the customary sector of the industry); their recreational fishing (that is, not using customary practices); subsistence fishing (following customary or recreational practices); and commercial fishing.

fishing industry	Includes any industry or activity conducted in or from Australia concerned with: taking, culturing, processing, preserving, storing, transporting, marketing or selling fish or fish products. There are three principal fishing industry sectors: » *The commercial sector* comprises enterprises and individuals associated with wild-catch or aquaculture resources and the various transformations of those resources into products for sale. It is also referred to as the "seafood industry", although non-food items such as pearls are included among its products. » *The recreational sector* comprises enterprises and individuals associated — for the purpose of recreation, sport or sustenance — with fisheries resources from which products are derived that are not for sale. » *The customary sector* comprises enterprises and individuals associated with fisheries resources from which Aboriginal and Torres Strait Islander people derive products in accordance with their traditional customs. (For other activities, see *fishing by Aboriginal and Torres Strait Islander people*).
FRAB	Fisheries Research Advisory Body. The roles of the FRABs are described on page 113.
FRDC	The Fisheries Research and Development Corporation.
funding entities	Government agencies or private organisations that fund R&D.
GVP	Gross value of production. See also *average GVP*.
harvest	To catch or gather wild or aquacultured natural resources.
hyperlink	A means of going quickly from one Internet website to another: for example, from the FRDC website to another site containing full final reports.
indigenous fishing	See *fishing by Aboriginal and Torres Strait Islander people*.
industry, fishing	See *fishing industry*.
input	Resources — in the form of people, expertise, materials, energy, facilities and funds — that the FRDC and its R&D partners use in activities to produce outputs. For the FRDC context, see the diagram on page 37.
ISO	International Organization for Standardization, against whose quality management standard the FRDC is certified. See *quality management*.
key performance indicator	A specification for measuring performance. Example: benefit-cost ratios for nominated projects.
landed value	The value of a product at the wharf or aquaculture tank, before value-adding. When referring only to aquaculture, the equivalent term of "farmgate value" is usually used.
managed subprogram	A mode of program management that the FRDC instigates when it becomes evident that a planned R&D outcome could be achieved more successfully if a number of related projects were managed more intensively by employing higher levels of coordination, integration, communication and extension than for individual projects. Normally a managed subprogram pursues one or more strategies within an FRDC R&D program. Further details are on page 98 of the FRDC's R&D plan. An example is the Rock Lobster Enhancement and Aquaculture Subprogram.

Minister, the	The federal Minister for Agriculture, Fisheries and Forestry, within whose portfolio the FRDC is established; the Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry; or the Minister for Fisheries, Forestry and Conservation. See also *ministerial powers*.
ministerial powers	Powers exercised under the provisions of legislation, especially the PIERD Act, by the federal Minister for Agriculture, Fisheries and Forestry; the Parliamentary Secretary to the Minister; or the Minister for Fisheries, Forestry and Conservation. All three ministers exercise ministerial powers in relation to the FRDC, either in their own right or by delegation.
NHT	Natural Heritage Trust.
nutraceuticals	Food components that provide demonstrated physiological benefits or reduce the risk of chronic disease, above and beyond their basic nutritional functions. They are similar to "functional foods" — the distinction being that functional food is similar to a conventional food (examples are breads fortified with Omega-3 polyunsaturated fatty acids, fortified beverages, and cereals fortified with fibre, iron and calcium), whereas a nutraceutical is isolated from a food and sold in dosage form. Cholesterol reduction, cardiovascular disease and osteoporosis are the most attractive targets for nutraceuticals, followed by child development, high blood pressure, diabetes, gastro-intestinal disorders, menopause and lactose intolerance.
outcome	The results, impacts or consequences of actions by the FRDC and its R&D partners on the fishing industry* and Australia's economic, environmental and social resources. Planned outcomes are the results or impacts that the FRDC wishes to achieve. Actual outcomes are the results or impacts in fact achieved. For the FRDC context, see the diagram on page 37. * [The main sectors of the fishing industry are the commercial sector (wild-catch, aquaculture and post-harvest) and the recreational and customary sectors, as defined on page 24.]
output	The goods and services (mainly knowledge, processes and technology) that the FRDC and its R&D partners produce for external organisations or individuals. For the FRDC context, see the diagram on page 37.
Parliamentary Secretary, the	The Parliamentary Secretary to the federal Minister for Agriculture, Fisheries and Forestry, who exercises ministerial powers in relation to rural R&D corporations. See also *ministerial powers*.
performance indicator	See *key performance indicator*.
performance measure	Information on actual performance against a specified key performance indicator — for example, "a benefit-cost ratio of 7:1."
PIERD Act	The *Primary Industries and Energy Research and Development Act 1989*, under which the FRDC is established.

precautionary approach	A set of measures taken to implement the precautionary principle. They comprise a set of cost-effective measures and actions that reduce or avoid risk to a resource, the environment and/or the people to the extent that is economically possible — explicitly taking into account existing uncertainties and the potential consequences of being wrong. See *precautionary principle*.
precautionary principle	Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by: » careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment; and » an assessment of the risk-weighted consequences of various options. See *precautionary approach*.
quality management	Management of all activities through a systematic and determined focus on continual improvement, above minimum levels of performance set by a formal quality management standard. The standard against which the FRDC is certified is AS/NZS ISO 9001:2000. Other quality management standards suitable for the seafood industry are promoted by Seafood Services Australia.
R&D	See *research and development*.
R&D plan	Short title for the FRDC's strategic plan, *Investing in tomorrow's fish: the FRDC's research and development plan, 2000 to 2005*. The R&D plan is prepared under the provisions of the PIERD Act (among other things) and has appropriate regard for ministerial directions, Australian Government policy, and extensive consultation with the fishing industry — including the FRDC's representative organisations. The R&D plan is designed to be the principal source of information about the FRDC's policies, programs and operations. It describes the FRDC; defines its business environment and key factors for the next 20 years; lays down, against the business environment, the Corporation's planned outcomes and strategic priorities for investing in research and development; and outlines the strategies that the FRDC intends to adopt to achieve those outcomes. It is approved by the Minister for Agriculture, Fisheries and Forestry or the Parliamentary Secretary to the Minister, and is reviewed annually. See also *annual operational plan*.
Recfish Australia	Trading name of the Australian Recreational and Sport Fishing Industry Confederation, the peak body representing the recreational sector of the fishing industry. See also *Australian Seafood Industry Council*.
recreational sector of the industry	See *fishing industry*.
representative organisations	See *Australian Seafood Industry Council* and *Australian Recreational and Sport Fishing Industry Confederation*.

research	*Basic research* is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundation of phenomena and observable facts, without any particular application or use in view. *Applied research* also refers to original investigation undertaken to acquire new knowledge. It is, however, directed towards a specific practical aim or objective. Applied research is undertaken either to determine possible uses for the findings of basic research or to determine new methods or ways of achieving some specific and predetermined objectives.
research and development	In relation to the fishing industry: systematic experimentation and analysis in any field of science, technology or economics (including the study of the social or environmental consequences of the adoption of new technology) carried out to: » acquire knowledge that may be of use in obtaining or furthering an objective of the fishing industry, including knowledge that may be of use for the purpose of improving any aspect of the production, processing, storage, transport or marketing of goods that are the produce, or that are derived from the produce, of the fishing industry; or » apply such knowledge for the purpose of attaining or furthering such an objective; or » create new or improved materials, products, devices, processes or services for the purpose of attaining or furthering such an objective.
research providers, researchers	Individuals or organisations undertaking R&D activities.
seafood	Products derived from aquatic natural resources, including fish and fish products, for human consumption.
seafood industry	The commercial sector of the fishing industry: see *fishing industry*.
Seafood Services Australia Ltd	A company limited by guarantee, with the FRDC and the Australian Seafood Industry Council as its members, which aims to be proactive in providing an Australia-wide service for people who catch, farm, process, transport, wholesale, retail, export, import or cook seafood. The service includes: » value-adding through seafood product and process development; » product quality, food safety and consumer health; » management systems and standards for quality and ecologically sustainable development; » market development; » seafood marketing names; » seafood emergency management; and » information and advice on other technical issues. The company's mission is to be a catalyst for sustainable development of the seafood industry.

social resilience	Relates to the social (including political) capacity of groups of people to effectively develop and represent their interests and to advocate their contributions to the Australian community. Having such a capacity is essential in our robust democratic society, especially if the group is likely to be affected by others who are better at representing their own self-interests. It is widely recognised that the social resilience of the three main sectors of the fishing industry is presently low.
SSA	See *Seafood Services Australia Ltd*.
stakeholders	People, organisations or groups with an interest or stake in a line of business. The FRDC's stakeholders are the fishing industry (see definition); the federal, state and the territory governments; and the people of Australia.
strategy	A focus for activities that produce the outputs required to achieve planned outcomes — in the FRDC context, in Program 4 (the Management and Accountability Program).
supplier	A person or organisation engaged by the FRDC to provide goods or services that affect the FRDC's delivery of its outputs. Includes consultants, who are as described in the May 1999 issue of the Department of Prime Minister and Cabinet *Requirements for departmental annual reports*. The FRDC's supplier selection policy is described on page 119.
sustainable	A characteristic of a process or a state that can be maintained indefinitely. See *ecologically sustainable development*.
sustainable development	Management and conservation of the natural resource base and the use of technological and institutional change to ensure the attainment of human needs for present and future generations. Such development is environmentally non-degrading, technically appropriate, economically viable and socially acceptable. [UN Food and Agriculture Organization, 2001]
traditional sector of the industry	See *customary sector*. Defined under *fishing industry*.
value-adding	Any activity that results in products, processes and services becoming more valuable, competitive, effective and/or efficient, thus increasing financial returns or achieving other desired outcomes. Value-adding elements can include products, processes, packaging, equipment, quality, knowledge gaps and aspects of marketing. Although increased profits are the goal, sometimes new products and processes need to be adopted to enable a business to remain economically viable without increasing economic performance.
year, the	The financial year.

Indexes

Compliance index

This index shows the numbers of the pages on which information is provided to comply with Australian Government legislation and policies, including the following:

» the FRDC's enabling legislation (the *Primary Industries and Energy Research and Development Act 1989*);

» the *Commonwealth Authorities and Companies Act 1997* (CAC Act) and its supporting Commonwealth Authorities and Companies (Report of Operations) Orders 2002 made under section 48 of the Act (CAC Orders);

» the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act);

» other legislation, such as the *Freedom of Information Act 1982*, the *Occupational Health and Safety (Commonwealth Employment) Act 1991*, the *Disability Discrimination Act 1992* and the *Commonwealth Electoral Act 1918*;

» ministerial notifications of Australian Government policy, including national priorities for research and priorities for rural R&D;

» *Requirements for annual reports*, Department of the Prime Minister and Cabinet (PM&C), June 2001, approved by the Joint Committee of Public Accounts and Audit under sub-sections 63(2) and 70(2) of the *Public Service Act 1999*;

» other Australian Government guidelines; and

» recommendations by the Australian National Audit Office.

The document *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.

When this annual report has not addressed a compliance subject (usually because no activity occurred under that heading during the year), the subject entry is followed by "—" rather than by a page number.

* Note: "Government policy" in column 7 includes ministerial directions under s. 143(1) of the PIERD Act, ministerial notifications of Australian Government policy (including priorities for research and rural R&D), the PM&C document *Requirements for annual reports*, other Australian Government guidelines, and recommendations by the Australian National Audit Office.

Compliance subject	Page no.	PIERD Act	CAC Act & Orders	EPBC Act	Other legis-lation	Govt policy*	Sources
advertising and market research	—				✔		*Commonwealth Electoral Act 1918*, s. 311A, as specified by the *Political Broadcasting and Political Disclosure Act 1991* s. 20
annual operational plan							
extent of implementation of	41	✔					PIERD Act s. 28 (1)(b)(ii)
revision of	—	✔					PIERD Act s. 28(1)(a)(iii)
annual report (last year)							
given to Minister by 15 October	98		✔				CAC Act s. 9(1)(b)
tabled by Minister within 15 sitting days	98		✔		✔		CAC Act s. 9(3) and *Acts Interpretation Act 1901*
Auditor-General's report on the financial statements	127		✔				CAC Act s. 8(2)
board, see *directors*							
companies							
formation of	—	✔					PIERD Act s. 28(1)(a)(vii)
in which FRDC has an interest, activities of	18, 65, 66, 108, 120	✔					PIERD Act s. 28(1)(a)(vi)
consultancy services	120					✔	PM&C guidelines
contact officer	204					✔	FOI Act s. 8(1)(v) and PM&C guidelines
corporate governance, also see *directors*							
ethical standards	121		✔				CAC Orders cl. 15(3)(e)
main practices, statement of	100		✔				CAC Orders cl. 15(1)
developments since the end of the financial year, and their effects	—		✔				CAC Orders cl. 10(1)(f)
directors							
Board meetings and attendance	108, 111		✔				CAC Orders cl. 14(1)(b)
committee meetings and attendance	110, 111		✔				CAC Orders cl. 15(2)(c)
committee member details	111						CAC Orders cl. 15(2)(b)
committee responsibilities and rights	110		✔				CAC Orders cl. 15(2)(a)
independent advice to, provisions for	110, 117		✔				CAC Orders cl. 15(3)(c)
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particulars encompass current and ceased	102		✔				CAC Orders cl. 14(2)
performance, review of	16		✔				CAC Orders cl. 15(3)(b)
risks, business, approach to	117		✔				CAC Orders cl. 15(3)(d)
selection committee for appointment of, report by	—	✔					PIERD Act s. 141
disability strategy	126		✔			✔	CAC Orders cl. 18 and Commonwealth Disability Strategy
ecologically sustainable development	23, 27, 42, 46, 56, 72	✔		✔			EPBC Act s. 516A PIERD Act s.28(1)(a)(iia)

Compliance subject	Page no.	PIERD Act	CAC Act & Orders	EPBC Act	Other legis-lation	Govt policy*	Sources
enabling legislation and its objects and functions	172		✔				CAC Orders cl. 8(a)
energy efficiency	126				✔		National Greenhouse Strategy 1998
environmental reporting, see *ecologically sustainable development*							
equal employment opportunity	125					✔	PM&C guidelines
external scrutiny	98, 112, 115, 127					✔	PM&C guidelines
financial statements	131		✔				CAC Act s. 9 and cl. 2 of schedule 1
fraud control, see *risk*							
freedom of information	126, 203				✔		FOI Act s. 8
functions of the FRDC	172		✔				CAC Orders cl. 8(b)
indemnities against liabilities of officers	—		✔				CAC Act s. 27M, CAC Orders cl. 16(1)
insurance premiums	119		✔				CAC Act s. 27N, CAC Orders cl. 16(2)
exceptions to prohibitions	—		✔				CAC Act s. 27P
industrial democracy	125				✔	✔	Public Service Act 1922 s.22C(10A), PM&C guidelines
influences on performance, see *performance*							
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objectives, see *outcomes, planned* under *performance* heading							
objects, legislative	172		✔				CAC Orders cl. 8(a)
extent to which attained	16, 41	✔					PIERD Act s. 28(1)(c)
occupational health and safety	125				✔		*OH&S (Cth Employment) Act* s. 74
officers, see *directors*							
operational and financial results, see *performance*							
organisational structure, outline of	5		✔				CAC Orders cl. 9
outcomes, planned, achievement of, see *performance*							

Compliance subject	Page no.	PIERD Act	CAC Act & Orders	EPBC Act	Other legis-lation	Govt policy*	Sources
report of operations			✔				CAC Act s. 9 and cl. 1 of schedule 1
certification of	12		✔				CAC Orders cl. 4(1)
includes all matters required by legislation (for Corporation only, since it has no subsidiaries)	through-out report		✔				CAC Orders cl. 17
standards of presentation	observed through-out		✔				CAC Orders cl. 6 and note to cl. 10
representative organisations, project or consultancy conducted by, details of	113					✔	Guidelines on Funding of Consultation Costs by Primary Industries and Energy Portfolio Statutory Authorities
representative organisations and persons, meeting consultation expenses of	113	✔				✔	PIERD Act s. 15 and Ministerial guidelines
review of operations and future prospects — performance in relation to corporate plan, principal outputs and contribution to outcomes, and statutory objects and functions — see those headings under *performance*			✔				CAC Orders cl. 10
risk, also see *performance*							
management of	113		✔			✔	CAC Orders cl. 15(3)(d); Fraud Control Policy (ANAO Audit Report of 1996–97) and PM&C guidelines
service charter	119					✔	PM&C guidelines
significant changes in state of affairs or principal activities	—		✔				CAC Orders cl. 10(1)(e)
significant events referred to in s.15 of the CAC Act	—		✔				CAC Act s. 15 and CAC Orders cl. 10(1)(c)
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stakeholders	inside front cover					✔	ANAO Report No. 23 of 1998–99, recommendation 5
subsidiary, inability to obtain information from	—		✔				CAC Orders cl. 7
suppliers, selection of	119					✔	PM&C guidelines

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Publications and other information

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

The following information is available from the FRDC:

	Printed	On website
» New publications this year, listed in R&D program reporting on pages 53, 69 and 79.	✔	✔
» The R&D plan (*Investing in tomorrow's fish: the FRDC's research and development plan, 2000 to 2005*), which provides comprehensive information on the Corporation; 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.	✔	✔
» This and the previous annual report.	✔	✔
» R&D plans for Commonwealth, states, NT, regions and industry sectors.	✔	✔
» *R&D News* (published in January, April, July and October, 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.	✔	✔
» Information on completed projects (final reports and other related products).	✔ (see note 1)	✔
» Non-technical summaries of all final reports of FRDC projects.		✔
» Hyperlinks to other websites containing full final reports and fisheries R&D strategies, and to other important websites.		✔
» R&D funding application details.		✔
» Coming events of significance for the industry.		✔
» Research databases.		✔ (see note 2)

Note 1: Information on completed projects (final reports and other related products) is also available from:

» the National Library of Australia, Parkes ACT 2600;

» the Librarian, CSIRO Marine Research, GPO Box 1538, Hobart, Tasmania 7001;

» state libraries and research institutions that the researcher considers appropriate; and

» for post-harvest projects, Seafood Services Australia, PO Box 2188, Ascot, Queensland 4007 (telephone 1300 130 321, e-mail ssa@seafoodservices.com.au, website www.seafoodservices.com.au).

Note 2: Australian research databases such as *Australian Rural Research in Progress* (ARRIP), the *Australian Bibliography of Agriculture* (ABOA) and the *Aquatic Science Fisheries Abstract* — to which the FRDC contributes — contain information on research in progress and completed. The Australian Agricultural and Natural Resources Online (AANRO) website, which gives access to the ARRIP and ABOA databases, is accessible via the FRDC's website. Seafood Services Australia provides fee-for-service searches of these and overseas databases.

Details of types of documents and information available on request and under the provisions of the *Freedom of Information Act 1982* are in appendix E, page 203.

Photo: Chris Baty.

COVER PHOTOGRAPH

Paul Hendricks, a recreational fisher, releases a mackerel tuna he has caught on Sydney Harbour. Projects under the FRDC's National Strategy for the Survival of Released Line-Caught Fish aim to communicate best practice in handling methods in order to increase the survival of released line-caught fish. They also aim to provide fisheries managers with more accurate estimates of the recreational take that does not survive — an important element in assessing fish stocks.

Photo: Rob Little.

FRDC WINS TOP AWARD

In May, competing against agencies of all levels of government in Australia and New Zealand, the FRDC won the Australasian Reporting Awards Inc. *Corporate Governance Reporting Award for the Public Sector.*

This award culminated several years of high assessments of the FRDC's corporate governance by external entities.

More: Directors' review, page 19.

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On the web, this report is at:
www.frdc.com.au/pub/anrep/index.htm

The Fisheries Research and Development Corporation plans, invests in and manages fisheries research and development throughout Australia. It is a statutory authority within the portfolio of the federal Minister for Agriculture, Fisheries and Forestry, jointly funded by the Australian Government and the fishing industry.