FISHERIES RESEARCH AND DEVELOPMENT CORPORATION

Annual Report

2000–2001

FISHERIES RESEARCH & DEVELOPMENT CORPORATION

TO THE COMMONWEALTH PARLIAMENT,
THE FISHING INDUSTRY AND OTHER FRDC STAKEHOLDERS

DIRECTORS' REPORT **PAGE 23**

DETAILED PROGRAM REPORTING **PAGE 35**

CORPORATE GOVERNANCE **PAGE 69**

Highlights of the year

R&D investment and leverage both increase

Total actual investment in projects under FRDC management in 2000–2001 was $51.0 million (up from $47 million last year). Of this, the FRDC invested $17.9 million (up from $17.2 million last year). The value of leverage resulting from the FRDC investment was in the ratio of 1:1.8 (up from 1:1.7). In total, 697 projects were under management.

For every dollar that the fishing industry contributed to the FRDC, the FRDC invested upwards of three dollars in R&D. However, contributions were only 71 per cent of the maximum that is matchable by the Commonwealth. This shortfall continues to be the Corporation's biggest immediate challenge, given the rising environmental, seafood quality, seafood safety and trade challenges.

The FRDC wants fishers and aquaculturists to contribute financially to fisheries R&D above the limit to which the Commonwealth will provide matching contributions. This year, a national R&D levy was approved for the prawn farming sector. The levy process — new for the FRDC but commonplace in all other R&D corporations — has resulted from the prawn farming sector's realisation of the benefits of funding and managing R&D through the FRDC.

Focus on strategic ESD investment is sharpened

The FRDC pursued nationally important goals through a range of strategic investments during the year, including:

- a new ESD Reporting and Assessment Subprogram to reliably measure the ESD performance of Australia's commercial fisheries and help commercial operators to meet the requirements of legislation; and
- an Environmental Management Systems Initiative to help the industry to implement environmental management systems and the Commonwealth's ESD framework in selected fisheries, and to manage fisheries towards sustainability.

Other key strategic investments are discussed on page 26.

Value of commercial sector production grows strongly

The value of production from the commercial sector grew strongly over the previous year: 13% in gross value of wild-catch production; 12% in aquaculture; and 32% in exports. The increased wild-catch value is being derived from static tonnage; aquaculture tonnage and value continues to grow strongly. These trends are in keeping with ecologically sustainable development of the fishing industry.

Human capacities increasing

The FRDC contributed significantly to developing the capacities of people in the industry and the R&D community by supporting the equivalent of 444 full-time people involved directly in R&D projects. In addition, 256 full-time equivalent staff were employed on FRDC projects through in-kind contributions of project partners.

New R&D plan is an agent for change

The FRDC's new Research and Development Plan, released on the Internet and subsequently in printed form, is greatly influencing thinking among fishing industry leaders, reflecting wide consultation during its development and its foundation on a 20-year forecast of factors that will be important for the industry.

FISHERIES
RESEARCH &
DEVELOPMENT
CORPORATION

29 August 2001

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

Dear Senator,

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 2001.

The report 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 and the *Commonwealth Authorities and Companies Orders 1998*.

The report provides information so that an informed judgement of the Corporation's performance during the year ended 30 June 2001 can be made by you; the Minister for Agriculture, Fisheries and Forestry; the Minister for Forestry and Conservation; the Parliament; fishing industry levy payers and other financial contributors; and other interested parties.

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 sincerely,

Russell Reichelt
Chairman

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Cover theme: a small fishery leads the way in ecologically sustainable development

A fourth-generation fisher, Garry Hera-Singh, hauls in part of the day's catch from the Lakes and Coorong Fishery in South Australia.

Garry and his colleagues in the Southern Fishermen's Association were the first fishers in Australia to develop an environmental management plan for a fishery — initially as a reaction to threats to their livelihood. Since then, they have been at the forefront of development of new environmental management systems. This effort is no longer reactive; now it stems from understanding that the economic and social dimensions of the industry will benefit from managing the environmental dimension for the long term. The conviction that "ecologically sustainable development is the only way to go" is growing fast throughout the industry.

The FRDC works with industry organisations such as the Southern Fishermen's Association to develop practical environmental management systems. In doing so it pursues its planned outcome for industry development, which is: "the commercial sector of the Australian fishing industry is profitable and internationally competitive; the commercial, recreational and traditional sectors are socially resilient".

Theme photographs (cover and backgrounds) by Kevin O'Daly, Aspect Photographics.

Fisheries Research and Development Corporation Annual Report, 2000–2001

Electronic version (abridged) is at http://www.frdc.com.au/pub/anrep/index.htm

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FISHERIES RESEARCH AND DEVELOPMENT CORPORATION

Annual Report

2000–2001

THE FRDC'S MISSION IS TO INCREASE ECONOMIC AND SOCIAL BENEFITS FOR THE FISHING INDUSTRY AND THE PEOPLE OF AUSTRALIA, THROUGH PLANNED INVESTMENT IN RESEARCH AND DEVELOPMENT, IN AN ECOLOGICALLY SUSTAINABLE FRAMEWORK.

Contents

If you do not have time to read this report in detail, we suggest you select from the following sections:

- If you are not familiar with the FRDC, read 'About this report' (page 1) and 'About the Corporation' (page 7).
- For an overview of the FRDC's operations during the past year, read 'The directors' review of operations and future prospects' (page 23).
- For the key strategic imperatives of the FRDC, read under the 'Strategic elements' headings on pages 42, 48, 53 and 57.
- For information on the FRDC's performance during 2000–2001, read the remaining elements of 'R&D Program achievements' on pages 42 to 68.
- For information on contributions by industry and governments, see page 58.
- For corporate governance information, read pages 69 to 88.
- For financial information, read the financial statements starting on page 93.
- For descriptions of outcomes achieved by recent or current projects, read pages 25–26 and 43–56.
- For lists of current projects, see appendix D, 'Project expenditure by program', starting on page 137.

Topics are listed under a wide variety of keywords in the alphabetical index starting on page 179.

FIGURES

TABLES

About this report

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

Requirements for the report

This report describes the extent to which the Fisheries Research and Development Corporation (FRDC) implemented its annual operational plan during the previous financial year. It is prepared in accordance with the *Primary Industries and Energy Research and Development Act 1989* (PIERD Act), the *Commonwealth Authorities and Companies Act 1997* (CAC Act) and other legislation and guidelines. The annual report is also intended to inform the FRDC's stakeholders, especially those in the commercial, recreational and traditional sectors of the fishing industry and in the research and development (R&D) community.

More details of the legislative requirements for the report are in **appendix A** on page 127.

Planning, operating and reporting framework

The annual report is one of four documents in the FRDC's planning, operating and reporting framework. The other documents 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, Commonwealth Government policy, and 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 is approved by the Minister for Agriculture, Fisheries and Forestry or the Parliamentary Secretary to the Minister, and is reviewed annually.
- *The annual operational plan (AOP)*. This document gives effect to the R&D plan by seeking to achieve, in the best way possible, the planned outcomes of the R&D programs. Every year, the Minister or the Parliamentary Secretary to the Minister approves a new AOP that specifies the coming financial year's planned outcomes, outputs and inputs.[1] Strategies and key performance indicators are also specified. The AOP is also prepared in accordance with the PIERD Act.
- *The portfolio budget statement*. This document, which is consistent with the AOP and is also prepared annually, is used for budget processes and parliamentary scrutiny. It is consolidated, together with the statements of the other rural Research and Development Corporations, by the Commonwealth Department of Agriculture, Fisheries and Forestry. Unlike the R&D plan and AOP, it is tabled in the Commonwealth Parliament and is therefore an important element of parliamentary scrutiny.

The planning, operating and reporting processes involved, in the context of the FRDC's AS/NZS ISO 9002:1994 quality management system, are shown diagrammatically in **figure 1**.

Finding aids

A **glossary** of key terms and abbreviations starts on page 165.

A **compliance index** (of items complying with legislation and policies) is on page 175. An **alphabetical index** of key topics starts on page 179.

(1) → For definitions of these concepts, as used in the Commonwealth's outcome-output accountability framework, please see the glossary (pages 169 and 170).

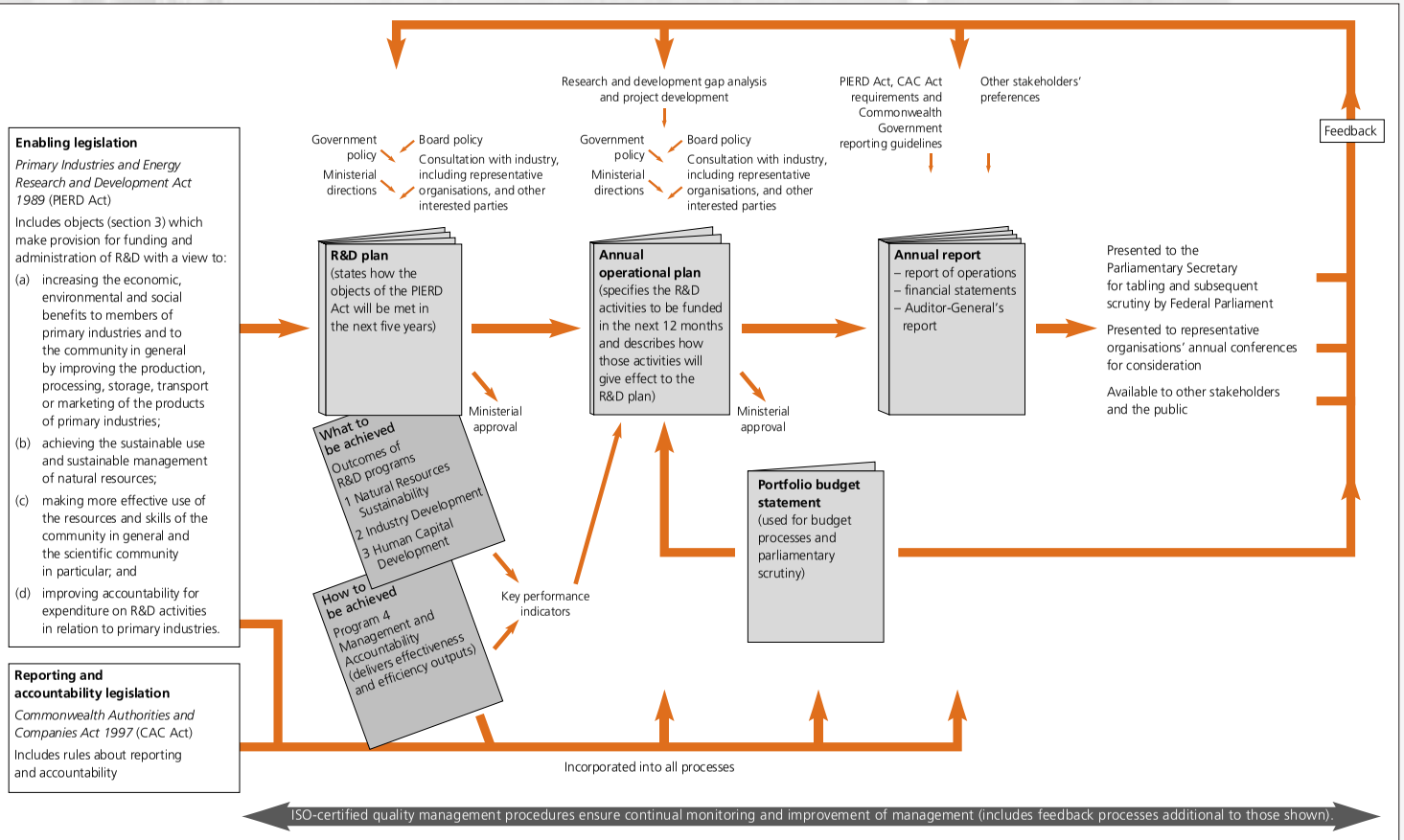


Figure 1: Key processes in the FRDC's planning, operating and reporting framework

New ecologically sustainable development reporting

FRDC reporting already meets requirements of EPBC Act

In 1999, the Commonwealth Parliament enacted the *Environment Protection and Biodiversity Conservation Act* (the EPBC Act)[2] to promote ecologically sustainable development (ESD)[3] and to conserve biodiversity through a more effective and efficient national approach to environmental management at all levels of government. The Act invoked major reform of Commonwealth environmental law, especially by raising environmental standards, changing Commonwealth / state environmental responsibilities, and introducing better assessment and approval processes. The legislation implemented many elements of a 1997 Council of Australian Governments agreement which defined the Commonwealth's role in matters of national environmental significance and sought to ensure the seamless integration of Commonwealth and state laws through a mechanism for Commonwealth accreditation of state processes.

The EPBC Act introduced an assessment and approval process that applies to actions likely to have a significant impact on the Commonwealth marine area, world heritage properties, Ramsar wetlands of international importance, nationally threatened species and ecological communities, and internationally protected migratory species.

The EPBC Act enables early, transparent and effective accreditation of state processes and systems when matters of national environmental significance are involved. A modern assessment and approval process, which considers social and economic factors as well as matters of national environmental significance, was also introduced.

Section 516A of the EPBC Act now requires the FRDC to report on ESD and environmental matters, especially in relation to:

- the extent to which the principles of ESD have been internalised in decision-making systems and processes;
- the contribution to ESD of the social, economic and environmental outcomes that the Commonwealth Government is seeking; and
- 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 has added these requirements to the criteria against which it reports. In practice, the FRDC's activities, and reporting of them, already address the matters to the extent required by the EPBC Act. The respective reasons are as follows:

- The objects of the FRDC, specified in the enabling legislation,[4] 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 vision and mission, and are the basis for the planned outcomes of the three R&D programs. Consequently, the principles of ESD have been totally internalised in FRDC decision-making systems and processes.

(2) (3) (4)

→ A copy of the EPBC Act is at www.environment.gov.au/epbc/index.html

→ For a definition of ESD, see the listing "ecologically sustainable development" in the glossary (page 167).

→ The FRDC's objects are listed on page 130.

- The Commonwealth Government's priorities for R&D, which embody the social, economic and environmental outcomes that the Commonwealth Government is seeking, are explicitly incorporated into the planned outcomes of the R&D programs and are reflected in outcomes reporting.[5]
- The environmental impacts of the FRDC's operations and actions, and the measures being taken to minimise the impact on the environment, are reported as follows:
  - *R&D projects*. The FRDC identifies R&D needs, and the means of addressing them, through a planning process and by contracting 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.[6] Before R&D projects start, the FRDC assesses their environmental impacts and ensures that appropriate approvals are obtained.
  - *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.[7]

DURING THE YEAR, THE FRDC MET THE REQUIREMENTS OF THE EPBC ACT IN PLANNING, FUNDING AND MANAGING FISHERIES R&D AND IN CONDUCTING ITS INTERNAL OPERATIONS. AN IMPORTANT ELEMENT OF ITS LEADERSHIP ROLE WAS TO HELP THE COMMERCIAL, RECREATIONAL AND TRADITIONAL SECTORS OF THE FISHING INDUSTRY TO ADDRESS THE ISSUES EMBODIED IN THE EPBC ACT.

(5) (6) (7)

→ The Government's priorities are listed, in relation to the FRDC's three R&D programs, in the program performance reporting that starts on pages 42, 48 and 53.

→ For access to final reports, please see page 14.

→ Program 4 reporting starts on page 57.

People who read this report

Through the Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry, this report is tabled before both houses of the Parliament of the Commonwealth of Australia.

The report is also presented to the FRDC's two representative organisations: the Australian Seafood Industry Council and Recfish Australia. Their responses are included in the measurement of the FRDC's performance.

Further, this report is intended to meet the information needs of the FRDC's stakeholders and other readers, including:

- fishers and aquaculturists who pay R&D levies or make some other form of contribution to R&D;
- other people in the fishing industry, including recreational fishers and Aboriginal and Torres Strait Islander fishers carrying out traditional fishing practices;
- Commonwealth, state, territory and local governments and their agencies — such as those involved in management of natural resources, primary industries and seafood production, indigenous affairs, tourism, regional development and sport and recreation;
- fisheries R&D funding entities;
- fisheries managers;
- researchers;
- educators;
- individuals and community groups with an interest in Australia's fisheries resources and the fishing industry;
- individuals and community groups with interests in economic, environmental and social matters relating to the fishing industry;
- industry and community interest groups overseas, especially in New Zealand;
- businesses and business organisations; and
- the news and information media.

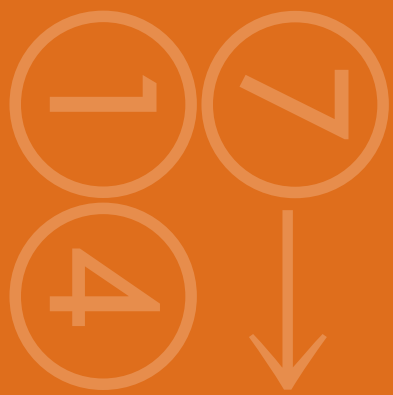
Rounding of figures

Since figures presented in the body of the report have been rounded, totals may not always agree with component figures.

Further information related to this report

If you would like to obtain a copy of this report or previous reports, please contact the Corporation or visit the FRDC website: details are opposite the title page. For other material produced by the FRDC, please refer to page 14.

About the Corporation



The FRDC is a rural research and development corporation within the portfolio of the Commonwealth Minister for Agriculture, Fisheries and Forestry. Formed as a statutory corporation on 2 July 1991 under the provisions of the PIERD Act, it is a national organisation responsible to its stakeholders for:

- planning, funding and managing R&D programs; and
- facilitating the dissemination, adoption and commercialisation of the results of R&D.

The FRDC has become widely recognised as the leading Australian agency concerned with planning, funding and managing fisheries R&D.

The FRDC's previous function of providing funds for approved export promotion activities under the *Prawn Export Promotion Act 1995* ceased during the year on repeal of that Act and its associated Acts by the *Fisheries Legislation Amendment Act (No. 1) 1998*.[8]

Vision

The FRDC's vision is three-fold:

For the industry

An Australian fishing industry in which:

- the commercial, recreational and traditional sectors are forward-looking, innovative and socially resilient, and use fisheries natural resources in an ecologically 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.

Mission

The FRDC's mission is to increase economic and social benefits for the fishing industry and the people of Australia, through planned investment in research and development, in an ecologically sustainable framework.

(8)

→ The associated Acts are the *Prawn Boat Levy Act 1995* and the *Prawn Export Charge Act 1995*. The *Fisheries Legislation Amendment Act* set the date for repeal of the *Prawn Export Promotion Act* at 30 June 2001, allowing all outstanding levies to be collected and funds accumulated for *Prawn Export Promotion Act* activities to be expended before that date. All prawn promotion funding by the FRDC has now ceased.

Planned R&D outcomes

Program 1: Natural Resources Sustainability

The natural resources on which the commercial, recreational and traditional sectors of the fishing industry depend are used in an ecologically sustainable way.

Program 2: Industry Development

The commercial sector of the Australian fishing industry is profitable and internationally competitive; the commercial, recreational and traditional sectors are socially resilient.[9]

Program 3: Human Capital Development

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 research and development.

Stakeholders in the FRDC are the fishing industry; the governments of the Commonwealth, the states and the territories; and the people of Australia.

Key elements of the FRDC's legislative foundation (the PIERD Act) are summarised in **appendix B** (page 129).

The FRDC operates under the provisions of the CAC Act, which applies high standards of accountability while providing for the independence required by the Corporation's focus on the needs of an industry.

The FRDC's objects, deriving from section 3 of the PIERD Act, are shown on page 130. They are incorporated in the FRDC's vision, mission and planned outcomes.

The functions of the FRDC, deriving from section 11 of the PIERD Act, are also described on page 130.

The FRDC is governed by a Board of nine directors whose expertise, prescribed by the PIERD Act, is described on page 70. The Board is responsible to the Minister for Agriculture, Fisheries and Forestry; to the Parliamentary Secretary to the Minister; and to the Minister for Forestry and Conservation — and, through them, to Parliament.

The FRDC does not undertake research itself; rather it identifies R&D needs — and the means of addressing them — through a planning process[10] and by contracting with research providers.

Ten staff, based in Canberra, manage the FRDC's activities. The Corporation is structured to deliver the best results for the least cost: currently, the target for program support costs is a maximum of eight per cent of total expenditure.

9 10

→ "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.

→ The FRDC's planning, funding and managing processes are described on pages 133 to 140 of the R&D plan.

To enhance the FRDC's accountability to its stakeholders, the Minister for Agriculture, Fisheries and Forestry has declared the Australian Seafood Industry Council and the Australian Recreational and Sport Fishing Industry Confederation (trading as Recfish Australia) to be representative organisations in accordance with section 7 of the PIERD Act. The FRDC reports to the representative organisations at their annual conferences and has regard to their expectations of the FRDC and to their R&D needs.

The FRDC also obtains information and advice from many other sources, including Fisheries Research Advisory Bodies (FRABs), managed subprograms, fisheries managers, policy-makers, industry associations and research providers.

The FRDC's organisation and the context in which it operates are shown in **figure 2**.

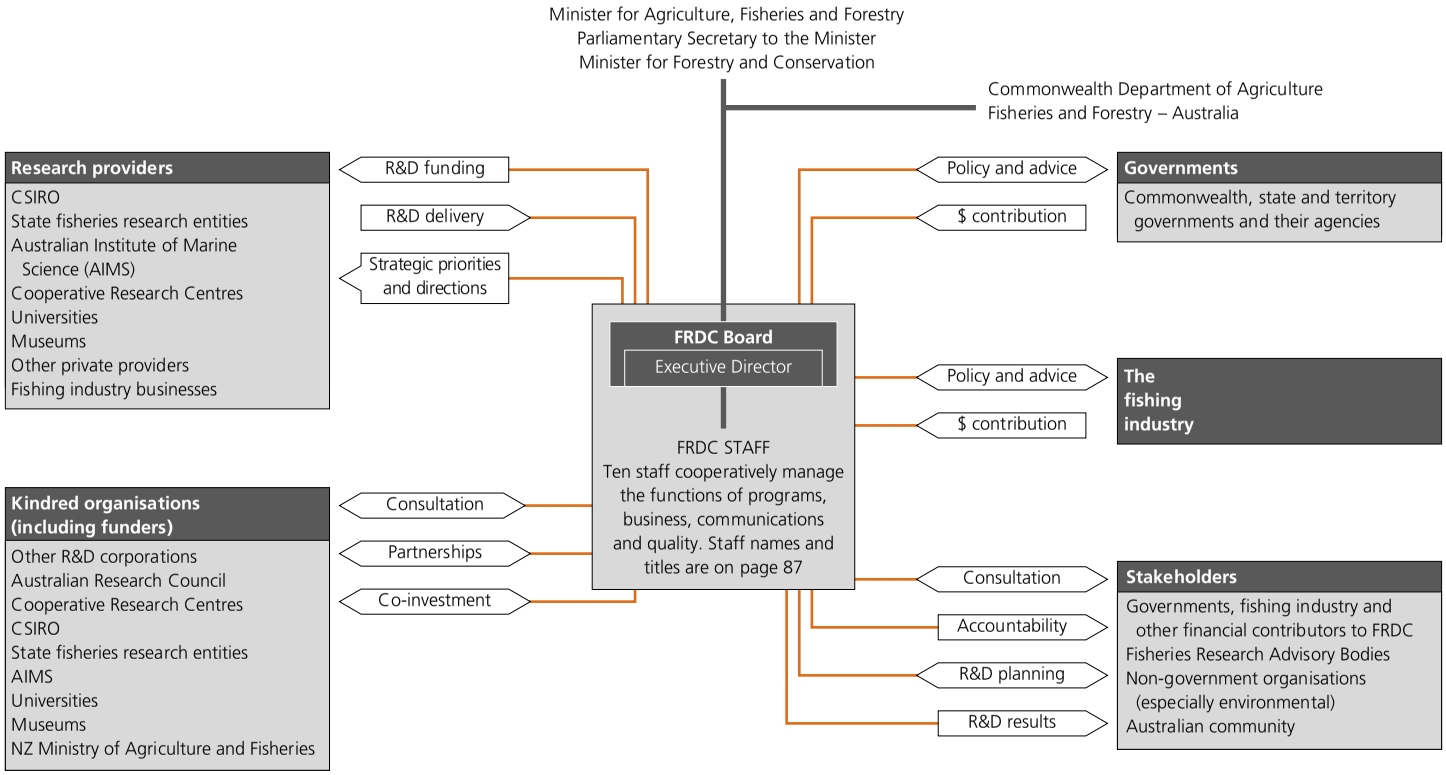
Key features of Australia's rural R&D Corporations

- The rural R&D Corporations (RDCs) are not research grant agencies; the PIERD Act requires them to treat R&D as an investment in economic, environmental and social benefits to their respective industries and to the people of Australia.
- The RDCs are empowered to intervene anywhere in the innovation process — not just in traditional research.
- RDCs are required to focus their activities around strategic R&D plans and annual operational plans that must be approved at ministerial level.
- RDCs are fully accountable to their major stakeholders and to the wider community.
- Because of the tight focus on achieving outcomes, RDCs emphasise brokering active collaboration between researchers, and between researchers, resource managers and primary industry interests.
- RDCs apply significant resources to the challenging task of translating research outputs into practical outcomes.
- In addition to their collaboration on specific R&D matters, RDCs work closely together on policy issues to increase the effectiveness and efficiency of the national application of rural R&D.

Corporate governance

The FRDC has in place policies and processes for good corporate governance, including an ISO-certified quality management system. A comprehensive summary of corporate governance matters, including a description of how the policies and processes have been applied during the year, starts on page 69; the quality management system is outlined on page 81.

Quality System
Quality Endorsed Company
ISO 9002 Lic 11389



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).

Figure 2: The FRDC's organisation and operating context

The FRDC's revenue base

As stipulated in the PIERD Act, and as shown in **figure 3**, the FRDC's primary revenue source is based on:

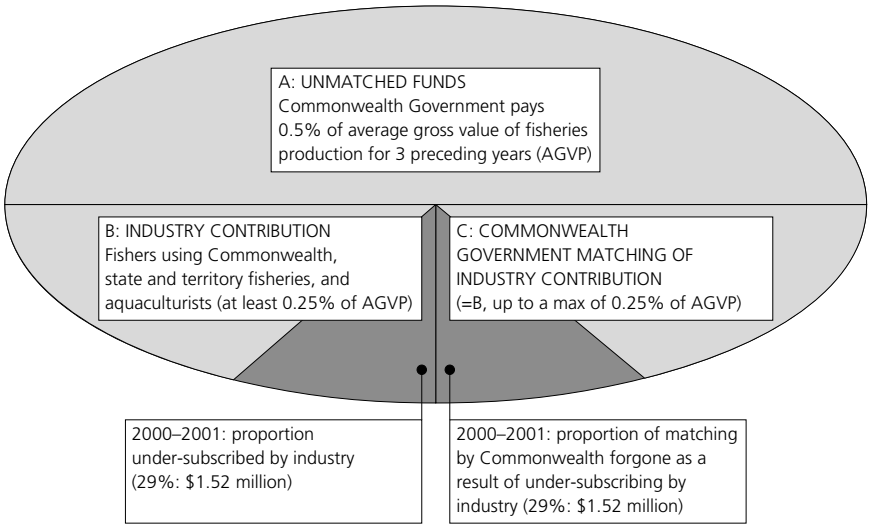
- the Commonwealth Government providing unmatched funds equivalent to 0.5 per cent of the average gross value of Australian fisheries production for the three preceding years (AGVP);
- state, territory and Commonwealth fishers and aquaculturists providing contributions of at least 0.25 per cent of AGVP; and
- the Commonwealth Government matching contributions by state, territory and Commonwealth 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 Commonwealth Government will provide a matching contribution.

The FRDC also derives income from sources such as investments, royalties, and sales of products, information and services.

Details of revenue are given in the financial statements starting at page 93.

Figure 3: Proportions of the FRDC's revenue



Rationale for the FRDC's revenue base

The FRDC's revenue base places obligations on the Corporation as to how it invests in R&D.

The Commonwealth Government's contribution of 0.5 per cent of AGVP is made on the grounds that the Commonwealth exercises a stewardship role in relation to fisheries resources on behalf of the Australian community.

The commercial sector's contribution recognises the need for R&D that will be commercially oriented and will deliver results that will improve industry performance and profitability. The Commonwealth Government's matching of the industry levy contribution 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 Commonwealth Government should contribute.

Expenditure

Competing pressures for public sector funds limit expenditure on R&D by Commonwealth, state and territory governments. This in turn increases demand on the FRDC for funding. The FRDC seeks to maximise the effectiveness of its R&D expenditure by:

- providing leadership in fisheries R&D;
- investing in high-priority R&D that has the potential to deliver the highest benefits;
- managing R&D programs effectively and efficiently; and
- making R&D results widely known, and facilitating their adoption and (if appropriate) commercialisation.

Accordingly, these factors constitute the framework for the FRDC's effectiveness and efficiency activities under its Management and Accountability Program (page 57).

These factors also require the FRDC to devote a significant proportion of funds to project development, technology transfer and commercialisation, and evaluation. Furthermore, although the FRDC will fund basic research, a high proportion of activity will inevitably be applied R&D — both short-term and long-term.[11]

The FRDC also complies with a ministerial direction, issued under section 143(1) of the PIERD Act, which stipulates that R&D spending is to be of direct relevance, within a five-year period, to the fishery, industry sector, or state / territory in which funds were collected.[12]

The targets for the FRDC's expenditure in 2000–2001 were as follows:

- R&D Programs: minimum 85 per cent;
- communications: minimum 3 per cent; and
- programs support: maximum 8 per cent.

(11) (12)

→ 'Basic research' and 'applied research' are defined under the entry 'research' in the glossary (page 171); 'research and development' follows.

→ More details of the ministerial direction are on page 85.

Further information

The following information is available from the FRDC:

	PRINTED	ON WEBSITE
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 planning, funding and management of fisheries R&D;	★	★
the annual operational plan, which gives effect to the R&D plan;	★	
this and the previous annual report;	★	★ (abridged)
R&D plans for 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;	★	★ (abridged)
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; and		★
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 Division of 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, 19 Hercules Street, Hamilton, Queensland 4007 (tel 1300 130 321, e-mail ssa@ssaust.com, website www.ssaust.com).

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 Agricultural and Natural Resources Online (ANRO) 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 other types of documents and information available on request and under the provisions of the *Freedom of Information Act 1982* are in **appendix C**, page 133.

The FRDC's business environment

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*, available from the FRDC.

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 and priorities for the period 2000 to 2005, and strategies for achieving them. The FRDC's planning, funding and management of fisheries R&D is also described.

The following are key points from selected parts of the business environment chapter of the R&D plan.

FOR MORE COMPREHENSIVE INFORMATION ON FISHERIES NATURAL RESOURCES, PLEASE REFER TO PAGES 29–46 OF THE FRDC'S R&D PLAN.

Fisheries natural resources

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 600 marine and freshwater seafood species are caught and sold in Australia (under about 300 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 relatively high tonnages. However, it is very small by world standards. In 1999–2000, it produced about 30,500 tonnes, including 9,500 tonnes from blue grenadier. By contrast, the New Zealand catch of the same species (called hoki) was about 232,000 tonnes.

The low production capabilities of Australia's wild fisheries give little opportunity to increase tonnages, yet local and international demand is set to grow substantially — particularly as larger overseas fisheries become over-harvested and supply declines. This situation underlies the strategic directions for Australia's fishing industry, especially the commercial sector.

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.[13] To do this, the environmental resources that form the basis of our economy need to be used in a way that maintains — and where possible improves — 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.

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 economic activity.

The fishing industry today

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 4** (overleaf) 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 traditional sector* comprises enterprises and individuals associated with fisheries resources from which Aboriginal and Torres Strait Islander people derive products in accordance with their traditions.

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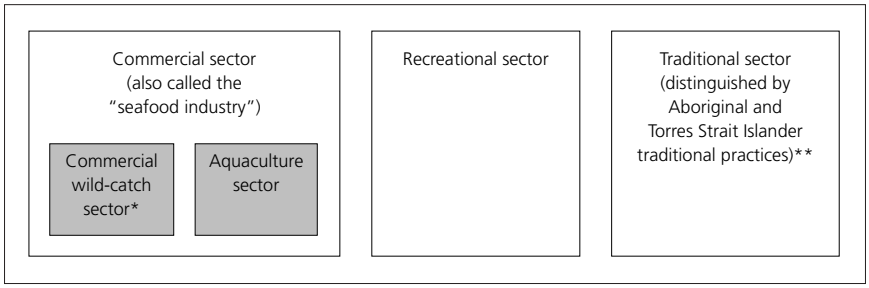
→ The definition of ecologically sustainable development nominated by the National Strategy for Ecologically Sustainable Development, 1992, is: Using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased. ESD is therefore not simply concerned with optimal resource management but with the full spectrum of factors involved in sustainable environmental, economic and social development. A discussion of ESD and its implications is on pages 32 and 33 of the FRDC's R&D plan.

Figure 4: Components of the fishing industry



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

** In addition to fishing and shell-collecting in accordance with their traditions, Aboriginal and Torres Strait Islander people also pursue recreational fishing (that is, not using traditional practices), subsistence fishing (following traditional 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, substantially or even wholly for their economic viability on prosperous commercial fishing enterprises.

The commercial sector of the fishing industry is Australia's fourth most valuable food-based primary industry — after beef, wheat and milk. In 1999–2000 it produced about 221,000 tonnes of produce, worth $2.32 billion ("landed value" — that is, before value-adding) or 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.

Commercial wild-catch fishing 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. The landed value of the commercial wild catch increased from $1.1 billion in 1989–1990 to $1.6 billion in 1999–2000.

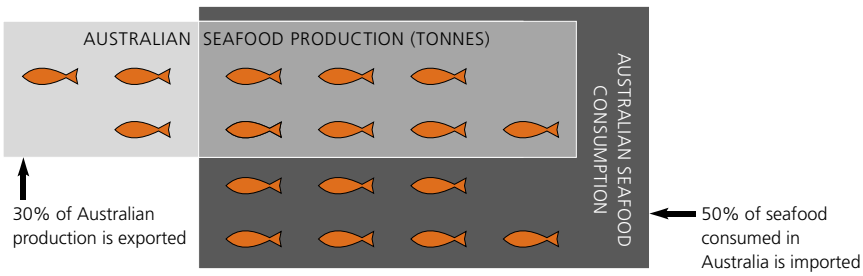
Increasingly, leading individuals and enterprises in the commercial wild-catch sector are harvesting sustainably and are improving quality and other value-adding through products and processing. They are marketing more efficiently by opening up new markets, developing niche products, and earning better returns on investment.

CONTINUAL EMPHASIS ON HIGH QUALITY OF ITS SEAFOOD IS THE "DRIVER" THAT WILL MAINTAIN AUSTRALIA'S FAVOURABLE REPUTATION IN THE LONG TERM.

Aquaculture is one of Australia's fastest-growing primary industries. The farmgate value of aquaculture production increased by about 14 per cent each year between 1989–90 and 1999–2000 ($188 million to $678 million). It now equates to 30 per cent of the landed value of all commercial sector production, up from 15 per cent in 1989–90. The major sectors contributing to this growth were pearl and edible oysters, Atlantic salmon, prawns and southern bluefin tuna. Like its wild-catch counterpart, aquaculture provides development and employment opportunities in rural Australia and contributes to export growth.

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 packaging and product differentiation, adopting quality management systems, and focusing on the premium end of the market. Fishers are also adopting better practices, some of them underpinned by codes of practice, to protect the quality of fish during harvesting.

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.



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

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 and coastal 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. A recent estimate of annual direct, indirect and capital expenditure on recreational fishing is $2.9 billion, comprising 20% direct (e.g. tackle, bait); 50% indirect (e.g. travel, accommodation); and 30% capital (e.g. boats).

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. Indeed, 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.

Traditional sector

Aboriginal and Torres Strait Islander people have developed a close, interdependent relationship with the land, water and living resources of Australia through traditional 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 customary 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.

Traditional 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. However, expensive commercial licences and strict recreational bag limits have made it difficult for some Aboriginal fishers to continue their traditional fishing.

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.

Aboriginal and Torres Strait Islander families and individuals pursue subsistence hunting, fishing or gathering through traditional and recreational fishing practices. 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 subsistence activities. 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 traditional 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.

The main issues confronting the industry today

As a result of its extensive consultation with stakeholders while preparing its most recent R&D plan, the FRDC has nominated three main issues confronting the industry today, as follows:

1. Concerning the natural resource base

It is necessary to increasingly pursue ecological sustainability so that the needs of the present may be met without compromising the ability of future generations to meet their own needs.

2. Concerning the operating environment

It is necessary to create an operating environment that is conducive to all three sectors of the fishing industry actively participating in pursuing ecological sustainability — which will inevitably incorporate the following, among other things:

- for all three sectors: objectively based, secure access to fisheries natural resources; and
- for the commercial sector: market development, maximum seafood value, and financial returns that benefit every enterprise in the production chain.

3. Concerning the contributions of people

It is necessary to make more effective use of people, including by:

- improving the capabilities of the people to whom the industry entrusts its future and improving communication between them; and
- developing the community's knowledge of, and involvement with, the industry and its products.

The challenges for Australia

The FRDC has comprehensively analysed the factors that are 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.[14] In turn, the FRDC has nominated nine key challenges for Australia. Underlying the first six is the fact that the future requires humans to obtain more fish — to satisfy the need for more seafood to eat and to satisfy needs arising from the values of recreational and traditional fishers.

The challenges are as follows:

- Within the context of increasingly pursuing ecological sustainability, greater supplies of fish must be obtained through a range of measures that include:
  - reaching sustainable levels of fisheries productivity;
  - increasing production through aquaculture;
  - discovering new fisheries and under-utilised fish species;
  - reducing bycatch and discarded fish;
  - reducing the quantity of fish protein fed to terrestrial and aquatic livestock so that it becomes available in the food chain to satisfy environmental and human needs; and
  - improving utilisation of processing wastes.
- Objectively based, secure access to fisheries natural resources must be achieved.
- The commercial sector must optimise market development, maximise seafood value, and secure financial returns that benefit every enterprise in the production chain.
- The knowledge and skills of people in and supporting the Australian fishing industry, and in the wider community, must be developed and used so that Australians derive maximum economic, environmental and social benefits from fisheries research and development.

14
The analysis is on pages 75–106 of the R&D plan.

Report of operations

The report of operations explicitly addresses section 9 of the CAC Act and includes material required by other legislation, particularly the PIERD Act.

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 69.

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 13 August 2001.

The date of the report is 29 August 2001.

Russell Reichelt
Chairman

The directors' review of operations and future prospects

Strategic national focus on ESD

One of the most encouraging developments in the past several years has been the rapidly increasing commitment to ecologically sustainable development (ESD) in the fishing industry. In the many forums in which the FRDC is involved, fishers have been focusing on their long-term sustainability. In their actions they have been demonstrating — in increasing numbers — that they are prepared to invest to secure that sustainability.

Statistics for the commercial sector show a gratifying trend that has resulted in part from this focus: strong growth in value of production and exports from wild catch, achieved from tonnages that have been static.[15] This is a highly desirable situation. However, within that broad picture are many scenarios running counter to ESD in the commercial, recreational and traditional sectors, and there is no room for complacency. Accordingly, although the Board recognises the need to invest in short-term basic research, its investment strategies concentrate on the environmental, economic and social components of nationally significant ESD.[16]

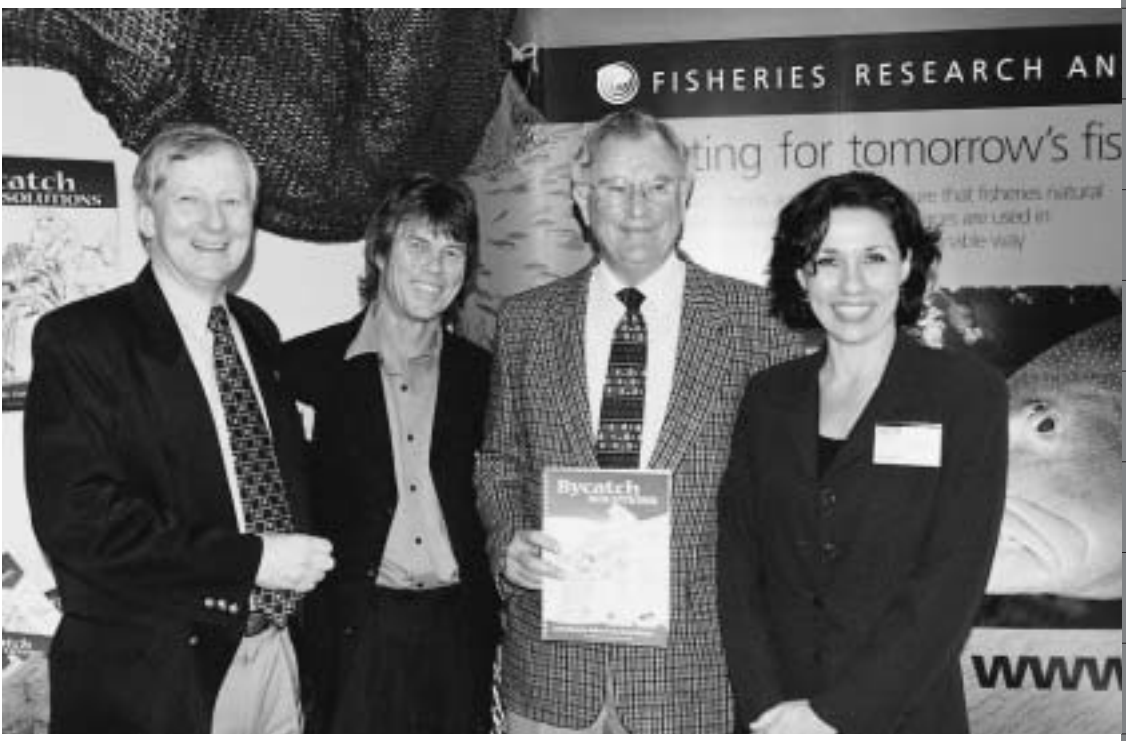
15 16
→ For more information, see pages 49–50.
→ For further reading, see pages 32 and 33 of the FRDC's R&D plan.

The Board has invested in a number of areas of strategic significance in keeping with this focus:

- A new ESD Reporting and Assessment Subprogram is helping to improve the way in which ESD achievement is reported against prescribed criteria. The subprogram incorporates a major project, described in last year's report, that involves the Standing Committee on Fisheries and Aquaculture, all sectors of the fishing industry and environmental agencies and community interest groups. It will allow reliable measurement, over time, of the ESD performance of Australia's commercial fisheries and help commercial operators to meet the requirements of the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* and Schedule 4 of the *Wildlife Protection (Regulation of Exports and Imports) Act 1982*.
- An Environmental Management Systems Initiative will place a facilitator in each state to help the industry to implement environmental management systems and the Commonwealth's ESD framework in selected fisheries. Under this subprogram, a decision support system (the "Green Chooser") will help commercial fishers to manage their fisheries towards sustainability — principally through improving environmental outcomes but with consideration of economic and social factors.
- Several initiatives gave form to the Board's increased emphasis on developing the human capital of the industry, recognising that only with strong leadership in all sectors of the industry will ESD be effectively advanced.
- An Aboriginal fishing strategy is being prepared in Western Australia to incorporate traditional and subsistence fishing practices in a framework of sustainable use of fish and fish habitat, and to increase Aboriginal people's involvement in commercial fishing, charter operations and fisheries management.
- A project is examining the mortality rate of fish caught on lines and released by Australia's four million recreational fishers and commercial fishers.
- Gaps in knowledge about the impacts of aquaculture on natural resources are being identified.
- R&D is now clarifying threats to estuarine or near-shore habitat (on which most wild-catch fish depend when young), particularly from land-based agriculture. On a related theme, the FRDC's continued involvement in the Land and Water Audit will soon provide a "report card" on Australia's 971 estuaries.
- Building on experience in the north Queensland and Commonwealth prawn fisheries, the FRDC is helping to extend the use of bycatch reduction devices in the South East Fishery.
- To more effectively meet the information needs of the commercial wild-catch sector, the FRDC is preparing to incorporate Seafood Services Australia — presently a series of joint-venture R&D projects — as a company limited by guarantee.[17] The new company will seek to foster an Australian seafood industry that is profitable and internationally competitive, uses fisheries natural resources in an ecologically sustainable way, and is forward-looking, innovative and socially resilient. A constitution and business plan are being prepared, the Minister has been informed, and discussions with peak seafood industry bodies are taking place. Incorporation is expected to occur in late 2001.

(17)
→ Seafood Services Australia's scope is described on page 126 of the FRDC's R&D plan.

An important step on the path towards fisheries ESD. The Minister for Forestry and Conservation, the Hon. Wilson Tuckey, MP, launched the *Bycatch Solutions Guide* — an industry initiative to help non-trawl commercial fishers reduce bycatch. With him are Peter Dundas-Smith, Executive Director FRDC (left), Alan Broadhurst, Chairman Oceanwatch (second left), and Christine Soul, Executive Officer Oceanwatch.



Improvement in FRDC performance reporting

In all but a few cases during the year, the FRDC's performance in planning, funding and managing R&D improved on that of previous years. Reporting of performance has also improved, with more comprehensive performance information now being presented for the three FRDC R&D programs, and with information on program 4 (Management and Accountability) benefiting from the complete re-appraisal of FRDC effectiveness and efficiency that took place during preparation of the new R&D plan. The improvement is indicated by the fact that the FRDC's existing reporting already addresses ESD matters to the extent now required by the *Environment Protection and Biodiversity Conservation Act 1999*.

FRDC effectiveness and efficiency is reported under the Management and Accountability Program on (page 57) against key indicators specified in the 2000–2001 annual operational plan.

The directors' broad assessment of the FRDC's performance is summarised in **table 1**. All weaknesses listed are currently being addressed.

Table 1: The directors' broad assessment of the FRDC's performance, 2000–2001

Key role	Weakness	Strength	Overall assessment
Planning	■ Stakeholder R&D plans generally lack planned outcomes and a mechanism for performance monitoring ■ R&D plans are often not well translated into projects ■ Determination of R&D priorities is often compromised by the competing needs of involved parties ■ R&D providers are often required to develop priorities ■ National projects are still seen as a collection of states activities	■ Commonwealth Government has provided clear guidance for the way in which its contribution to the FRDC should be invested ■ FRDC R&D plan provides a 20-year vision for the future and a framework for planning, funding and managing R&D ■ R&D strategies are in place for most key fisheries and fisheries management jurisdictions	■ FRDC initiatives are contributing to an appreciation of the need to plan for the long-term future ■ FRDC R&D plan is being recognised as a key national planning document and a valuable resource for the fishing industry ■ FRDC is working well with partners to achieve a more outcome-focused planning regime for fisheries ■ FRDC is the major national driver of the "whole-of-supply-chain" approach to fisheries R&D
Funding	■ Voluntary levies result in too sharp a focus on investment in R&D (= inputs) rather than benefits (= outcomes) ■ Voluntary nature of levies makes it difficult for FRDC to develop long-term investment strategies ■ Shortfalls in 0.25% levy target diminish the funds available to fisheries R&D ■ Aquaculture sector requires disproportionate funds in its development phase — and in many cases there is no mechanism for this sector to contribute to the FRDC ■ About 40% of fisheries R&D is not managed by the FRDC, resulting in duplication and loss of efficiency ■ FRDC has insufficiently emphasised alternative funding revenues	■ Voluntary levies ensure 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 Board is seen as independent and non-partisan ■ FRDC Board has rigorous evaluation procedures	■ FRDC leadership in fisheries R&D is widely recognised ■ FRDC's management procedures and systems are effective, efficient, open and accountable ■ FRDC's revenue base is rising, despite constraints
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 ■ Lack of good indicators or framework for measuring adoption of results ■ Communication and extension is still often an afterthought ■ Slippage in R&D results in poor timeliness of delivery of R&D	■ 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	■ Management is weakest of the three functions — i.e., planning, funding, management — largely due to its dependency on the management and accounting practices of research providers (in response, auditing of research providers has recently been increased) ■ Communication, extension and intellectual property management improvements are increasing the effectiveness of R&D

Influences on performance

TRENDS IN R&D SUPPLY AND DEMAND

In addition to their continuing role of project management, between May and December each year FRDC staff work with stakeholders to identify R&D priorities and to develop projects that address those priorities. This process always results in a greater number of projects being developed than the FRDC and its investment partners have the capacity to fund. R&D applications addressing these priorities are subjected to an evaluation process involving Fisheries Research Advisory Bodies (described on page 78 of this report) and other expert individuals and entities. As in past years, fewer than half the original applications are finally evaluated by the FRDC Board. In turn, the Board approves only about half of those applications.

As rigorous as this process seems to be, the major reason for some R&D applications not being successful during the first seven years of the FRDC's operation has been the quality of applications relative to the increasing expectations and demands of the FRDC Board. Additionally, for the past two years some high-priority R&D has not been funded because neither the FRDC nor its investing partners have had sufficient funds.[18]

The current situation, however, is more complex than simply a lack of R&D funds. Demand for R&D is being increased through the greater recognition of the impacts of the recreational and traditional sectors of the industry (in addition to those of the commercial sector); new fisheries environmental legislation and seafood safety legislation; issues relating to the "total ecosystems" approach to fisheries management; and issues relating to resource sharing, aquaculture, seafood quality, marketing and people development.

Translating these demands into R&D projects is often difficult because:

- 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;
- 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;
- 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; and
- many researchers are not sufficiently in touch with their stakeholders — that is, the end-users of R&D outcomes.

These difficulties have altered the way in which the FRDC does business. Within the attractiveness and feasibility criteria that the FRDC applies to its evaluation of R&D, the "need" has become the major criterion. The FRDC has accordingly supplemented its main funding processes (which operates through an annual competitive cycle) by:

- commissioning research providers to undertake specific R&D,
- forming collaborative research teams such as managed subprograms,
- requesting tenders, and
- forming joint venture entities such as cooperative research centres.

This flexible approach ensures that the most cost-effective arrangements are pursued on behalf of stakeholders.

18
→ A table showing industry contributions and R&D investment is on page 58.

STRATEGIES FOR MAXIMISING INVESTMENT

Notwithstanding the complexity just described, the Board recognises the need to increase the FRDC's revenue and to increase the FRDC's influence over other R&D funding programs (government and non-government) in order to channel more funding into fisheries R&D. (At present, the FRDC manages 60 per cent of Australian fisheries R&D; the remaining 40 per cent is funded through the Australian Research Council and other federal and state programs outside the ambit of FRDC programs. The scope of the FRDC's activities puts it in the best position to ensure that Australia's investment in R&D is maximised. Nevertheless, the Corporation needs to exert even more leadership on fisheries R&D, including applicable R&D managed by other entities.)

In keeping with this situation, the FRDC Board has developed action plans to give form to the strategies for expanding FRDC's revenue base and maximising investment in fisheries R&D specified on page 109 of the FRDC's R&D plan, *Investing for Tomorrow's Fish: the FRDC's Research and Development Plan, 2000 to 2005*. The underlying actions comprise:

- providing increased incentives for fishers and aquaculturists to contribute to the FRDC above the limit to which the Commonwealth Government will provide matching contributions;
- providing increased incentives for other users of fisheries resources to contribute to the FRDC;
- expanding the definition of gross value of production to recognise the economic value of the natural resources used by the recreational and traditional sectors;
- providing a mix of arrangements to facilitate contribution, such as levies (compulsory and voluntary) underpinned by legislation or memoranda of understanding;
- influencing how other R&D funding entities invest in fisheries R&D through planning processes established by the FRDC; and
- assuming a more commercial approach to the sale of knowledge, processes and technology.

Recent initiatives undertaken to increase the FRDC's revenue include the following:

- The FRDC has signed a memorandum of understanding with the Tasmanian Salmon Growers Association (as it did with the Australian Tuna Boat Owners Association last year) which guarantees revenue to the FRDC in return for a sector-specific R&D program for a period of up to five years. These memoranda are instigated when a sector's contribution to FRDC funding exceeds the maximum (0.25%) that is matchable by the Commonwealth Government. Although there are more than 160 fisheries in Australian waters, future memoranda are likely to be limited to the larger fisheries.
- On 3 May 2001 the Parliamentary Secretary approved a national R&D levy for the prawn farming sector. This levy process — new for the FRDC but commonplace in all other R&D corporations — has resulted from the prawn farming sector's realisation of the benefits of funding and managing R&D within the aegis of the FRDC. As with the memoranda of understanding described above, such levies have limited potential to raise revenue for the FRDC.[19] The levy is expected to be implemented by September 2001.

(19)

→ The reason for the levy process not having been adopted in the fishing industry has been that, unlike most primary industries, the fishing industry consists of some hundreds of somewhat disconnected, self-contained "sub-industries" under three main sectors: commercial (wild-catch and aquaculture), recreational and traditional. Although other R&D corporations have moved beyond the standard formula by which the Commonwealth Government matches industry contributions, the FRDC is still hampered by contributions not achieving the maximum that is matchable.

- The FRDC will be a major participant in the newly approved Cooperative Research Centre for Sustainable Aquaculture of Finfish. This CRC will add significant value to the FRDC's subprograms for southern bluefin tuna and Atlantic salmon in the form of an additional $16.5 million from the Commonwealth Government and more than treble that amount from other CRC participants.
- The FRDC will project-manage the aquatic animal health components of the Commonwealth Government's initiative, 'Building a national approach to animal and plant health', with a budget of $3.1 million over four years. Funds associated with this initiative, combined with funding from the FRDC and other partners, will be invested in accordance with AFFA's strategic plan for aquatic animal health, Aquaplan.
- As state governments move to imposing fees for recreational fishing licences, the FRDC is negotiating with them to have a component provided to the FRDC for investment in R&D related to the recreational sector. In this regard the FRDC funded a workshop of recreational fishing representatives during the year and fostered the subsequent development of a recreational sector R&D plan.

Commonwealth Fisheries Policy review

Enhanced R&D investment is also expected to follow a major review of policy relating to Commonwealth fisheries, in which the FRDC participated during the year. The primary focus of the review is the adequacy of the Commonwealth policy framework to deliver environmental sustainability and efficiency in Commonwealth fisheries across the major catching sectors of commercial, recreational and traditional fisheries. The review was prompted by three major changes that have occurred during the past decade: the introduction of new environmental legislation and the shift towards ecosystem-based management that affect the development of wild-catch fisheries and aquaculture; greater involvement in international agreements and the need to give effect to those agreements in domestic fisheries policy and management; and a greater need to provide certainty of access to fisheries resources for the entire range of users, including commercial, recreational and traditional fishers, and to meet changing community expectations for marine conservation.

Programs management improvements

During the year, as part of its continual improvement of achieving planned outcomes, the FRDC made three significant enhancements to its programs management:

- The first was to move the R&D application process to the Internet for those who have Internet access. Advantages include capabilities, in real time, for applicants to collaborate with their co-investigators regardless of their locations and for managers to view all their organisation's applications at once.
- The second was to modify the basis of quarterly payments for R&D projects from one based on annual budgets to one based on the cost of milestones actually achieved within the year. The benefit is improvement in accountability and in the FRDC's assessments of the value of R&D being undertaken in particular projects.
- The third improvement required researchers to develop and maintain strategies for communication and extension of results as an integral part of each R&D project. Such strategies will not only increase the rate of adoption of R&D results by end-users but will also improve management of intellectual property deriving from R&D.

At the Institute of Public Administration Australia's Annual Report Awards ceremonies in May, FRDC Business Manager John Wilson (right) received the FRDC's award for joint first place winner among federal statutory authorities. The Department of Agriculture, Fisheries and Forestry — the portfolio department that administers the R&D corporations — won first place among Commonwealth Government departments. Secretary Michael Taylor (left) received his department's prize.

Further annual report awards show FRDC accountability is on the right track

Last year, the Board reported that the Institute of Public Administration Australia had awarded the FRDC a High Commendation in the 1998–99 Annual Report Awards, one of a total of three awards for statutory authorities. The directors stated that they had taken seriously the judgement of the FRDC's performance reporting, and that the FRDC was consulting with end-users of R&D — especially Commonwealth and state fisheries managers — to develop improved performance indicators against the Corporation's new planned outcomes. It was particularly pleasing, therefore, to learn that the FRDC was the joint first place winner (with the National Library of Australia) among statutory authorities for its 1999–2000 report. The judges said:

> This report was highly commended last year, and it has retained all of those elements that then brought it to prominence. It is a small organisation that has produced an attractive report, and that has addressed the weaknesses that were noted by the judges last year. Features of the report include a 'Highlights of the Year' section in the front cover, a useful diagram explaining its relationship with outside bodies and a strong corporate governance section.

The annual report also won a bronze award from Annual Report Awards Australia Inc., an independent organisation dedicated to improving standards of annual reporting in the private and public sectors throughout Australia.

Awards such as these not only provide expert feedback on the FRDC's continual improvement in reporting achievement of its planned outcomes; they also add to stakeholders' confidence in the FRDC's governance.

R&D plan is strongly influencing industry directions

The FRDC's new R&D plan, launched by the Parliamentary Secretary, Senator the Hon. Judith Troeth on 28 February, encompassed a major re-appraisal of FRDC policies and strategic directions. It has been very well received and is being used widely by the fishing industry, government agencies, the research community and other stakeholders. The plan, which is the first strategic publication that deals with the whole fishing industry, incorporates a very thorough reappraisal of the industry's business environment and a detailed assessment of factors that will be important in the next 20 years. It is already influencing the directions of fisheries R&D; is a key reference source for the industry, the media, politicians and agencies; is a key element in policy development (such as in the current Commonwealth Fisheries Policy review); and is being widely cited.

"THIS BEAUTIFULLY PRODUCED BOOK EXPLAINS IN CONSIDERABLE DETAIL HOW AUSTRALIA'S FISHERIES RESEARCH AND DEVELOPMENT CORPORATION WILL GO ABOUT ITS BUSINESS OVER THE NEXT FEW YEARS. THE FRDC IS UNDOUBTEDLY ONE OF AUSTRALIA'S MORE EFFECTIVE GOVERNMENT SPONSORED R&D ORGANISATIONS. IT NOW HAS A CONSIDERABLE BUDGET AND A ROLE THAT ENCOMPASSES RESEARCH INTO ALMOST EVERY ASPECT OF FISHERIES ACTIVITY. IT HAS ALREADY FUNDED AND SOMETIMES INSPIRED SOME NOTABLY IMPORTANT RESEARCH. AS AUSTRALIA CONTINUES TO IMPROVE ITS RETURNS FROM FISHING, THE FRDC IS CERTAIN TO PLAY A MAJOR ROLE."

— *Professional Fisherman* magazine, July 2001

New directors appointed

The Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry, Senator the Hon. Judith Troeth, appointed new FRDC directors on the nomination of a selection committee, in accordance with section 17 of the PIERD Act. The appointments comprised four serving directors (Mr Simon Bennison, Dr Diana Day, Mr Bill Sawynok and Mr Sandy Wood-Meredith) and two new directors (Mr Ian Cartwright and Mr David Newton).[20] The Parliamentary Secretary also approved the continued appointment of Mr Sandy Wood-Meredith as the Deputy Chair. All appointments were from 1 January 2001 to 31 August 2003.

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→ For the selection committee's report, see page 159. The FRDC's Chair, Executive Director and Government Director are appointed outside the selection committee process.

In choosing the term of the appointments, the Parliamentary Secretary took into account the need to have subsequent directors appointed before the annual FRDC evaluation phase starts, thus giving new appointees time to acquaint themselves with the business of the Corporation before being faced with the complex task of developing the R&D investment portfolio for the following year.

Future prospects

As mentioned earlier, the future performance of the FRDC will depend on how successful it will be in minimising the persistent shortfall in its revenue base. An improved outlook for the FRDC's ability to fund a greater number of high-priority projects is suggested by responses from some sectors of industry with respect to compulsory levies and memoranda of understanding that promise more industry contributions than would be matched by the Commonwealth.

If realised, these increased contributions, ironically, will pose an additional challenge to the FRDC. The Corporation will have to satisfy the needs of two distinct groups: fisheries that see great benefits from R&D and that contribute accordingly; and fisheries that contribute lesser amounts, either through lack of support for R&D (despite their high need) or through lack of appropriate collection mechanisms.

A team effort

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 Commonwealth Minister for Agriculture, Fisheries and Forestry (the Hon. Warren Truss, MP), the Parliamentary Secretary to the Minister (Senator the Hon. Judith Troeth) and the Minister for Forestry and Conservation (the Hon. Wilson Tuckey, MP). The willing assistance of staff of Agriculture, Fisheries and Forestry – Australia and of members of the FRABs has been invaluable. And finally, on behalf of all beneficiaries of the Corporation's R&D investments, we extend thanks to the governments of the Commonwealth, the states and the Northern Territory, and to the fishing industry, for their financial support of the Corporation's vital role.

Report of operations

Part 2: The FRDC's operational and financial results

Factors in delivering the R&D Programs

Planned outcomes — the focus of the R&D Programs

In keeping with the Commonwealth Government's budget framework, the FRDC's planning, operating and reporting framework is centred on delivering outputs that help to achieve clearly stated planned outcomes.

Key elements[21] in the FRDC's programs are shown in **figure 5**.

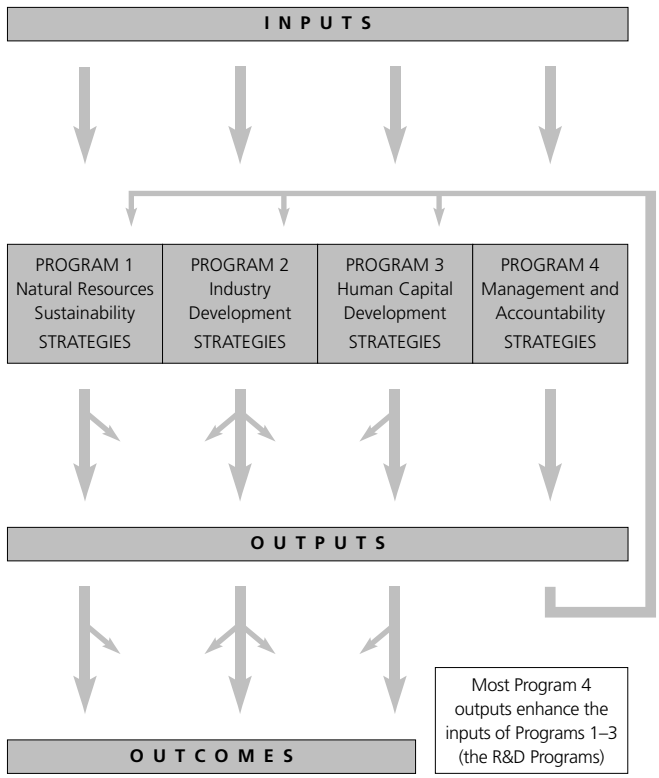
Figure 5: The FRDC's four programs: inputs, outputs and outcomes

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

Strategies focus the FRDC's activities to produce the outputs required to achieve planned outcomes

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 fishing industry comprises commercial, recreational and traditional sectors, as described on pages 17–18.

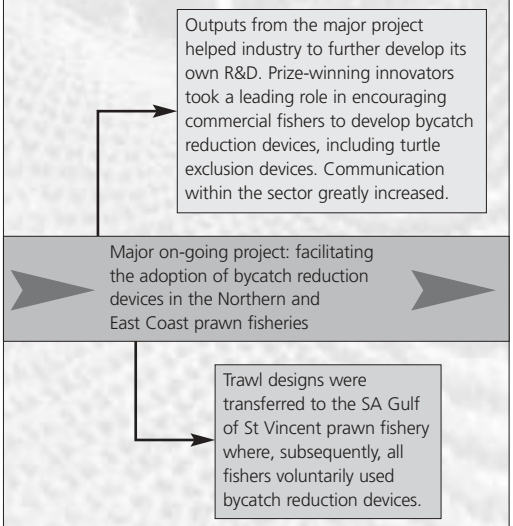
An example of inputs, outputs and outcomes resulting from FRDC-funded fisheries R&D is shown in **figure 6**.

(2)(1) → Definitions in figure 5 have been adapted to the FRDC context from Department of Finance and Administration 1998, *Specifying outcomes and outputs*, pages 174–177. They also take account of the letter of 11 January 1999 from the Parliamentary Secretary to R&D corporations, which elaborated accountability arrangements for statutory authorities.

Figure 6: An example of inputs, outputs and outcomes — bycatch reduction projects

In fisheries R&D, it takes time to produce results — especially when wild fisheries resources are involved. Further, many complex links exist between outcomes and the R&D inputs and outputs that achieve them.* Outcomes — which result when outputs produced by the FRDC and its R&D partners are implemented by the fishing industry and other end users — usually result from outputs of previous years. This is reflected in the examples on the right.

When there are several projects proceeding in a particular area of R&D, many project outputs become inputs to related projects. Such inter-relatedness has become more prevalent since the FRDC and its R&D partners have placed high priority on communicating and extending R&D results to potential beneficiaries, both before and after projects are completed. As an example, this diagram shows two activities that have benefited from outputs of bycatch reduction R&D while the main R&D project was still in progress:



* These terms are defined in figure 5.

By widening the application of project results in ways such as this, higher returns on R&D investment are being earned.

A major focus of prawn R&D since the 1980s has been to reduce the quantity of bycatch and to improve the quality of catch in prawn trawl fisheries.

The complexity and focus of bycatch reduction R&D has evolved as the findings of R&D projects have been compounded by effective communication and extension of results. For example, an initial focus on prawns has broadened: initially to other species and now to whole ecosystems.

Before the 1990s, costs to commercial fishers of meeting environmental requirements were minimal. Now the costs are higher, and they must be met by earning higher profits. Although higher community expectations for environmental accountability are being acknowledged by some commercial fishers, there is some tension between stakeholders about what is an acceptable balance between economic, environmental and social values of fishing.

Inputs (since 1988)

FRDC funding for six principal R&D projects (about $3 million) and elements of other R&D projects (e.g. ecosystems).

Investment by research providers and other funding entities (about $6 million).

Contributions from prawn operators, including in-kind.

Industry consultation and participation.

Outputs (since 1990)

KNOWLEDGE

Extension and communication outputs, e.g. *Bycatch reduction guide*, manuals, workshops, newsletters, videos, demonstrations, scientific papers, reports, news media coverage.

Increased knowledge to help resolve other challenges.

Focus widened beyond prawns.

PROCESSES

More effective use of bycatch reduction devices and turtle exclusion devices.

More effective ways of communicating between all stakeholders and for conducting R&D.

Quicker transfer of knowledge and uptake of technology.

TECHNOLOGIES

Improved designs of bycatch reduction devices and turtle exclusion devices.

Outcomes (since 1994)

Progress in ecologically sustainable development through:

- voluntary adoption of bycatch reduction devices in most prawn fisheries,
- compulsory use of bycatch reduction devices (including turtle exclusion devices) in the Northern Prawn Fishery as a result of industry-initiated regulations,
- increased focus on bycatch in all applicable Australian fisheries, and
- protection of endangered and other untargeted species (bycatch of prawn fishers reduced by as much as 90%).

Increased profit for fishers through:

- reduced fuel consumption and higher quality of caught prawns, hence value;
- improved market access — for example, from US Government acceptance of NPF prawn catch; and
- improved occupational health and safety.

Increased human capacity through:

- greatly improved communication and cooperation within sectors of the fishing industry,
- significantly higher expertise in bycatch management and research, and
- increased involvement of industry and community stakeholders and understanding of bycatch issues.

One of the advantages of the outcomes-outputs system is that the FRDC's efforts are focused not on the goods and services produced by the Corporation and its R&D partners but on actual outcomes in the economic, environmental and social contexts in which it operates. In essence, the FRDC's planned outcomes are things that will make a real difference to Australia's fisheries resources and fishing industry. In turn, good outcomes can only be achieved through good R&D outputs.

The FRDC's planned outcomes reflect the Corporation's strategic assessment of the economic, environmental and social factors challenging industry, governments, the community, research providers and R&D funding entities. The assessment also determines the FRDC's strategies and planned outputs. The planned outcomes are also consistent with the FRDC's vision and mission.

The FRDC's four programs are derived from the four legislative objects of the PIERD Act — section 3(a) to (d).[22]

The first three programs (the R&D programs), and their planned outcomes, are as follows:

Program 1: Natural Resources Sustainability

- The natural resources on which the commercial, recreational and traditional sectors of the fishing industry depend are used in an ecologically sustainable way.

Program 2: Industry Development

- The commercial sector of the Australian fishing industry is profitable and internationally competitive; the commercial, recreational and traditional sectors are socially resilient.

Program 3: Human Capital Development

- 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 research and development.

The remaining program, which does not have a planned outcome (because its function is to enhance the inputs of the three R&D programs, as shown in figure 5 on page 36) is as follows:

Program 4: Management and Accountability

- This program is the vehicle for continually improving the effectiveness and efficiency of the FRDC's planning, funding and management of R&D.

The three R&D programs also address Commonwealth Government R&D priorities, the portfolio outcome of the Commonwealth Department of Agriculture, Fisheries and Forestry – Australia (AFFA) and the planned outcomes of the FRDC's representative organisations (the Australian Seafood Industry Council and Recfish Australia).

Despite the high degree of FRDC influence over outputs from R&D projects, the FRDC's investment in R&D and its planning and management activities are not, alone, sufficient to ensure that its planned outcomes are achieved. Recently, new communication technologies and greater involvement of stakeholders has enabled quicker, more efficient adoption and commercialisation. End-users are frequently taking up appropriate R&D findings while a project is in progress, rather than after the final report is produced. The FRDC's effectiveness in encouraging the transformation of R&D outputs into outcomes is a significant component of Program 4, Management and Accountability.

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→ The legislative objects and corresponding programs are shown in figure 1 on page 3.

Measuring achievement of outcomes in any natural resource environment — and particularly in the wild fishery environment — is usually difficult and can be very expensive. In some cases, lack of historical information that can help to show changes over time is an additional impediment. Improved data management is, accordingly, a high priority for fisheries R&D.

Equally important is the need for key performance indicators to relate directly to factors of greatest significance (usually long-term significance) to the fishing industry and the natural resources on which it depends. Currently there are no recognised, reliable benchmarks against which key performance indicators may be framed. The FRDC is seeking to reduce these impediments within the constraints of cost-effectiveness.

Achieving outcomes through R&D outputs

Planned outputs for each of the FRDC's R&D programs are knowledge, processes and (as applicable) technology that contribute to achieving the program's planned outcome.

The FRDC has a high degree of influence over outputs from R&D projects. However, measurable achievement of outcomes depends on the extent to which potential beneficiaries of research results adopt R&D project outputs; on non-R&D factors (for example, economic, social and political); and on the quality of research. The FRDC therefore actively encourages adoption and commercialisation of R&D results by other entities.

Two realities — that the practical value of knowledge created by R&D is released only when it is put to use, and that outcomes result from a great diversity of inputs — demand a highly rigorous approach to focusing R&D outputs on planned outcomes. These realities, among other things, underlie the high priority that the FRDC places on effective communication and extension of R&D results to potential beneficiaries. Cost-effectiveness in analysing the effectiveness of outputs is also essential.

Inseparability of public good and private benefit

The FRDC's funding arrangements call for a balanced R&D portfolio relevant to the sources of funding 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 traditional 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 Commonwealth'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 traditional fishing of Aboriginal and Torres Strait Islander people. Other public good benefits, such as increased employment, also derive from this program.

Review, planning and conduct of activities

ANNUAL REVIEW OF STRATEGIC PRIORITIES

Each year, the FRDC reviews its strategic assessment of the business environment — including through consultation with the FRDC's 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 its R&D portfolio.

THE 2001–2002 ANNUAL OPERATIONAL PLAN AND PORTFOLIO BUDGET STATEMENT

The AOP aims to achieve, in the best way possible, the planned outcomes of the R&D programs.

The AOP for the forthcoming financial year, 2001–2002, was prepared against the background of the new R&D plan, and is consistent with it. The AOP is based on the FRDC's estimate that it will spend $18.72 million on new and continuing projects.

The Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry approved the 2001–2002 AOP on 21 May 2001.

The FRDC contributed directly to AFFA's portfolio budget statement (PBS). Unlike the R&D plan and AOP, it is tabled in the Commonwealth Parliament. Thus, as with the annual report, it is an important element of parliamentary scrutiny.

THE 2001–2002 ANNUAL OPERATIONAL PLAN PROVIDES FOR $18.72 MILLION TO BE SPENT ON NEW AND CONTINUING PROJECTS

THE ANNUAL R&D CYCLE

The PIERD Act and CAC Act determine the timing of most FRDC activities.

An annual cycle is used for the FRDC's planning and funding of R&D projects so that:

- timings for key events specified by the PIERD Act and the CAC Act are met,
- the FRDC Board can evaluate most R&D applications competitively at the one time, and
- other agencies that have a role in R&D can plan their activities accordingly.

The annual cycle is depicted in **figure 7**. Key dates for each year are available from the FRDC's website; in each July edition of *R&D News*; and on request. Further details of the funding process are available in the R&D plan.

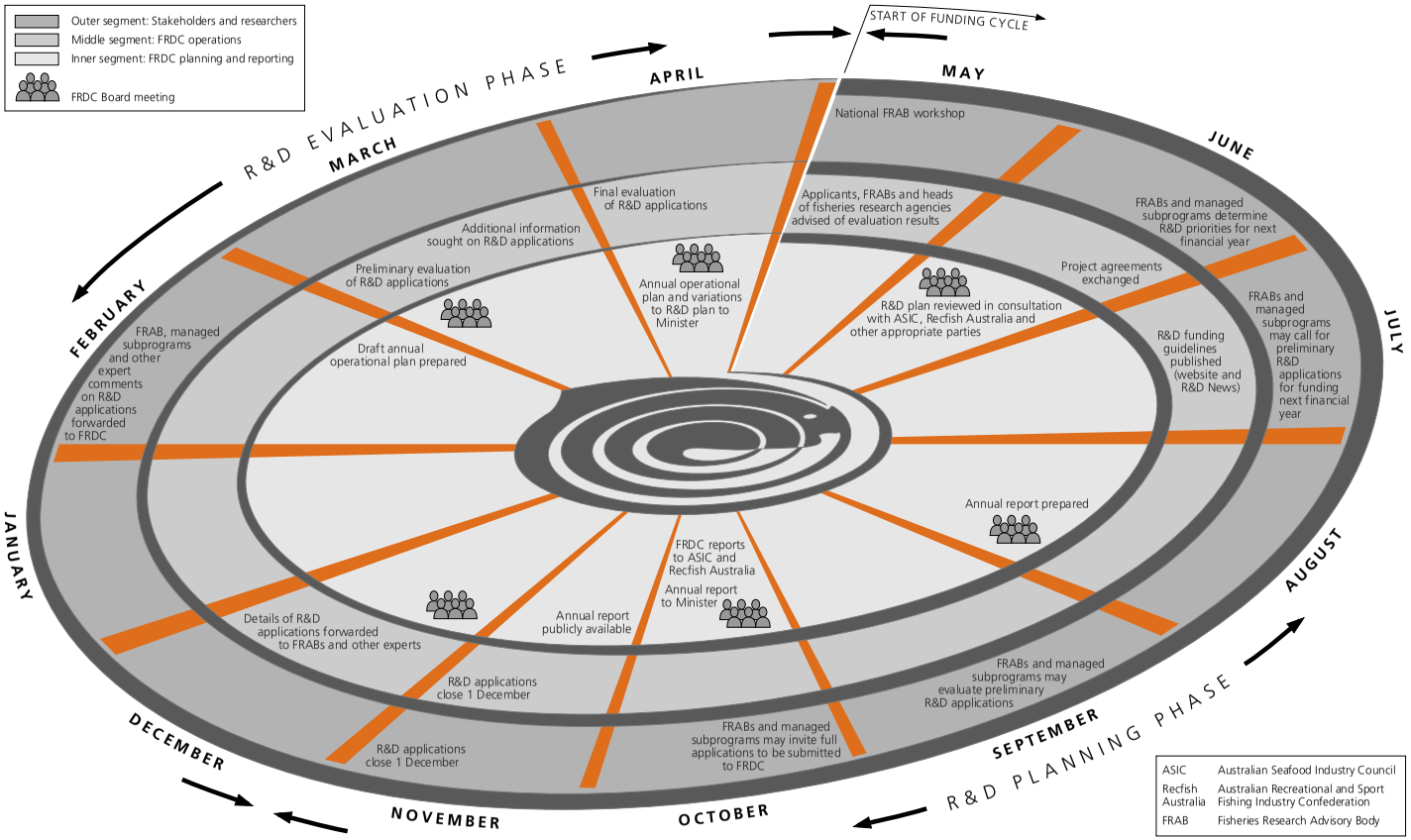


Figure 7: The FRDC's annual R&D cycle

R&D Program achievements, 2000–2001

This section provides performance information on the FRDC's three R&D programs. For each R&D program there is a description of:

- the key strategic elements — that is, the legislative source, FRDC planned outcome, Government R&D priorities, and planned outcomes for the AFFA portfolio and representative organisations;

followed by the year's:

- principal inputs, and
- principal outcomes, together with the outputs that contributed to them and to closely related outcomes.

Following this description, under the heading 'R&D outcomes report', are examples of project activities with significant outcomes.

The information shown under Program 4, Management and Accountability, describes the FRDC's efficiency and effectiveness. Since Program 4 activities are within the FRDC's direct control, their effectiveness is potentially high.

Implementation of 2000–2001 annual operational plan

During the year, the FRDC implemented all projected activities of the 2000–2001 AOP. In almost all of the activities, the FRDC achieved the levels of performance specified in the AOP.

Program 1: Natural Resources Sustainability

STRATEGIC ELEMENTS

Legislative source:	Object (b) of section 3 of the PIERD Act, which makes provision for the funding and administration of R&D with a view to achieving the sustainable use and sustainable management of natural resources.
FRDC planned outcome for this program:	The natural resources on which the commercial, recreational and traditional sectors of the fishing industry depend are used in an ecologically sustainable way.

This program is consistent with the following strategic elements of the Commonwealth Government, the Department of Agriculture, Fisheries and Forestry – Australia (AFFA), and industry.

Government R&D priority:	Sustainable management and use of our marine resource base through the integration of effective, scientifically based resource assessments and mitigation strategies into our fishing and aquaculture industries.
AFFA portfolio outcome:	More sustainable, competitive and profitable Australian agricultural, food, fisheries and forestry industries.
ASIC outcome:	Ecologically sustainable fisheries, based on sound environmental and management practices.
Recfish Australia outcome:	Australian marine and freshwater resources and habitats are managed sustainably to produce abundant, diverse, high-quality fishing experiences for recreational and sport fishers.

PRINCIPAL INPUTS

During 2000–2001, $10.9 million was invested in R&D activities within this program, through 193 projects listed in **appendix D** (page 137).

PRINCIPAL OUTCOMES AND CONTRIBUTING OUTPUTS

OUTCOME: more sustainable fish stocks in wild-catch fisheries

The R&D plan (at page 121) describes the focus of performance information for Program 1, the first of which is the status of fish stocks. This relates to how sustainable are the catches of particular species — shown by the effectiveness and efficiency of harvesting and other management strategies, measured by information in fisheries status reports produced by government agencies.

A new framework, funded by the FRDC, is starting to provide significantly increased reporting, accountability and governance for fisheries stocks in Australia's wild-catch fisheries.[23] A major consequence expected in future years is the ability to quantify changes in sustainability of fisheries aquatic resources.

The FRDC has also invested in a modelling project to determine the drivers of change in Australia's fisheries.[24] This project indicates that, based on historic data, the number of fisheries at risk of serious decline will be 25 by 2020 and 40 (equal to 25 per cent of all Australian fisheries) by 2050. Consequently, fisheries managers and the industry will need new tools and better information on which to make decisions on using the resource in a sustainable way. An inevitable conclusion is that complacency based on the widespread belief that "all is well because Australia has the best managed fisheries in the world" will lead to a further deterioration of Australia's fisheries resource.

Reporting for the previous financial year (1999–2000) on the status of fisheries stocks remained low, with only three jurisdictions (Commonwealth, NSW and WA) publishing fisheries status reports. Further, these reports do not address the breadth of measures required either by the new SCFA–ASIC framework or the Schedule 4 benchmarks of the *Environmental Assessment of Fisheries Wildlife Protection (Regulation of Exports and Imports) Act 1982*.

Other outputs contributing to the above outcome included:

- bycatch mitigation measures and improved fishing efficiency for prawn trawl fisheries, including extension of turtle exclusion devices (TEDs), which has resulted in significantly higher awareness of TEDs and BRDs in eastern and northern prawn trawl fisheries;
- a practical way of assessing the impact of trawling on the sustainability of bycatch species and a qualitative method of ranking bycatch species against susceptibility and recovery criteria;
- publication of *Bycatch Solutions: a handbook for fishers in non-trawl fisheries* — a practical guide to bycatch mitigation methods developed and used by fishers;
- improved models for fisheries, including the King George whiting and South East fisheries;

23 24

→ FRDC project 2000/145, 'National Application of Sustainability Indicators for Australian Fisheries'.

→ FRDC project 1999/160, 'Assessing Australia's future resource requirements to the year 2020 and beyond: strategic options for fisheries'.

- increased knowledge on fisheries biology for shark, squid, rock lobster, black bream, snapper, goldband snapper, deepwater snappers, blue warehou, bigeye tuna, pink ling, Patagonian toothfish, silver trevally and broadbill swordfish;
- collection of statistics on national recreational fisheries;
- increased knowledge of the recreational catch of the blue swimmer crab in WA and Queensland waters; and
- improved stock assessment methods, including model development for Queensland fisheries, the Northern Prawn Fishery, bait fishes in southern and eastern Australian waters, greenlip abalone, Australian herring, tropical reef fish, southern shark, and the South East Fishery.

OUTCOME: improved health status of the environment that sustains all aquatic life

The second focus of performance information for Program 1 specified in the R&D plan is the health status of the environment that sustains all aquatic life. This relates to fishing activities affecting the environment and, conversely, environmental effects (both human-related and natural) on fish and their ecosystems. Key performance indicators cover economic, environmental and social components of ESD.

The ESD reporting and assessment framework has now been expanded to include the full "triple bottom line" of economic, environmental and social components so that, for example, reporting now requires mechanisms for ecosystem fisheries management rather than only single stock management.

During the year, ISO 14000 certification was achieved for the first time by an Australian fishing company, the Stehr Group. Contributing to this achievement has been the company's commitment to using manufactured feeds instead of bait fish. The FRDC, through the Southern Bluefin Tuna Aquaculture Subprogram, has contributed funding to the development of manufactured diet for southern bluefin tuna. This first significant adoption of the diet by a commercial operator is described on page 52.

The National Land and Water Estuaries Audit[25] has shown that 28 per cent of the 971 estuaries in Australia are moderately or severely modified; 22 per cent are slightly modified; and the remaining 50 per cent are near pristine. The study also found that the number of estuaries with rehabilitation works has increased by 46 per cent over the last decade.

The Northern Prawn Fishery, as part of its bycatch reduction strategy, has voluntarily agreed to the banning of retention of shark products. Awareness of bycatch issues and how industry can implement cost-effective solutions has continued to improve over the last 12 months. A significant factor has been the extension of FRDC R&D outputs through Environment Australia's *SeaNet* initiative, managed by Oceanwatch.

(25)
→ FRDC project 1999/230, 'Inventory and assessment of Australian estuaries'.

Other outputs contributing to the foregoing outcome included:

- knowledge of the role that different fish habitats contribute to fish production and how environmental factors influence recruitment;
- knowledge of the importance of seagrass habitats for piscivorous fishes and their prey;
- a review of fish movement and migration;
- increased knowledge of the interaction of prawn and salmon farming and the environment;
- knowledge on methods to assess chronic toxicity on ichthyoplankton;
- development of a model to predict the spread of pilchard kill events and to assess possible mitigating techniques;
- preliminary techniques to assess methods for enhancing rock lobster stocks;
- development, application and evaluation of the use of remotely sensed data by Australian fisheries; and
- development of a coastal habitat resources information system for Queensland.

Summary of final reports received for Program 1

Program 1 strategies (as on pages 120, 121 of R&D plan)	Number of projects	FRDC investment
Fish biology	16	$2,699,000
Interactions between fish and their ecosystems	5	$1,045,000
Effects of fishing activities on fish and their ecosystems	4	$1,897,000
Effects of non-fishing activities, pests and pollution on fish and their ecosystems	3	$1,112,000
Health of fish and their ecosystems	1	$46,000
Rehabilitation and enhancement of fisheries and their ecosystems	2	$257,000
Legislative, institutional, compliance and policy arrangements and their impacts	nil	nil
Access to fisheries resources	4	$815,000
Stock assessment	8	$2,760,000
Fisheries and ecosystems management	2	$759,000
Total	**45**	**$11,391,000**

ACHIEVEMENT OF AOP TARGETS

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:

AOP PERFORMANCE MEASURES WERE MET

R&D outcomes report

BECOMING MORE CERTAIN ABOUT THE SUSTAINABILITY OF FISHERIES

The FRDC's planned outcome for its Natural Resources Sustainability program is that "the natural resources on which the commercial, recreational and traditional sectors of the fishing industry depend are used in an ecologically sustainable way". The planned outcomes for AFFA and the FRDC's representative organisations are consistent with this.

In working towards ecologically sustainable development (ESD), it is very important to improve the way in which achievements are reported against prescribed criteria. To that end the FRDC — in conjunction with the Australia-New Zealand Standing Committee for Fisheries and Aquaculture, representatives of all sectors of the fishing industry, environmental agencies and community interest groups — has set up an ESD Reporting and Assessment Subprogram.

Existing data and information sources are being used for each main fishery type so that the research team can quickly identify the most important issues, and the ESD indicators to be measured, in each fishery category. The nationally agreed framework will allow reliable measurement, over time, of the ESD performance of all Australian fisheries. In doing so it will also help commercial operators to meet the requirements of the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* and Schedule 4 of the *Wildlife Protection (Regulation of Exports and Imports) Act 1982*.

What is the difference between what we used to do and what we need to do now? It has often been stated that Australia has the best-managed fisheries in the world, so why change?

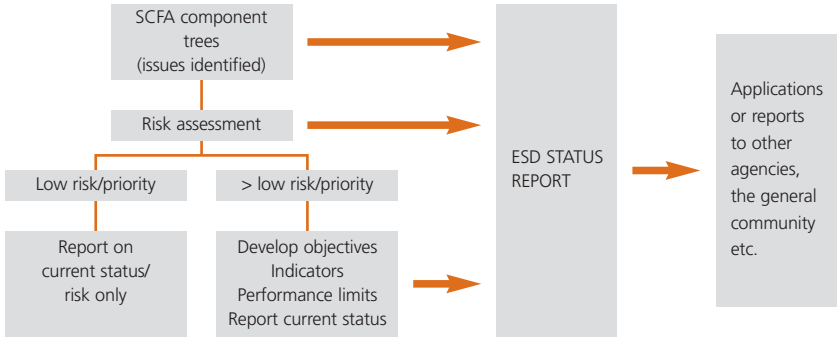
The reason we have changed is that general public, environmental interest groups and government agencies want to know — in an explicit and quantitative way — how fisheries are performing. It is no longer suitable to merely say that a fishery is sustainable without providing data to substantiate the claim. Here are the differences in approach:

In the past	In the future
Most assessment and management had an ecological approach that measured the effects of fishing only on the target fish.	The approach will need to incorporate all ecological issues and the social, economic and governance aspects of fisheries.
Often, research focused on finding indicators for the effects of fishing without considering how the indicators would be used.	The new ESD framework first identifies the issues in the each of the component areas, then determines the relative level of risk for each issue. This risk level sets the level of management and monitoring, which may involve setting specific objectives that require performance measures and trigger values to be developed.

The comprehensive reports resulting from the new approach supply information to a number of audiences (diagram 1).

Significantly, the new framework provides an opportunity for the fishing industry to set up their own environmental management systems, which can provide documentation on how the industry manages its own sustainable destiny.

Diagram 1: Summary of ESD process



ENVIRONMENTAL MANAGEMENT THROUGH THE GREEN CHOOSER

Help will soon be available to wild-catch fishers who want to take voluntary action to achieve ESD objectives for their fisheries.

A project set up by the FRDC, OceanWatch and Seafood Services Australia is developing tools and guidelines for managing, monitoring and reporting progress on ESD objectives. Several fisheries and industry groups are providing their expertise to ensure that the project's outputs are highly relevant to fishers' needs.

The project will guide fishers in making choices between the various options for taking action — such as a code of practice, an environmental management plan, or a comprehensive environmental management system certified by a third party. These choices are reflected in the title of one of the main components of the project — a book called the *Green Chooser*.

The common element in the approaches to decision-making is mechanisms for managing, monitoring, reviewing and reporting on progress. These mechanisms will enable fishers using a fishery to continually work towards ecologically sustainable development outcomes — and to demonstrate that they are doing so.

SeaNet, the fisheries extension service that has extension officers working in Queensland, New South Wales, Victoria and South Australia, is helping with case studies and is working with industry representatives in case study fisheries.

Program 2: Industry Development

STRATEGIC ELEMENTS

Legislative source:	Object (a) of section 3 of the PIERD Act, which makes provision for the funding and administration of R&D with a view to increasing the economic, environmental and social benefits to members of primary industries and to the community in general by improving the production, processing, storage, transport or marketing of the products of primary industries.
FRDC planned outcome for this program:	The commercial sector of the Australian fishing industry is profitable and internationally competitive; the commercial, recreational and traditional sectors are socially resilient.

This program is consistent with the following strategic elements of the Commonwealth Government, AFFA and industry.

Government R&D priorities:	*Whole-of-industry approach*: A whole-of-industry approach to production, processing and marketing to ensure an effective supply chain approach that maximises our competitive advantages.
	Bio-technology: Development of bio-technology to support our aquaculture industries, along with sensitive handling to accommodate consumers' concerns, to supplement and replace wild-catch fisheries where appropriate.
	Increases in trade and market access: A need for data and associated market analysis to allow for informed debate and to support Australia's negotiating position in international forums.
	Clean and green: Maintenance and enhancement of Australia's "clean, green" image.
	Food safety: Addressing food safety concerns of consumers.
AFFA portfolio outcome:	More sustainable, competitive and profitable Australian agricultural, food, fisheries and forestry industries.
ASIC outcome:	Financial viability of commercial fisheries and associated communities, based on industry stability and growth in both domestic and export markets that is consistent with economic, environmental and social policy goals for Australia.
Recfish Australia outcome:	The recreational sector of the fishing industry develops in ways that maximise economic, environmental and social benefits to recreational and sport fishers, associated businesses and the Australian community.

PRINCIPAL INPUTS

During 2000–2001, $6.1 million was invested in R&D activities within this program, through 118 projects listed in **appendix D** (page 137).

Investment in activities under this Program 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 satisfies the cultural needs of Aboriginal and Torres Strait Islands people through traditional fishing.

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

PRINCIPAL OUTCOMES AND CONTRIBUTING OUTPUTS

Outcome: higher value derived from seafood

The R&D plan (at page 126) describes the focus of performance information for Program 2, the first of which is economic factors. This relates to the commercial sector's profitability and international competitiveness — shown by the production and export values of the commercial wild-catch and aquaculture sectors.

Value of production

Figures issued by the Australian Bureau of Agricultural and Resource Economics for the gross value of production (GVP) of seafood during the past three years are as follows:

	GVP 1997–98 ($'000)	GVP 1998–99 ($'000)	GVP 1999–00 ($'000)	Change during last year	Average yearly change in 3yrs since 1996–97
Wild catch	$1,377,774	$1,456,709	$1,644,053	+13%	+7%
Aquaculture	$505,587	$604,175	$678,252	+12%	+16%
Total	**$1,883,361**	**$2,060,884**	**$2,322,305**	**+13%**	**+9%**

Note: Figures for 1999–2000 are estimates.

Value of exports

Figures issued by the Australian Bureau of Agricultural and Resource Economics for Australian seafood exports during the past three years are as follows:

	1997–98 ($'000)	1998–99 ($'000)	1999–00 ($'000)	Change during last year	Average yearly change in 3yrs since 1996–97
	$1,489,247	$1,511,408	$1,987,937	+32%	+16%

Note: Figures for 1999–2000 are estimates.

The main causes of the rise in value of exports during 1999–2000 were increased consumption in Australia's main seafood trading countries in Asia and the lower value of Australia's dollar against some currencies.

Production

The total tonnage of Australian fisheries production (wild-catch plus aquaculture) has remained virtually static during the last five years:

	1995–96	1996–97	1997–98	1998–99	1999–00
Wild-catch	198,208	194,971	199,874	202,572	180,773
Aquaculture	26,351	27,084	29,477	34,228	40,632
Total	**224,351**	**222,055**	**229,351**	**236,800**	**221,405**

Together, the figures for value and tonnage show a highly desirable situation for the commercial sector:

- increased value is being derived from static tonnage of wild-catch production — largely by focusing on quality and marketing; and
- aquaculture tonnage and value continues to grow strongly — in part because of investment in R&D.

OUTCOME: improved economic and social values of the fishing industry

The second focus of performance information for Program 2 relates to the commercial, recreational and traditional sectors being forward-looking, innovative and socially resilient — reflected in employment deriving from the industry and social factors such as values placed on recreational and traditional fishing.

Employment

Having accurate, timely information on employment in the fishing industry is important, especially in relation to reporting changes in regional employment. However, employment statistics produced by the Australian Bureau of Statistics do not cover the industry in sufficient detail to be useful, and do not compare well against data collected in connection with boats, fishing licences and other forms of fishing regulation — for example, it is known that tuna aquaculture directly employs about 750 people in Port Lincoln, but the Australian Bureau of Statistics reports only 310 for all aquaculture in South Australia. The limited information provided is not regularly updated, and was not updated in the past year.

The FRDC-funded national recreational and indigenous survey is starting to provide data on expenditure and values of recreational fishing, although no aggregated data are yet available.

Outputs contributing to industry development outcomes included:

- increased knowledge of aquaculture production technologies, feed, health and genetic improvement;
- registration of key chemicals used in the aquaculture industry;
- development of new live feeds for finfish hatcheries;
- development of fishing technology for the capture of Ray's bream as an alternative species in the South East Fishery;
- increased knowledge of manufacturing processes for rock lobster baits;
- publication of the annual Australian fisheries statistics;
- further development of the national approach to seafood quality (SeaQual) as part of the services provided by Seafood Services Australia;
- a quality management system for abalone farming;
- a pilot program for food safety within the inshore finfish sector;
- development of a code of practice for handling live rock lobster; and
- development of several new products that value-add to existing seafood or waste products.

Summary of final reports received for Program 2

Program 2 strategies (as on pages 123–125 of R&D plan)	No. of projects	FRDC investment
Aquaculture development	8	$1,039,000
Economic and social values of the industry and its impacts	nil	nil
Fishing technology	2	$257,000
Legislative, institutional, compliance and policy arrangements and their impacts	nil	nil
Market development	1	$98,000
Health and safety associated with fishing activities	nil	nil
Quality, food safety and consumer health	3	$855,000
Value-adding	9	$385,000
Total	**23**	**$2,635,000**

ACHIEVEMENT OF AOP TARGETS

MOST (A)(O)(P) PERFORMANCE MEASURES WERE MET*

* There was a shortfall in final reports received: whereas 51 final reports for R&D projects were forecast in the AOP, the number received was 23. The estimate did not pay sufficient regard to slippage which frequently occurs during projects, nor to the time needed to prepare final reports and other outputs after the projects end.

R&D outcomes report

REDUCING RELIANCE ON BAIT FISH IN TUNA AQUACULTURE

One of the nine main challenges for the fishing industry during the next 20 years will be to reduce the quantity of fish protein fed to terrestrial and aquatic livestock. About 30 per cent of the total world catch is presently used to produce fishmeal and fish oil. When these fish are removed from the food chain, the ecological sustainability of fisheries is affected. The fish are also unavailable for humans to eat.

Aquaculture relies heavily on fresh fish, fishmeal and fish oils to feed higher-value species. For example, between 12 and 20 kg of bait fish is need to produce a 1 kg increase in the weight of southern bluefin tuna (SBT): last year some 50,000 tonnes of bait fish were needed to increase the 5,000 tonnes of caught SBT to 8,000 tonnes of farmed SBT. Unless substitutes are found, the high growth predicted for aquaculture will demand tonnages of fishmeal well above present levels. It is therefore essential to identify alternative protein and fatty acid sources for use in aquaculture diets without affecting production levels, product quality or profitability.

For the past eight years, as their highest priority for SBT, researchers have been developing a manufactured feed to reduce demand for bait fish in SBT farming. Partners in the R&D have included the FRDC, the CRC for Sustainable Aquaculture of Finfish, and the SA Research and Development Institute.

This year, the Stehr Group of companies at Port Lincoln fed manufactured feed to SBT in two 30-tonne cages. SBT in two other cages were fed bait fish as a control. The result exceeded everyone's expectations. Although the fish fed on manufactured feed were initially surpassed by the control fish, at the time harvesting started their weight gain was as good as the control fish. Importantly, their flesh quality was excellent.

This result is generating a high level of interest among other farmers. They know that the environmental and economic benefits of using manufactured feed will be an important factor in the long-term sustainability of their sector. And although at present the manufactured feed only reduces fish content by about one-third, the longer-term goals are to stop the use of imported bait fish and, subsequently, all bait fish.

A new project funded by the CRC for Sustainable Aquaculture of Finfish and the FRDC is now concentrating on improving feed intake and the pellet integrity while improving the resultant growth rate. It will have a high level of industry involvement.

[For details of SBT aquaculture strategies, go to www.frdc.com.au/research/strategy/index.htm and look under the heading 'Other' for 'Southern Bluefin Tuna Aquaculture Strategic Plan']

Research into aquaculture diets will also help to improve tuna quality and reduce production costs. Here, as part of a project to hasten development of manufactured feeds for tuna, a scientist preserves flesh samples for DNA analysis that will help to predict growth rates.

Program 3: Human Capital Development

STRATEGIC ELEMENTS

Legislative source:	Object (c) of section 3 of the PIERD Act, which makes provision for the funding and administration of R&D with a view to making more effective use of the resources and skills of the community in general and the scientific community in particular.
FRDC planned outcome for this program:	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 research and development.

This program is consistent with the following strategic elements of the Commonwealth Government, AFFA and industry.

Government R&D priorities:	*Improving our human resources*: Cultivating creativity and innovation among our human resources.
	Whole-of-industry approach: A whole-of-industry approach to production, processing and marketing to ensure an effective supply chain approach that maximises our competitive advantages.
AFFA portfolio outcome:	More sustainable, competitive and profitable Australian agricultural, food, fisheries and forestry industries.
ASIC outcome:	Strong industry development, based on industry education and training as a catalyst for change and an investment in the future.
Recfish Australia outcome:	The skills of people in the recreational sector of the fishing industry are developed and used to achieve sustainable fishing practices, to enable fishers and their organisations to participate effectively in sustainable fisheries management, and to derive maximum economic, environmental and social benefits for the Australian community.

PRINCIPAL INPUTS

During 2000–2001, $0.9 million was invested in R&D activities within this program, through 23 projects listed in **appendix D** (page 137).

PRINCIPAL OUTCOMES AND CONTRIBUTING OUTPUTS

Projects funded under Program 3 primarily address the FRDC's planned outcome for human capital development. However, this outcome is also addressed, as a secondary activity, by projects within Programs 1 and 2.

OUTCOME: higher human capital to support the fishing industry

The R&D plan (at page 129) describes the focus of performance information for Program 3, the first of which is improvement of people. This relates to continuous improvement in the capabilities of people who are members of the industry or who work in support of it — shown by indicators of leadership, performance and innovation.

The FRDC contributed significantly to developing the capacities of people in the industry and the R&D community by supporting the equivalent of 444 full-time people involved directly in R&D projects. In addition, 256 full-time equivalent staff were employed on FRDC projects through in-kind contributions of project partners.

A project to develop a national approach to delivering R&D outcomes through training was concluded during the year. This project was the foundation on which was built Seafood Training Australia — now recognised as the Industry Training Advisory Body (ITAB) for the commercial sector of the fishing industry.

The FRDC contributed to increasing the pool of leaders and their skills within the fishing industry, including by funding the following participants in development programs during the year:

- fisheries Management Advisory Committee courses — 53
- Quantitative Training Unit courses at the University of Sydney — 76
- the Australian Rural Leadership Program — 2
- the Seafood Industry Advanced Leadership Course — 12
- the AFFA Young Rural Leaders' Course — 5.

Both participants in the Australian Rural Leadership Program (Mr John Roach and Mr Sandy Wood-Meredith) have senior leadership positions in the seafood industry and are very well placed to extend into the industry the knowledge, skills and contacts derived from the program.

The FRDC-funded Seafood Industry Advanced Leadership Course was a "pilot" course, part of the development of a National Strategic Leadership Training Program. It is intended that fishing industry candidates for the higher-level Australian Rural Leadership Program will be selected from graduates of this course.

The AFFA Young Rural Leaders' Course is for young people currently working in agriculture, fisheries and forestry. Participants are selected for their involvement in industry and their potential, capacity and desire to further contribute to rural industry policy development and decision-making.

The FRDC continued to invest a significant proportion of its funds in Commonwealth, state and territory fisheries R&D agencies, increasing the human capacity and skills of those involved. Further, the FRDC has continued to involve end-users directly in research projects, increasing their ability to undertake research and to maximise their utilisation of R&D results.

OUTCOME: improved community awareness and involvement

The second focus of performance information for Program 3 relates to involvement of the community. This relates to how the community supports the industry and the natural resources on which it depends, and makes use of the industry's products — reflected in community awareness of fisheries natural resources and their sustainability; community involvement in fisheries and their management; and seafood consumption.

The difference that community awareness and involvement can make to achievement of outcomes was illustrated this year at forums held as part of projects investigating physical barriers to recruitment of fish and invertebrates. Farmers said that the research was changing their attitudes to improving fisheries and water quality, whereas in the mid-1990s conflict and lack of understanding had prevailed. Some landholders had offered flood-gated systems on their land for inclusion in the projects as a demonstration of commitment. In a heavily modified drainage system that one farmer had allowed to be manipulated, fish such as juvenile tailor were recruiting in large numbers.

The FRDC contributed to involving the community through:

- publishing and widely disseminating *Retail sale and consumption of seafood*, which provides businesses that process and market seafood with the latest information on consumption of their products and identifies consumer needs for the industry;
- providing funds for a wide range of industry and non-government organisations to attend port visits and steering committee meetings during the Commonwealth fisheries policy review;
- providing funds for stakeholders (including recreational fishers, environment group members, ATSIC members, aquaculturists and commercial fishers) to participate in deciding on policies for reporting in keeping with ESD principles;
- funding a national community survey to measure the extent of recreational fishing and related economic and social values.

Outputs contributing to human capital development outcomes included:

- development of a curriculum and training materials for the population dynamics course undertaken by the Quantitative Training Unit of the University of Sydney;
- further development of Seafood Services Australia as a knowledge broker for the seafood industry;
- a national innovation conference for the seafood industry in the post-harvest sector to promote innovative technologies;
- development of human capacities in the commercial sector through the new Women's Industry Network Seafood Community; and
- funding participation in management advisory committee training at the Australian Maritime College.

Summary of final reports received for Program 3

Program 3 strategies (as on page 129 of R&D plan)	No. of projects	FRDC investment
Leadership development	1	$321,000
Vocational development	6	$893,000
Consumer education	nil	$10,000
Community education	1	$52,000
Community involvement	nil	nil
Total	**8**	**$1,267,000**

ACHIEVEMENT OF AOP TARGETS

MOST (A)(O)(P) PERFORMANCE MEASURES WERE MET*

* There was a shortfall in final reports received: whereas 17 final reports for R&D projects were forecast in the AOP, the number received was 8. The estimate did not pay sufficient regard to slippage which frequently occurs during projects, nor to the time needed to prepare final reports and other outputs after the projects end.

R&D outcomes report

DEVELOPING LEADERS TO TAKE THE INDUSTRY FORWARD

During the past 10 years, the nature of fisheries management has undergone profound change. As the need for managing on an ecosystem scale has increased, there has been a move away from management approaches that focus on the biology and behaviour of particular species and towards a greater focus on interactions among different species and between fish and their habitats. This "ecosystem approach" to fisheries management has led to other stakeholders having legitimate roles in managing the harvesting of fish and the associated human impacts on their habitats. Accordingly, in some fisheries the result has been a more inclusive "co-management" approach to fisheries management that takes into account the views not only of government agencies responsible for fisheries but also of those responsible for the environment, industry development, science, and regional and urban planning; and industry, community and special-interest groups.

One result of increased co-management of fisheries has been a need to increase the skills, confidence and knowledge of individuals in all sectors of industry. This is in keeping with a widely acknowledged need: that to capitalise on the industry's potential there is a need to develop the capabilities of the people to whom the industry entrusts its future and to improve communication between them. Developing and using the knowledge and skills of people in and supporting the Australian fishing industry is, therefore, one of the nine main industry challenges identified in the FRDC's R&D plan.

Responding to this new challenge for industry leadership, the Australian Fisheries Academy, with the FRDC, prepared a curriculum and training materials for a National Strategic Leadership Training Program, making use of newly identified competencies supplied by Seafood Training Australia. The seafood industry is strongly supporting the initiative.

During the year a "pilot" Seafood Industry Advanced Leadership Course was conducted using the new curriculum. Three venues were involved — Adelaide, Port Broughton (SA) and Canberra — so that participants could meet with a wide range of industry, community and political leaders to gain local, state and national perspectives. Sharing of information and perspectives was also facilitated by participants being drawn from four states and from sectors that included harvest, post-harvest, aquaculture and government.

Since the training will help industry members to participate effectively in industry processes, including co-management, candidates are selected for their potential to advance the industry rather than for individual personal development. It is intended that fishing industry candidates for the Australian Rural Leadership Program will be selected from graduates of this course.

To help develop both an improved profile and unified directions for the industry, the FRDC funds the training of fishing industry leaders on a range of development programs.

Program 4: Management and Accountability

STRATEGIC ELEMENTS

Legislative source:	Object (d) of section 3 of the PIERD Act, which makes provision for the funding and administration of R&D with a view to improving accountability for expenditure on R&D activities in relation to primary industries.
FRDC planned outcomes supported by this program:	Management and Accountability Program activities are focused on continual improvement of services with respect to: ■ planning, funding and managing R&D programs; and ■ facilitating the dissemination, adoption and commercialisation of the results of R&D. The FRDC's quality management system, certified against AS/NZS ISO 9002:1994, encompasses all these activities. Most Program 4 outputs do not lead directly to R&D outcomes but enhance the inputs of Programs 1–3 (the three R&D programs), as shown in figure 5 on page 36.

PRINCIPAL INPUTS

During 2000–2001, $2.4 million was invested in activities within this program.

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.

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, below those headings, against key performance indicators nominated in the AOP.

Fisheries R&D leadership

Strategy 1: To provide leadership in fisheries R&D.

Support from stakeholders

Consistent with the Minister's direction for spending of industry contributions (page 85), contributions and investment by fishery were as shown in **table 2**, overleaf.

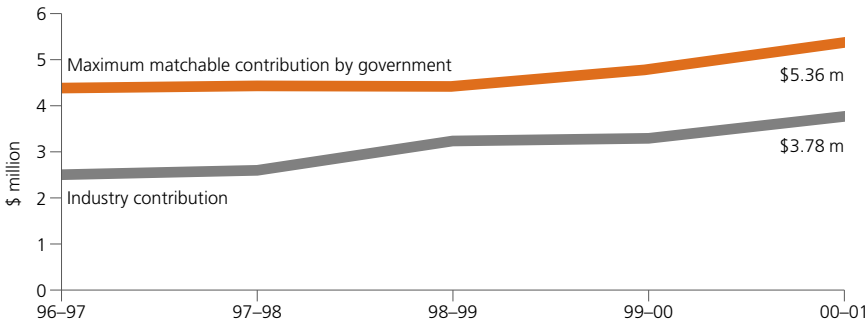
Table 2: Contributions and R&D investment

Fisheries managed by:	Period	Maximum industry contribution matchable by Govt (0.25%)	Industry contribution ($) [A]	Distribution of FRDC R&D investments* ($) [B]	Return on contribution [B : A]
C'wealth	2000–2001:	973,845	877,409	2,479,283	3:1
	5-yr running total:	4,199,345	3,872,741	13,040,914	3:1
NSW	2000–2001:	315,750	239,027	1,723,606	7:1
	5-yr running total:	1,489,500	1,080,541	8,727,890	8:1
NT	2000–2001:	201,000	66,400	667,183	10:1
	5-yr running total:	856,500	240,400	2,712,887	11:1
Qld	2000–2001:	653,000	530,000	2,523,041	5:1
	5-yr running total:	3,061,750	2,105,000	12,802,541	6:1
SA	2000–2001:	835,000	576,607	2,760,040	5:1
	5-yr running total:	2,816,250	2,308,454	9,116,769	4:1
Tas	2000–2001:**	584,250	410,000	1,775,390	4:1
	5-yr running total:	2,632,250	1,012,550	7,219,033	7:1
Vic	2000–2001:	211,250	211,716	1,536,835	7:1
	5-yr running total:	1,075,750	890,598	5,527,271	6:1
WA	2000–2001:	1,588,000	870,050	3,536,382	4:1
	5-yr running total:	7,147,250	3,785,050	13,565,790	4:1

* Distribution of FRDC R&D investments is based on the estimated flow of R&D benefits to the respective fisheries.

** During 2000–2001 the Atlantic salmon aquaculture sector, based in Tasmania, contributed under a memorandum of understanding more than the 0.25% maximum that is matchable by the Commonwealth Government. Its contribution as a proportion of the maximum that is matchable was 120%. The contribution of other Tasmanian fisheries as a proportion of the maximum that is matchable was 47%.

FOR EVERY DOLLAR THAT INDUSTRY CONTRIBUTES TO THE FRDC, THE FRDC INVESTS UPWARDS OF THREE DOLLARS IN R&D THAT BENEFITS THE CONTRIBUTOR.



The $3.8 million industry contribution that was matched by the Commonwealth Government was almost 20% more than last year's contribution. However, this amount was only 71% of the maximum that was matchable by the Commonwealth Government,[26] and 4% below the 75% specified in the AOP. The reasons — as in previous years — were that the gross value of production has increased from year to year and that, unlike other industry-based R&D Corporations, the FRDC lacks levy collection mechanisms for all fisheries other than Commonwealth fisheries.

As a proportion of total FRDC revenue, fishing industry contributions were 20%, compared with 19% last year.

AOP PERFORMANCE MEASURE WAS NOT MET

Responding to increasing demands being placed on the FRDC, the FRDC is seeking 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 Commonwealth Government will provide matching contributions. During the year, the first compulsory levy mechanism in keeping with that goal was negotiated between the FRDC and the Australian Prawn Farmers Association. The levy, managed by the AFFA Levies and Revenue Service, will be invested in high-priority prawn farming R&D.

The FRDC's new R&D plan is being used widely by industry stakeholders. Based on a 20-year vision of the future, the plan is a major step forward for the fishing industry's strategic development. Strong support by stakeholders reflects the high reputation of the many contributors and the wide consultation with stakeholders during its preparation.

The FRDC has signed a memorandum of understanding with the Tasmanian Salmon Growers Association (as it did with the Australian Tuna Boat Owners Association last year) which guarantees revenue to the FRDC in return for a sector-specific R&D program for a period of up to five years.

Influence over the development of strategic plans for fisheries R&D at Commonwealth, state, regional, fishery and species levels

During the year, the FRDC funded Recfish Australia to produce the first R&D plan for the recreational sector of the industry.

Due largely to efforts by the FRDC — and particularly as a result of its FRAB workshops — all states, and some regions and industry sectors, have R&D strategies in place.

As part of the enhancement of the new FRDC website, a page has been included listing strategic plans at state, region and industry sector levels, with hyperlinks to the strategy documents and/or their managers.

The FRDC participated actively in the review of Commonwealth fisheries being undertaken by AFFA, especially in the section that examines fisheries R&D.

The FRDC has contributed views on aquaculture R&D as part of the National Aquaculture Agenda being managed by AFFA.

The FRDC plays a leading role in R&D priority-setting workshops, including two-yearly national FRAB workshops.

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→ The 71% is an average resulting from payment of the full 0.25% of the average GVP by Victoria and less than 0.25% by the Commonwealth, remaining states and NT. In some under-contributing states, however, there are fisheries that contribute 0.25% or more.

The results of FRDC-commissioned reviews of matters such as fisheries habitats, seagrass, fisheries sustainability indicators and wild-caught abalone continue to direct priorities for R&D. Similarly, the R&D plans developed under FRDC subprograms continue to direct priorities for these specific portfolios.

AOP PERFORMANCE MEASURE WAS MET

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

The FRDC continued to support the Commonwealth, state and Northern Territory FRABs by meeting a significant proportion of their operational costs up to a maximum of $20,000 per FRAB per year.

A new development was the establishment of an ad hoc forum ("National FRAB") to provide advice to the FRDC on applications that address national issues. Members of the National FRAB include, in addition to FRDC staff, representatives of the Australian Seafood Industry Council, the National Aquaculture Council, Recfish Australia, the Standing Committee on Fisheries and Aquaculture, and Environment Australia.

The Executive Director or one of the programs management staff participated in most FRABs meetings except those of the Northern Territory FRAB.

FRABs were consulted on all applications attributing benefit to their related fisheries or industry sectors before the applications were evaluated by the FRDC Board.

The proportion of applications received through the FRABs was 89% (141 of 158 applications), 9% above the AOP target of 80% and within 1% of last year's figure of 90%. Early involvement of FRABs in the development of national projects has achieved this result.

AOP PERFORMANCE MEASURE WAS MET

All applications submitted through the FRABs were consistent with fisheries R&D strategies.

AOP PERFORMANCE MEASURE WAS MET

The approval rate for applications received through the FRABs was 46%, which was 14% below the AOP target of 60%. The under-achievement, resulting from the high number of applications (170) that were received by the FRDC, reflects the fact that demand for funding is growing at a rate that exceeds the FRDC's capacity to invest.

The approval rate for applications that were not submitted through the FRABs was 89%, significantly higher than last year's achievement of 35%. These applications were submitted through alternative modes such as the newly established Cooperative Research Centre for Sustainable Aquaculture of Finfish and FRDC subprograms.

AOP PERFORMANCE MEASURE WAS NOT MET

Influence over the R&D expenditure of other funding entities

Total actual investment in projects under FRDC management in 2000–2001 was $51.0 million (up from $47 million last year). Of this, the FRDC invested $17.9 million (up from $17.2 million last year). Therefore, the value of leverage resulting from the FRDC investment was $33.1 million, in the ratio of 1:1.8 (up from 1:1.7). In total, 697 projects were under management.

Other investors in projects under FRDC management included:

- research providers such as CSIRO, state fisheries research institutes, CRCs and universities;
- the fishing industry and industry partners, in the form of cash and in-kind contributions such as fishers' time and vessel usage, and proceeds from the sale of fish caught during projects; and
- other funding agencies such as other rural R&D corporations, the National Land and Water Resources Audit, the Australian Centre for International Agricultural Research and the Australian Research Council, the Australian Fisheries Management Authority and AFFA's Fisheries Resources Research Fund.

The FRDC is consulting with managers of other Commonwealth Government R&D programs to help evaluate projects targeting those programs and increase the FRDC's knowledge of R&D that is funded outside the FRDC's portfolio — currently 40% of Australia's R&D related to fisheries. Example of such programs, in which the FRDC now plays a part in project evaluation, are AFFA's Farming Innovation Program, AFFA's Fisheries Resources Research Fund; and the NHT-funded Murray-Darling Basin Native Fish Rehabilitation Program.

The FRDC is a partner in the new Cooperative Research Centre for Sustainable Aquaculture of Finfish, contributing $6.2 million (in addition to $16.5 million in new Commonwealth Government funds) towards total funding, including in-kind, of $71 million. The FRDC has a position on the CRC board; the FRDC subprograms for southern bluefin tuna aquaculture and Atlantic salmon form the nucleus of the two management advisory committees reporting to the CRC Board.

During the year, the FRDC and AFFA exchanged an agreement under which the FRDC will undertake project management for the aquatic animal health components of the Commonwealth Government's initiative, 'Building a national approach to animal and plant health'. The budget is $3.1 million over four years. The projects will be managed under the FRDC's newly established Aquatic Animal Health Subprogram, which also incorporates projects funded by the FRDC and other partners.

The FRDC is funding R&D projects jointly with other R&D corporations.

AOP PERFORMANCE MEASURES WERE MET

Strategic investment

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

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

The FRDC established two new subprograms (ESD Reporting and Assessment, and Aquatic Animal Health) to address high-priority strategic areas.

The number of high-priority applications received through the FRABs was 68; the number approved was 38, amounting to an approval rate of 56%. Complicating this measure is that, presently, there is little consistency in the way in which the FRABs determine which applications have a high priority.

AOP PERFORMANCE MEASURE WAS MET

Investment in R&D program strategies

Spending on each of the three R&D programs during the year was as follows:

R&D Program	Target (% of R&D outlay)	Spent (%)	Spent ($)
1: Natural Resources Sustainability	60%	61%	10,907,321
2: Industry Development	35%	34%	6,098,675
3: Human Capital Development	5%	5%	852,515
Total			**17,858,511**

For further information, see 'Project expenditure by program', starting on page 137.

AOP PERFORMANCE MEASURE WAS MET

Impacts of projects

Questionnaires were sent to 155 beneficiaries during the year, covering 30 completed projects. Beneficiaries included fisheries management agencies, fishing industry representative organisations, fishers, processors, aquaculturists and aquaculture managers. The results are summarised on pages 63 and 64.

Preliminary analysis of data suggests a halving of negative attitudes towards completed projects compared with previous years: from less than 20% to less than 10%.

AOP PERFORMANCE MEASURE WAS MET

Return on investment for nominated high-cost projects

As part of the FRDC's rolling program, benefit-cost analyses were conducted on 17 projects; 12 more than nominated in the AOP. The results are summarised on pages 63 and 64.

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.

Recently completed benefit-cost analyses

The FRDC has broadened its assessment of applications and completed projects — partly as a result of its review of post-project and application evaluation, and partly in response to suggestions that traditional benefit-cost analysis (BCA) elucidates too narrow a range of research benefits. Consequently, many applications during the year were subject to an independent BCA in excess of the usual application evaluation process. This helped the FRDC in evaluating applications by providing extra quantitative data on benefits, which otherwise would only have been available in a qualitative sense.

The BCA framework this year included threshold analysis for research contributing to environmental benefits, habitat preservation, increased amateur fishing opportunities, and higher potential yields from commercial fisheries. Even though significant methodological difficulties are associated with valuations where markets do not exist (for example, valuing a healthy environment), it has become apparent that there is a need to capture the complex range of benefits flowing from investment in R&D.

Seventeen completed FRDC projects (including nine separate orange roughy stock assessment projects that were treated as one project) had BCA conducted on them: 12 more than forecast in the AOP. A benefit-cost ratio — which reflects the benefits of the completed project minus the costs, expressed as a ratio — was established for all but six of the completed projects.[27] The benefit-cost ratios were mainly between 1.5:1 and 3.5:1, and included:

- research on Atlantic salmon disease diagnosis provided a benefit-cost ratio of up to 6:1 (that is, $6 benefit for every $1 spent);
- wild abalone research 4.3:1; and
- estuarine habitat research 3.5:1.

In addition to the commercial benefits derived from the estuarine habitat research, threshold benefits are also substantial: only 3000 amateur fishers would need to enjoy an increased benefit of their fishing experience at a value of $10 per fisher for the project to break even.

A further dimension to the threshold analysis is in the use of probability estimates to determine break-even points. For example, the FRDC has funded several projects focused on the genetics of Tasmanian Atlantic salmon. The BCA suggests that there are no commercial benefits resulting from investment in these projects. However, there need only be a 1.5% chance of a severe genetic problem occurring in Australian stocks of Atlantic salmon (in an industry with a GVP of nearly $90 million a year) for FRDC investment in these projects to be justified.

As an adjunct to BCA, questionnaires about 30 completed FRDC projects were sent to 155 beneficiaries. Preliminary analysis of this data suggests a halving of negative attitudes towards completed projects compared with previous years: from less than 20% to less than 10%.

(27) → For those six projects, it was not possible to develop a benefit-cost ratio because of a lack of quantitative commercial benefits. They were therefore subjected to threshold analysis, which assesses the benefits that must accrue from a project for the investment to reach the break-even point.

Some of the results emanating from the project application and post-project evaluation were as follows:

- Applicants do not generally provide quantifiable information in project applications to demonstrate intended research benefits.
- Applicants frequently over-estimate the likelihood of achieving project objectives and rarely state explicitly in their applications that there will be a need for subsequent research for project benefits to be realised.
- Project beneficiaries who are not engaged early in the process of developing and undertaking the project tend to be left out of the communication process, even when the project has been completed.

Summaries of two indicative project BCAs follow.

1994/040 "Habitat and fisheries production in the South East Fishery ecosystem"; 1996/275 "Development of a rapid-assessment technique to determine biological interactions between fish and their environment, and their role in ecosystem functioning"

These two projects aimed to provide more information about the complex ecosystem relationships operating within the South East Fishery. This research was much more strategic than many projects because of the strategic necessity to understand the ecosystem within which a fishery operates rather than simply the biology of target stocks. The cost of these two projects could not be justified using commercial pay-offs. However, a threshold analysis showed that the cost of the research was 4% of gross returns generated by the commercial fishery in the South East Fishery. As other research indicates that Australians are willing to pay between $50 million and $200 million to protect a major ecosystem in this context, the costs of these projects are exceeded by threshold benefits.

1997/203 "Fish use of sub-tropical saltmarsh habitat"

This project attempted to obtain knowledge on the importance of saltmarsh to fish communities. As the BCA for this project suggested that there were no commercial benefits from this particular project, a threshold analysis was used to determine benefits. Research in the USA indicates that Americans (as a whole) are willing to pay between $924 and $2,176 per hectare for protection of habitat such as saltmarsh, due in part to its contribution to wildlife resources which are then harvested commercially and by amateurs. Assuming that Australians are also willing to pay to protect saltmarsh (especially once research demonstrates its importance to fisheries production) at a value of $500 per hectare only 42 hectares would need to have increased protection for the research costs to be met.

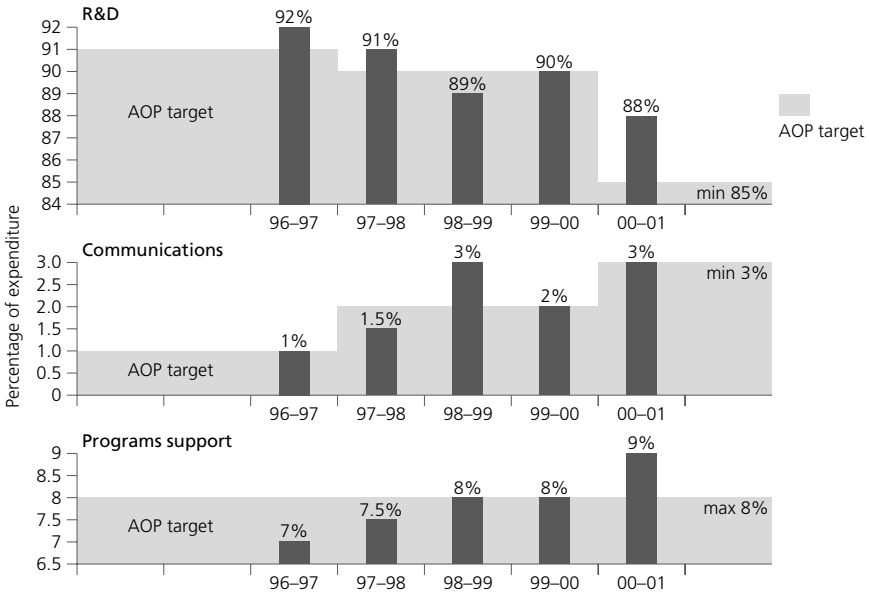
AOP PERFORMANCE MEASURE WAS MET

Effective, efficient management

Strategy 3: To develop and maintain effective, efficient, open and accountable management procedures and systems.

Maximum FRDC expenditure on R&D programs

The proportions spent on each of the 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.

The FRDC received $364,157 of revenue from interest, sales and cash paid direct to the FRDC by other parties, including commercial collaborators in projects.

AOP PERFORMANCE MEASURES WERE PARTLY MET*

* Spending on programs support during the year exceeded the target by $237,000 — mainly because of higher-than-estimated costs of: programming the new Internet-based R&D application process, changing the asset recognition threshold, selecting new directors, and sundry externally provided services.

Results of external financial and quality audits

The July 2001 audit report by the Australian National Audit Office confirmed that the FRDC's 2000–2001 financial statements gave a true and fair view of the financial position of the FRDC.

All programs management and administrative procedures have been documented. They were audited in October 2000 by an external quality auditor, Quality Assurance Services Pty Ltd. Certification to AS/NZS ISO 9002:1994 was maintained.

R&D corporation executive directors, program managers, business managers and communications managers met throughout the year to examine how efficiencies could be achieved by corporations individually or collectively.

The FRDC collaborated with all other R&D corporations in a project to identify best practice in the corporations' program reporting.

AOP PERFORMANCE MEASURES WERE MET

Accountability to industry, governments and other stakeholders

The 1999–2000 annual report was presented to the Minister on time for tabling in the Commonwealth Parliament.

The FRDC presented its annual report to its representative organisations (the Australian Seafood Industry Council and Recfish Australia) at their respective annual meetings.

AOP PERFORMANCE MEASURES WERE MET

In the Institute of Public Administration Australia's Annual Report Awards, the FRDC was the joint first place winner (with the National Library of Australia) among statutory authorities for its 1999–2000 report. The report also won a bronze award from Annual Report Awards Australia Inc.

Regard for the views and priorities of stakeholders and research providers in the development of R&D programs, policies and procedures

The 2000 edition of the R&D plan and the 2000–2001 annual operational plan incorporated the R&D priorities of the Commonwealth Government, AFFA and the FRDC's two representative organisations. In disseminating the 2000 edition of the R&D plan, the FRDC consulted many of its stakeholders to seek more effective utilisation of fisheries R&D outputs.

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

The Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry approved the FRDC's annual operational plan.

AOP PERFORMANCE MEASURES WERE MET

External entities' compliance with programs management procedures

All applications were received by the required submission date, 1 December 2000. Significantly, with many applications the FRDC had played a role in their development as a result of being involved in related strategic planning.

All applications complied with the FRDC's R&D application procedure. The FRDC application process has become an influential standard for other funding sources including AFFA's Fisheries Resources Research Fund and the AFMA Research Fund.

FRDC staff examined the financial management systems of 13 research institutions; 24 projects were audited. All met FRDC requirements.

AOP PERFORMANCE MEASURES WERE MET

Communication and extension of results

Strategy 4: To make R&D results widely known, and to facilitate their adoption and commercialisation.

Dissemination of R&D results and their availability

During the year, 76 final reports were received from FRDC-funded projects: 45, 23 and 8 respectively for Programs 1–3.

Post-project evaluations and benefit-cost analyses have been used to review activities and ensure that investment is targeted on applications in areas that return positive benefits to the industry.

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

Knowledge generation from fisheries R&D was high, but knowledge translation continues to lag. The FRDC continues 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 develop planned outcomes and to emphasise adoption pathways. When evaluating applications, the Board carefully examines proposed adoption methods.

Databases, if they are comprehensive, up to date and accessible, are extremely valuable in ensuring that R&D results are extended and duplication of R&D is minimised. Applicants for FRDC funding are making extensive use of three databases on completed and in-progress R&D, which are accessible via the FRDC website. Grouped together as the Australian Natural Resources Online (ANRO) databases, they are: *Australian Rural Research in Progress*, the *Australian Bibliography of Agriculture*, and the *Aquatic Science Fisheries Abstract*. To help to ensure that the databases continue to be accurate and accessible, the FRDC is contributing to development of ANRO and the Executive Director is a member of the ANRO committee.

The FRDC also makes its contacts database available to other organisations.

The FRDC website is now one of FRDC's key communication tools, having undergone significant re-development during the year to provide a variety of users with comprehensive information on planning, funding and managing R&D. Information on the funding cycle and application process is now more accessible to potential applicants. A catalogue of publications resulting from FRDC-funded projects is available, and the website is hyper-linked to related websites developed by FRABs. Information on completed projects and new products is updated regularly so that stakeholders have access to the latest results from R&D investment. Non-technical summaries of all R&D projects are also on the website.

Four editions of *R&D News* were published during 2000–2001. An average circulation of 30,000 was achieved for each edition by distributing the magazine as an insert to industry magazines; at trade events, conferences and workshops; and by direct mailing. Details of the FRDC's planned outcomes and R&D priorities, and other information on the FRDC's programs management and R&D application procedures, were published. Articles were also published on the relationship between voluntary funding and the activities of the FRDC. This included information on the return on investment that stakeholders received and the benefits this investment had on whole-of-chain industry development.

Four issues of *R&D News*, each of 30,000 copies, were distributed throughout the industry.

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. Coverage included a centrepiece article in *The Financial Review* on abalone aquaculture and the role the FRDC Abalone Aquaculture Subprogram plays in developing this industry.

AOP PERFORMANCE MEASURES WERE MET

Influence over the adoption of R&D results by stakeholders, especially potential beneficiaries

The FRDC added two new subprograms to its portfolio: ESD Reporting and Assessment, and Aquatic Animal Health. [Managed subprograms provide a higher level of project management that includes strong emphasis on adoption of R&D results. Further details are on pages 139–140 of the R&D plan.]

The FRDC adopted a new policy and procedures for extension of the results of R&D and for intellectual property management. Each new project is now categorised according to its likely communication, extension or commercialisation requirements. To ensure that projects adopt appropriate communication and extension activities, applications must include a communication and extension plan.

A consulting company has been engaged to help improve the FRDC's technology transfer process and intellectual property management.

AOP PERFORMANCE MEASURES WERE MET

Report of operations

Part 3: Corporate governance

The FRDC's commitment to good corporate governance

"Governance" refers to processes by which organisations are directed and controlled — also encompassing 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.[28]

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

Structures

The FRDC's vision, mission and planned outcomes (pages 8 and 9) originate in the objects contained in section 3 of the PIERD Act, listed on page 130.

The FRDC's organisation and operating context are shown in **figure 2** on page 11. Ten staff cooperatively manage the functions of programs, business, communications, and quality. Staff names and titles are shown on page 87.

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

Effective and ethical performance is ensured by the FRDC's relationships with two key external organisational structures: the two representative organisations (the Australian Seafood Industry Council and the Australian Recreational and Sport Fishing Industry Confederation, trading as Recfish Australia) and the Fisheries Research Advisory Bodies.

The Board of Directors

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 (currently the Parliamentary Secretary).
- 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 (currently the Parliamentary Secretary) on the nomination of a selection committee. The Minister appoints the selection committee based on the nominations of the representative organisations.

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

- commodity production,
- commodity processing,
- marketing,
- conservation of natural resources,
- management of natural resources,

(28)

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

- 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, who holds office at the Minister's pleasure, and the Executive Director, who holds office at the Board's pleasure. All directors other than the Executive Director are appointed on a part-time basis.

A finance and audit committee and a remuneration committee, and other committees of the Board as deemed necessary from time to time, act on the Board's behalf. Appropriate committees are also established to ensure that projects are properly guided and that industry and government funds are wisely spent.

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 nine directors holding office at 30 June 2001 are shown on the following pages. Two directors, Dr Jim Penn and Mr Richard Stevens, held office until 31 December 2000. They were succeeded by Mr Ian Cartwright and Mr David Newton from 1 January 2001. Mr Peter Dundas-Smith is the only executive director.

Dr Russell Reichelt (Chairman)

Chairman of the Corporation since his appointment in 1995.
Chairman of the Remuneration Committee.

Russell Reichelt has a background in marine scientific research, R&D management and providing interpretations of scientific results for industry and policy makers — especially in fisheries management. He is the Chief Executive of the CRC Reef Research Centre. Previously he has been CEO (Director) of the Australian Institute of Marine Science, and before that he was head of the Fisheries Resources Branch within the Bureau of Resource Sciences in the Commonwealth Department of Primary Industries and Energy.

Russell has a PhD from the University of Queensland, where he now holds an adjunct professorship. He is also an adjunct professor of James Cook University, chairman of the National Oceans Advisory Group and a member of the State of Environment Committee for Australia. He has a Diploma of Company Directorship, and is a Fellow of the Australian Institute of Company Directors.

Mr Sandy Wood-Meredith (Deputy Chairman)

Appointed to the Board in 1997.

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

Sandy was until recently a director of the Centre for Food Technology. He is a director of the Sunshine Coast Regional Economic Board, and 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.

Mr Simon Bennison

Appointed to the Board in 1997.
Member of the Finance and Audit Committee
(Committee Chairman from 1 January 2001).

Simon Bennison's extensive experience in the aquaculture industry has been gained, in part, as a producer for 18 years. He has been a director of the Western Australian Fishing Industry Council for the past eight years and has represented the aquaculture industry on the National Aquaculture Council since its inception in 1996.

Simon is also a member of the Australian Shellfish Quality Assurance Committee, chairman of the WA Fishing Industry Training Advisory Board, and chair of the Yabby Producers Association of WA. He has been involved in many projects relating to industry and market development. He has been the Executive Director of the Aquaculture Council of Western Australia for the past nine years.

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.

Mr Ian Cartwright (from 1 January 2001)

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.

Formerly, Ian was Director of the Faculty of Fisheries and Marine Environment at the Australian Maritime College and most recently held the post of Deputy Director of the Forum Fisheries Agency in Honiara, Solomon Islands. Currently he is a fisheries consultant working within Australia and the Asia-Pacific region. He has an honours degree in fisheries science and a master's degree in economics.

Dr Diana Day

Appointed to the Board in 1995.
Member of the Remuneration Committee until 25 February 2001.
Member of the Finance and Audit Committee from 26 February 2001.

Diana Day is a research and management specialist in land and water resource systems, with expertise in natural resources security and environmental futures. She has held directorships of the Land and Water Resources Research and Development Corporation and of 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 and a Diploma in Education. 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 (from 1 January 2001)

Member of the Remuneration Committee from 26 February 2001.

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 Boron Molecular Pty Ltd, Stem Cell Sciences Limited, Nuplex Industries Limited and Aventis Australia Holdings Pty Ltd. He is a member of the Advisory Board of the Monash University Research Institute of Reproduction and Development, a member of the Advisory Board of the Animal Gene Resource Centre, and a member of the French-Australian Industrial Research Committee.

David was formerly Chief Executive Officer of the Rhône-Poulenc Group in Australia, Commercial Director of Coopers Animal Health, UK, and General Manager of ICI Australia's Biologicals Businesses. 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.

Dr Jim Penn (until 31 December 2000)

Appointed to the Board in 1997.

Jim Penn is Director of Fisheries Research in Western Australia. He has had broad experience in managing multi-disciplinary marine research; developing strategic management plans for commercial fisheries, recreational fishing and aquaculture development; and administering a major research and development institute. Jim has held positions on, and provides expert scientific advice to, a number of fisheries and environmental management bodies within Western Australia. He has extensive specialist knowledge of shellfish fisheries, having been involved in fisheries research in Australia and internationally for 35 years.

Jim holds a Doctorate of Philosophy in fisheries science, a degree in zoology and a diploma in agriculture, and has completed the Development Program for Managers at the Australian Graduate School of Management.

Mr Bill Sawynok

Appointed to the Board in 1997.
Member of the Remuneration Committee.

Bill Sawynok has wide experience in recreational fisheries spanning 30 years. For the last five years he has been manager of InfoFish Services, which provides an information service on recreational fisheries. Before that, he was a senior regional manager in the Queensland Department of Natural Resources, dealing with a range of natural resources management issues. He has a background in surveying, mapping and geographic information systems. Through the Australian National Sportfishing Association he established Austag, a recreational fish tagging and data collection program that now operates in all states.

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

Mr Richard Stevens (until 31 December 2000)

Appointed to the Board in 1995.
Chairman of the Finance and Audit Committee until 31 December 2000.

Richard Stevens is currently a fisheries adviser after holding the position of Deputy Chief Executive of Primary Industries and Resources South Australia from 1998 to 2000. From 1992 to 1998 he was Managing Director of the Australian Fisheries Management Authority. In that capacity, and as Director of Fisheries in South Australia from 1980 to 1987, he has had extensive fisheries management experience. He is a former Executive Officer of the SA Fishing Industry Council.

Richard holds a Bachelor of Economics degree from the University of Queensland.

Dr Derek Staples (Government Director)

Appointed to the Board in 1999.
Member of the Finance and Audit Committee from 1 January to 25 February 2001.

Derek Staples is the Deputy Executive Director of the Bureau of Rural Sciences (BRS).

Derek's background is in marine biology. Before joining BRS, he worked as a research scientist with CSIRO, focusing on research to support the management of Australia's Northern Prawn Fishery and the sustainable development of prawn aquaculture. His major interests lie in the fields of resource assessment, evaluation of natural resource management performance and marine/land-use planning. A current interest is understanding and measuring progress towards achieving sustainable development of natural resource industries.

As well as working for CSIRO and BRS, Derek has worked as a consultant in several Asian countries and has represented Australia in a range of regional fisheries management bodies and advisory groups.

Derek has a Doctorate of Philosophy from the University of Canterbury, New Zealand, and a post-doctoral diploma from the Tokyo University of Fisheries, Japan.

Mr Peter Dundas-Smith (Executive Director)

The Corporation's inaugural Executive Director, appointed in 1992.

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 held several tourism posts in the ACT and NSW, and has been Vice President of the Australian Fisheries Academy. 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 is a director of the Cooperative Research Centre for Sustainable Aquaculture of Finfish 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.

BOARD MEETINGS AND VISITS

During 2000–2001 the Board held six meetings as follows.

Date	Location and main activities
14–15 August 2000	Perth.
	Evaluated R&D applications, considered 1999–2000 annual report including the 30 June 2000 financial statements.
	Visited Murdoch University, Challenger TAFE at the Western Australian Fishing and Aquaculture Centre, Ricciardi Seafoods, Lobster Australia, and Catalano Seafoods.
	Met with the Commonwealth Chief Scientist, Dr Robin Batterham.
	Met with industry and government representatives and researchers, discussed industry issues and R&D opportunities.
9–10 October 2000	Snobs Creek, Victoria.
	Developed strategies to expand the FRDC revenue base and maximise investment in fisheries R&D.
	Visited MAFRI Snobs Creek Campus, Goulburn River Trout Pty Ltd, Alexandra Fish Farm, and Australian Aquaculture Products.
	Evaluated R&D applications.
	Met with industry and government representatives and researchers, discussed industry issues and R&D opportunities.
11–12 December 2000	Mooloolaba, Queensland.
	Visited De Brett Seafood, an operational tuna boat, and Bribie Island Aquaculture Research Centre.
	Met with industry and government representatives and researchers, discussed industry issues and R&D opportunities.
26–28 February 2001	Canberra.
	Preliminary evaluation of 2001–2002 R&D applications; considered 2001–2002 draft annual operational plan.
	Launched the FRDC's new R&D plan and new website. Participated in *Outlook 2001*.
9–10 April 2001	Canberra.
	Further evaluation of 2001–2002 R&D applications; finalised 2001–2002 annual operational plan, FRDC component of AFFA's portfolio budget statement, and a new FRDC treasury policy affecting the Commonwealth's investments.
13–15 June 2001	Port Lincoln, South Australia.
	Evaluated R&D applications, considered draft 2000-2001 annual report, reviewed the Executive Director's remuneration.
	Met with industry and government representatives and researchers, discussed industry issues and R&D opportunities.
	Visited Australian Tuna Fisheries, DI Fishing Co., Tony's Tuna, Port Lincoln Tuna Processors, Lincoln Marine Science Centre, SA Abalone Developments and SA Mariculture.

Directors' attendance at Board meetings was as follows:

Dr Russell Reichelt	6	Dr Jim Penn	2**
Mr Sandy Wood-Meredith	6	Mr Bill Sawynok	6
Mr Simon Bennison	6	Mr Richard Stevens	3*
Mr Ian Cartwright	3*	Dr Derek Staples	6
Dr Diana Day	6	Mr Peter Dundas-Smith	6
Mr David Newton	3*		

* [Maximum attendance that was possible during tenure for only part of the financial year]

** [Maximum possible attendance was 3]

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

During 2000–2001 the Board's Finance and Audit Committee held two meetings as follows:

14 August 2000	Examined the 30 June 2000 financial statements; reviewed the draft 1999–2000 annual report for legislative compliance.
25 February 2001	Met with Acumen Alliance (internal auditors) and ANAO (external auditors); reviewed the Internal Audit Plan 2001–2002; reviewed ANAO's audit strategy; examined the 31 December 2000 financial statements; reviewed the 2001–2002 budget for incorporation in the AOP.

Attendance at these meetings was as follows:

Mr Richard Stevens (committee chairman to 31 December 2000)	1*
Mr Simon Bennison (committee chairman from 1 January 2001)	2
Dr Derek Staples (committee member from 1 January to 25 February 2001)	1*
Dr Diana Day (committee member from 26 February 2001)	nil*
Mr John Wilson (Business Manager)	2

* [Maximum attendance that was possible during tenure for only part of the financial year]

The Finance and Audit Committee's operation is consistent with the Australian National Audit Office *Better Practice Guide*, July 1997.

The Board's Remuneration Committee met on 26 February and 12 June 2001. Attendance was as follows:

Dr Russell Reichelt (committee chairman)	2
Dr Diana Day (committee member to 25 February 2001)	1*
Mr David Newton (committee member from 26 February 2001)	1*
Mr Bill Sawynok	1

* [Maximum attendance that was possible during tenure for only part of the financial year]

Representative organisations and other stakeholders

The FRDC's stakeholders are the fishing industry; the governments of the Commonwealth, the states and the territories; and the people of Australia.

To facilitate the FRDC's accountability to its stakeholders, the Minister has declared the Australian Seafood Industry Council 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 reports to the representative organisations at their annual conferences in keeping with section 29 of the PIERD Act. Reporting covers the Corporation's activities for the previous 12 months, and activities planned for the next financial year.

The FRDC reported to the Australian Seafood Industry Council at the Council's annual general meeting on 25 October 2000. In response, the Council endorsed the major contribution that the FRDC was making to the industry. It asked that the FRDC assist the Council in ensuring that R&D addresses its members' needs and that R&D results are actively extended to its members.

The FRDC reported to the Australian Recreational and Sport Fishing Industry Confederation at the Confederation's annual conference on 4 November 2000. The Confederation thanked the FRDC for its leadership role in helping to develop a national R&D plan for the recreational sector, and for its strong support in ensuring that the sector was recognised as a significant player in the fishing industry.

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 2000–2001 the FRDC incurred $1,273 in such expenses. Planned expenditure during 2001–2002 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. Two projects came under that category during the year, as follows:

- $6,750 was paid to ASIC as the FRDC's contribution to project 1996/343, which established Seafood Training Australia.
- $14,846 was paid to Recfish Australia as the FRDC's contribution to project 2000/313, under which a national research and development plan was prepared for the recreational sector of the fishing industry.

Fisheries Research Advisory Bodies

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

The FRABs have an extremely important role in maximising the efficiency of the FRDC's planning and funding process. 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.

Members of Fisheries Research Advisory Bodies set fisheries research priorities and communicate those priorities to funding agencies.

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.

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 2001 were as follows:

Commonwealth	Mr Rob Lewis: a director of the Australian Fisheries Management Authority; Executive Director, South Australian Research and Development Institute.
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	Dr Nick Rayns: Director of Fisheries, Department of Primary Industry and Fisheries, Northern Territory.
Queensland	Dr Peter Young: fisheries consultant; formerly Chief of CSIRO Division of Fisheries and a director of the Australian Fisheries Management Authority.
South Australia	Professor Bill Williams: Professor Emeritus, the University of Adelaide.
Victoria	Dr Garth Newman: former Director, Marine and Freshwater Resources Institute of Victoria.
Western Australia	Mr John Newby: commercial fisherman and company director.
Tasmania	Mr Tony Ibbott: management consultant.

Processes

The FRDC ensures that all core processes dealing with planning, funding and managing R&D are documented in procedures and workguides, and that documentation meets the requirements of the FRDC's quality policy (opposite) and Standard AS/NZS ISO 9002:1994.

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. The Chairman, Executive Director and two senior staff have completed the Diploma Course of the Australian Institute of Company Directors.

In keeping with the Board's commitment to good corporate governance each director, after participating in the evaluation of new R&D project applications, certifies that the process used was consistent with the FRDC's quality management procedures and that he/she agrees with the evaluation results.

Controls

Directors' interests

The FRDC's policy on directors' interests, which complies with section 21 of the CAC Act, centres on the principle that a director must disclose an interest whenever he/she considers there is a potential conflict of interests.

As 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 pecuniary, indirect pecuniary, or non-pecuniary 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

Interest category	Discussion and decision on nature of interest	Discussion of matter	Decision on matter
Direct pecuniary	Absent	Absent	Absent
Indirect pecuniary	Absent	May be invited back to provide input based on the director's related expertise and to answer related questions	Absent
Non-pecuniary	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 9002:1994, to which the FRDC is certified.

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 continuous 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.

The FRDC is preparing for certification to a newer standard, AS/NZS ISO 9001:2000.

Fraud control

The FRDC has a comprehensive fraud control plan that complies with the *Fraud Control Policy of the Commonwealth — Best Practice Guide for Fraud Control*. The plan is integrated with the FRDC's quality management system and internal audit program. It is reviewed and updated annually by the Finance and Audit Committee to ensure it remains relevant to the FRDC's business.

Project audits are an important element of the plan that ensure research providers have appropriate systems and controls in place for managing FRDC projects.

No incidence of fraud was detected during 2000–2001.

Indemnities and insurance premiums for officers

The FRDC evaluates risk within a comprehensive risk management framework. When appropriate, insurance policies are taken out to mitigate insurable risk.

The FRDC is required by the Commonwealth 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.

The rural R&D corporations work cooperatively to ensure that ComCover's policies are competitive, in terms of coverage and risk, with those of private insurers.

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 contracts 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.
$20,000 to $100,000	Selective tender, with at least three written quotations.
Less than $20,000	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 80) 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 four 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:	Fisheries Economics Research and Management Specialists
Nature and purpose of consultancy:	Benefit-cost analysis of completed FRDC projects
Cost:	$29,005
Name of consultant:	Ernst and Young
Nature and purpose of consultancy:	GST advice
Cost:	$13,531
Name of consultant:	Esys Development
Nature and purpose of consultancy:	Economic evaluation of FRDC funding applications and benefit-cost analysis of completed FRDC projects
Cost:	$40,000
Name of consultant:	Blake Dawson Waldron Lawyers
Nature and purpose of consultancy:	Advice on setting up Seafood Services Australia as a company; review of employment contracts and research agreements
Cost:	$26,229

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

The Board requires the Executive Director to extend its commitment to good corporate governance — by example and by direction — to all functions of the FRDC.

The FRDC has a code of conduct to which all directors and staff are required to adhere. The code complies with division 4 of the CAC Act. New directors and staff are briefed comprehensively on the code during induction training.

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).

The FRDC's objects and program structure are derived from section 3 of the PIERD Act. Further information about the FRDC's legislative foundation is in **appendix B** (page 129).

The Ministers responsible for the FRDC are the Minister for Agriculture, Fisheries and Forestry, the Parliamentary Secretary to the Minister, and the Minister for Forestry and Conservation.

The incumbent Minister for Agriculture, Fisheries and Forestry was the Hon. Warren Truss, MP. Throughout the year the Parliamentary Secretary to the Minister was Senator the Hon. Judith Troeth and the Minister for Forestry and Conservation was the Hon. Wilson Tuckey, MP. All three Ministers exercise ministerial powers in their own right.

Exercise of ministerial powers

Ministerial powers under the enabling legislation are described on page 131.

During 2000–2001, exercise of ministerial powers was as follows:

- approving the 2001–2002 annual operational plan;
- determining the gross value of production of the fishing industry for the purposes of establishing the maximum payments by the Commonwealth to the FRDC;
- causing a coordination meeting to be held of all R&D Corporations;
- appointing new FRDC directors from persons nominated by the selection committee; and
- appointing a Deputy Chair of the FRDC Board.

All ministerial directions and notifications of Government general policies and administrative matters 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 funds 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.]

NOTIFICATIONS OF GOVERNMENT GENERAL POLICIES AND ADMINISTRATIVE MATTERS

During the year, the Parliamentary Secretary notified the FRDC as follows:

Date	Subject
11 May 2001	Re-affirmation of the Government priorities for investment in R&D notified on 14 December 1999.

The Parliamentary Secretary and the Minister for Agriculture, Fisheries and Forestry notified matters between 30 June 2001 and the date of this report as follows:

Date	Subject
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.

The following notifications in previous years had continuing effect:

Date	Subject
14 December 1999	Government priorities for investment in R&D.[29]
11 January 1999	Accountability arrangements for statutory authorities.
6 July 1998	Guidelines for payment of representative organisations' costs in consulting with the FRDC.
5 May 1998	Delegation of ministerial responsibilities for R&D and levies to the Parliamentary Secretary by the Minister for Primary Industries and Energy.

29 → These priorities are shown on pages 42, 48 and 53.

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 for improvement. 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 its continual improvement, the FRDC strives to maximise the proportion of funds expended on R&D programs by minimising the cost of administration. This year, the FRDC reduced administration by moving from fortnightly to monthly salary payments. The Corporation also removed motor vehicles from being an option in remuneration packages because of increased costs of administering vehicle-related expenses such as the Fringe Benefits Tax and the Goods and Services Tax.

Staff

At 30 June 2001, the FRDC had ten full-time staff members.

All staff are employed under terms and conditions determined by the FRDC. No staff member is employed under the *Public Service Act 1999*.

Changes during the year resulted from the resignation of the Communications Manager, Office Manager and Administration Assistant, and the subsequent recruitment of replacement staff members.

Remuneration policy

Remuneration of non-executive directors is as 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 Cullen Egan Dell, which includes the value of each staff position in the market. The amount is also influenced by individual performance measured against individual performance agreements; by overall FRDC performance; and by the size of the program support component within the total FRDC budget, from which salaries are paid.

Staff development

The FRDC is committed to integrated staff training and development. Individual needs are assessed and support is provided for agreed training.

During 2000–2001, one staff member continued studies towards a PhD, one continued fisheries management studies at Master level and one studied for an Advanced Diploma in Accounting. 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.

Staff members are also encouraged to maintain professional affiliations. Accordingly, 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 Quality Society Australasia and the Women's Industry Network — Seafood Community.

The FRDC staff: back row from left, Projects Manager (Research), Alex Wells; Manager Corporate Services, Nancy Gassin; Programs Manager, Patrick Hone; Business Manager, John Wilson. Front row, Projects Manager (Finance), Annette Lyons; Communications Manager, Michael Parolin; Communications Coordinator, Kylie Paulsen; Executive Director, Peter Dundas-Smith. Absent: Office Administrator, Felicite Young; Project Officer, Matthew Flood.

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, four 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 81) 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. Additionally, the working environment is reviewed periodically by occupational health and safety consultants.

No work-related injuries occurred during 2000–2001.

Freedom of information

During 2000–2001, the FRDC received no inquiries 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 C** (page 133).

Committee to select FRDC directors

Ms Jenny Varcoe-Cocks, who had been appointed by the Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry to be the Presiding Member of a committee to select FRDC directors, established the committee, which subsequently carried out its task. The committee's report is at **appendix E** (page 159).

Auditor-General's report

Australian National Audit Office

INDEPENDENT AUDIT REPORT

To the Minister for Agriculture, Fisheries and Forestry

Scope

I have audited the financial statements of the Fisheries Research and Development Corporation for the year ended 30 June 2001. The financial statements comprise:

- Statement by Directors;
- Statement of Financial Performance;
- Statement of Financial Position;
- Statement of Cash Flows;
- Schedule of Commitments;
- Schedule of Contingencies, and
- Notes to and forming part of the Financial Statements.

The Directors of the Corporation are responsible for the preparation and presentation of the financial statements and the information they contain. I have conducted an independent audit of the financial statements in order to express an opinion on them to you.

The audit has been conducted in accordance with Australian National Audit Office Auditing Standards, which incorporate the Australian Auditing Standards, to provide reasonable assurance as to whether the financial statements are free of material misstatement. Audit procedures included examination, on a test basis, of evidence supporting the amounts and other disclosures in the financial statements, and the evaluation of accounting policies and significant accounting estimates. These procedures have been undertaken to form an opinion as to whether, in all material respects, the financial statements are presented fairly in accordance with Australian Accounting Standards, other mandatory professional reporting requirements and statutory requirements in Australia so as to present a view of the entity which is consistent with my understanding of its financial position, the results of its operations and its cash flows.

The audit opinion expressed in this report has been formed on the above basis.

GPO Box 707 CANBERRA ACT 2601
Centenary House 19 National Circuit
BARTON ACT
Phone (02) 6203 7300 Fax (02) 6203 7777

Audit Opinion

In my opinion,

(i) the financial statements have been prepared in accordance with Schedule 1 of the Commonwealth Authorities and Companies (Financial Statements 2000-2001) Orders; and

(ii) the financial statements give a true and fair view, in accordance with applicable Accounting Standards, other mandatory professional reporting requirements and Schedule 1 of the Commonwealth Authorities and Companies (Financial Statements 2000-2001) Orders, of the financial position of the Fisheries Research and Development Corporation as at 30 June 2001 and the results of its operations and its cash flows for the year then ended.

Australian National Audit Office

Darren Box
Executive Director

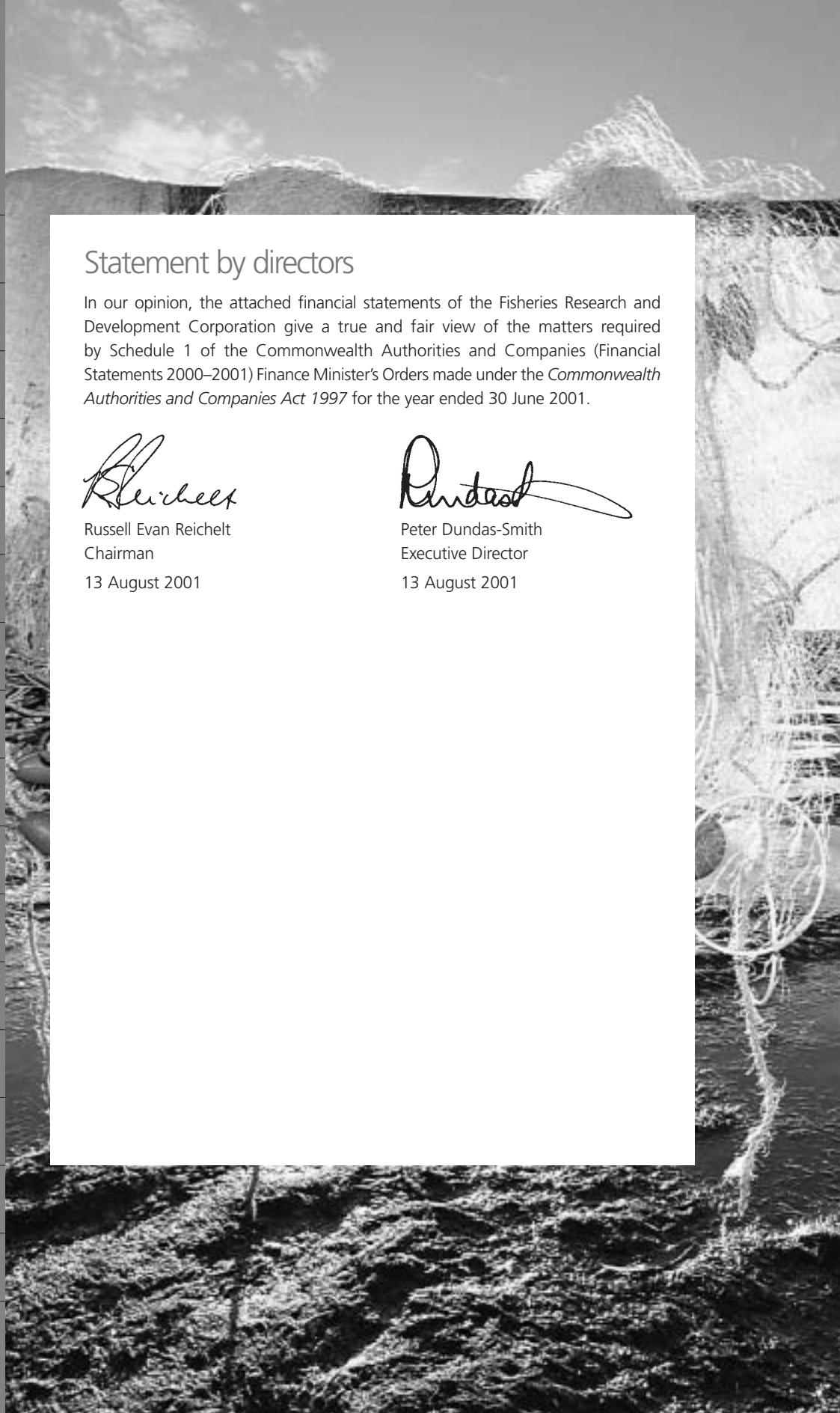
Delegate of the Auditor General

Canberra

15 August 2001

FISHERIES RESEARCH AND DEVELOPMENT CORPORATION

Financial Statements as at 30 June 2001



Statement by directors

In our opinion, the attached financial statements of the Fisheries Research and Development Corporation give a true and fair view of the matters required by Schedule 1 of the Commonwealth Authorities and Companies (Financial Statements 2000–2001) Finance Minister's Orders made under the *Commonwealth Authorities and Companies Act 1997* for the year ended 30 June 2001.

Russell Evan Reichelt
Chairman
13 August 2001

Peter Dundas-Smith
Executive Director
13 August 2001

Statement of financial performance

for the year ended 30 June 2001

	Notes	2001 $	2000 $
Revenues from ordinary activities			
Revenues from Commonwealth Government	5A	**14,286,209**	12,759,073
Revenues from industry and other parties	5B	**4,244,060**	3,842,148
Sale of publications and final reports		**79,258**	95,853
Interest	5C	**270,817**	374,323
Proceeds from disposal of assets	5D	**0**	450
Other	5E	**14,082**	2,228
Total revenues from ordinary activities		**18,894,426**	17,074,075
Expenses from ordinary activities			
Employees	6A	**944,098**	832,036
Suppliers	6B	**897,518**	567,943
Depreciation and amortisation	6C	**23,462**	37,414
Project expenditure	7	**17,858,511**	16,782,827
Other	9	**622,715**	449,177
Total expenses from ordinary activities		**20,346,304**	18,669,397
Borrowing costs expense	8	**384**	285
Net deficit from ordinary activities		**(1,452,262)**	(1,595,607)
Net surplus/(deficit) attributable to the Commonwealth		**(1,452,262)**	(1,595,607)
Net credit (debit) to asset revaluation reserve		**0**	9,650
Total revenues, expenses and valuation adjustments recognised directly in equity		**0**	9,650
Total changes in equity other than those resulting from transactions with owners as owners		**(1,452,262)**	(1,585,957)

THE ABOVE STATEMENT SHOULD BE READ IN CONJUNCTION WITH THE ACCOMPANYING NOTES.

Statement of financial position

as at 30 June 2001

	Notes	2001 $	2000 $
Assets			
Financial assets			
Cash	10A	**258,356**	349,113
Receivables	10B	**657,612**	731,837
Investments	10C	**0**	1,028,997
Total financial assets		**915,968**	2,109,947
Non-financial assets			
Furniture, fittings and equipment	11A,B	**79,315**	86,160
Other	11C	**15,823**	4,529
Total non-financial assets		**95,138**	90,689
Total assets		**1,011,106**	2,200,636
Liabilities			
Provisions			
Employees	12A	**161,611**	234,322
Total provisions		**161,611**	234,322
Payables			
Suppliers	13A	**4,402**	17,495
Other creditors	13A	**87,983**	101,124
Projects	13B	**389,089**	27,412
Total payables		**481,474**	146,031
Total liabilities		**643,085**	380,353
Equity			
Parent entity interest			
Reserves	14	**9,650**	9,650
Accumulated surpluses/(deficits)	14	**358,371**	1,810,633
Total parent entity interest		**368,021**	1,820,283
Total equity		**368,021**	1,820,283
Total liabilities and equity		**1,011,106**	2,200,636
Current liabilities		**643,085**	380,353
Non-current liabilities		**0**	0
Current assets		**931,791**	2,114,476
Non-current assets		**79,315**	86,160

THE ABOVE STATEMENT SHOULD BE READ IN CONJUNCTION WITH THE ACCOMPANYING NOTES.

Statement of cashflows

for the period ended 30 June 2001

	Notes	2001 $	2000 $
Operating activities			
Cash received			
Appropriations for outputs		**18,604,494**	16,033,371
Sales of goods and services		**87,184**	95,853
Interest		**270,817**	421,277
GST recovered from taxation authority		**1,267,336**	0
Other		**15,490**	2,228
Total cash received		**20,245,321**	16,552,729
Cash used			
Employees		**1,016,809**	841,539
Suppliers		**926,701**	945,483
Projects expenditure		**18,671,736**	17,053,387
Borrowing costs		**384**	285
Other		**690,606**	3,618,226
Total cash used		**21,306,236**	22,458,920
Net cash from operating activities	15A	**(1,060,915)**	(5,906,191)
Investing activities			
Cash received			
Proceeds from sale of furniture, fittings and equipment		**0**	450
Total cash received		**0**	450
Cash used			
Purchase of furniture, fittings and equipment		**58,838**	42,693
Investments		**0**	0
Total cash used		**58,838**	42,693
Net cash from investing activities		**(58,838)**	(42,243)
Net increase/(decrease) in cash held		**(1,119,753)**	(5,948,434)
Cash at the beginning of the reporting period		**1,378,109**	7,326,543
Cash at the end of the reporting period	15B	**258,356**	1,378,109

THE ABOVE STATEMENT SHOULD BE READ IN CONJUNCTION WITH THE ACCOMPANYING NOTES.

Schedule of commitments

as at 30 June 2001

	Notes	2001 $	2000 $
By type			
OTHER COMMITMENTS			
Operating leases [1]		**335,520**	95,890
Project commitments [2]		**45,311,611**	52,822,240
Total other commitments		**45,647,131**	52,918,130
Commitments receivable		**4,149,739**	0
Net commitments		**41,497,392**	52,918,130
By maturity			
All net commitments			
One year or less		**19,117,041**	22,712,492
From one to two years		**12,041,172**	15,848,875
From two to five years		**9,806,692**	13,493,877
Over five years		**532,487**	862,886
Net commitments		**41,497,392**	52,918,130

NB: All commitments at 30 June 2001 are GST inclusive where relevant. The comparatives have not been adjusted to reflect the GST.

(1) Operating leases are effectively non-cancellable and comprise:

- lease for office accommodation on premises at 25 Geils Court Deakin, and
- lease for telephone system.

The terms and conditions for the lease renewal of office accommodation for the next four years have been agreed with the landlord.

(2) Project 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 creditors.

THE ABOVE STATEMENT SHOULD BE READ IN CONJUNCTION WITH THE ACCOMPANYING NOTES.

Schedule of contingencies

as at 30 June 2001

At 30 June 2001, the FRDC had no contingent gains or losses.

THE ABOVE STATEMENT SHOULD BE READ IN CONJUNCTION WITH THE ACCOMPANYING NOTES.

Notes to and forming part of the financial statements for the year ending 30 June 2001

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:

- Schedule 1 of the Commonwealth Authorities and Companies (Financial Statements 2000–2001) Finance Minister's Orders made under the *Commonwealth Authorities and Companies Act 1997* in relation to the preparation of Financial Statements for the year ended 30 June 2001;
- Australian Accounting Standards and Accounting Interpretations issued by the Australian Accounting Standards Board;
- Other authoritative pronouncements of the Boards; and
- Consensus Views of the Urgent Issues Group.

The statements have been prepared having regard to:

- Statements of Accounting Concepts;
- the Explanatory Notes to Schedule 1 of the Commonwealth Authorities and Companies (Financial Statements 2000–2001) Finance Minister's Orders issued by the Department of Finance and Administration; and
- Guidance Notes issued by that Department.

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 Fisheries Research and Development Corporation (FRDC).

Assets and liabilities are recognised in the FRDC Statements 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. However, assets and liabilities arising under agreements equally proportionately unperformed are not recognised unless required by an Accounting Standard. Liabilities and assets which are unrecognised are reported in the Schedule of Commitments and the Schedule of Contingencies.

Revenues and expenses are recognised in the FRDC 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

Changes in accounting policy have been identified in this Note under their appropriate headings.

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 2**. Any intra-government costs included in the figure "net cost to Budget outcomes" are eliminated in calculating the actual budget outcome for the 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 when the sales invoice is raised.

Interest revenue is recognised on a proportional basis taking into account the interest rates applicable to the financial assets.

Revenue from disposal of non-current assets is recognised when control of the asset has passed to the buyer.

Refunds due from research organisations are taken into account when received.

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.

Revenues from government-output appropriations

Appropriations for outputs are recognised as revenue to the extent they have been received into the FRDC bank account or are entitled to be received by the FRDC at year end.

1.5 — Employee entitlements

(a) Remuneration

The FRDC recognises remuneration as the total cost of employment. It includes salaries (including leave), and superannuation (including employer contributions). Remuneration of non-executive directors is as 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 Cullen Egan Dell, which includes the value of each staff position in the market. The amount is also influenced by individual performance measured against individual performance agreements; by overall FRDC performance; and by the size of the program support component within the total FRDC budget, from which salaries are paid.

(b) Leave

The liability for employee entitlements 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 of the FRDC is estimated to be less than the annual entitlement for sick leave.

The liability for annual leave reflects the value of total annual leave entitlements of all employees at 30 June 2001 and is recognised at its nominal amount. Staff are entitled to 20 days annual leave per year.

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 becoming due after completion of 10 years' service. All leave provision calculations are based on remuneration packages at the start of the next reporting period. 2000–2001 Remuneration receivable includes, for the first time, accrued annual and long service leave entitlements. See Notes 12 Provisions, 16 Remuneration of directors and 18 Remuneration of officers.

In determining the present value of the liability, attrition rates and remuneration increases have been taken into account. The non-current portion of the liability for long service leave is recognised and measured at the present value of the estimated future cash flows to be made in respect of all employees at 30 June 2001.

(c) Separation and redundancy

Provision is made for separation and redundancy 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.

(d) Superannuation

The FRDC is an approved Authority under the *Superannuation Act 1976* and the *Superannuation Act 1990*.

FRDC staff are contributors to either 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. The FRDC meets its liability by payments to ComSuper.

Employer contributions amounting to $88,231 in relation to these schemes have been expensed in these financial statements.

No liability for superannuation benefits is recognised as at 30 June as the employer contributions fully extinguish the accruing liability which is assumed by the Commonwealth.

Employer Superannuation Productivity Benefit contributions totalled $11,086.

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 in effect 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 FRDC is not currently involved in any finance leases.

1.7 — Projects

The FRDC recognises project liabilities as follows.

Most 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. Where project money is paid in advance of performance or eligibility, a prepayment is recognised.

1.8 — Borrowing costs

All borrowing costs are expensed as incurred.

1.9 — Cash

Cash means notes and coins held and any deposits held at call with a bank or financial institution.

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 20**.

1.11 — Acquisition of assets

Assets are recorded at cost on acquisition except as stated below. The cost of acquisition includes the fair value of assets transferred in exchange and liabilities undertaken. 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.

1.12 — Furniture, fittings and equipment

Asset recognition threshold

The accounting policy regarding the threshold for recognition of assets was changed with effect from 8 August 2000. Purchases of furniture, fittings and equipment are recognised initially at cost in the Statement of Financial Position, except for purchases costing less than $5,000 (previously a $2,000 threshold applied), 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). The effect of this change is that net assets of $42,221.59 were expensed on 8 August 2000.

Revaluations

In 1999–2000 all furniture, fittings and equipment were revalued.

Property other than furniture, fittings and equipment are measured at their depreciated replacement cost. Where assets are held which would not be replaced or are surplus to requirements, measurement is at net realisable value. At 30 June 2001, FRDC had no assets in this situation.

All valuations are independent.

Recoverable amount test

Schedule 2 requires the application of the recoverable amount test to the FRDC's non-current assets in accordance with AAS 10 Recoverable Amount of Non-Current Assets. The carrying amount of each item of non-current assets has been reviewed to determine whether it is in excess of their recoverable amount. If an excess exists at the reporting date, the asset is written down to its recoverable amount immediately. In assessing recoverable amounts, the relevant cash flows, including the expected cash flows from future appropriations by the Parliament, have been discounted to their present value.

Depreciation and amortisation

Depreciable furniture, fittings and equipment 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/amortisation rates (useful lives) and the methods 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:

	2000–2001	1999–2000
Furniture and fittings:	5 years	5 years
Office equipment:	4 years	4 years
Computers:	3 years	3 years

The aggregate amount of depreciation allocated for each class of asset during the reporting period is disclosed at Note 6C.

1.13 — Taxation

The FRDC is exempt under section 46(1) of the PIERD Act from all forms of taxation except Fringe Benefits Tax and the Goods and Services Tax.

1.14 — Comparative figures

Comparative figures have been adjusted to conform to changes in presentation in these financial statements where required.

1.15 — Insurance

The Authority has insured for risks through the Government's insurable risk managed fund, Comcover. Workers compensation is insured through Comcare Australia.

1.16 — Rounding

Amounts have been rounded to the nearest $1.

Note 2: Reporting by segments and outcomes

The FRDC operates primarily in a single industry and geographic segment, namely the Australian fishing industry. It is a national organisation responsible to its stakeholders for:

- planning, funding and managing fisheries R&D programs, and
- facilitating the dissemination, adoption and commercialisation of the results of fisheries R&D.

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.

	Outcome 1		Outcome 2		Outcome 3		Total	
	Budget $000	Actual $000	Budget $000	Actual $000	Budget $000	Actual $000	Budget $000	Actual $000
Cost of Budget Outcome	11,400	12,400	6,700	6,970	900	977	19,000	20,347
Total assets deployed as at 30 June 2001		607		354		51		1,012
Net assets deployed as at 30 June 2001		221		129		18		368

Note 3: Economic dependency

The Fisheries Research and Development Corporation was established on 2 July 1991 under the PIERD Act, and is responsible to the Minister for Agriculture, Fisheries and Forestry.

FRDC is dependent on appropriations from the Parliament of the Commonwealth for its continued existence and ability to carry out its normal activities.

Approximately 76% of the FRDC's revenue to 30 June 2001 came from the Commonwealth Government.

Note 4: Subsequent events

There are no subsequent events to report.

Note 5: Operating revenues

5A — Revenues from Commonwealth Government

	to 30 June 2001 $	to 30 June 2000 $
Revenues from Commonwealth Government		
0.5% of AGVP *	**10,505,000**	9,525,000
matching of industry revenue	**3,781,209**	3,234,073
Total revenues from Commonwealth Government	**14,286,209**	12,759,073

* AGVP is the average gross value of fisheries production for the three preceding financial years.

The Commonwealth Government's contribution of 0.5 per cent of AGVP is made on the grounds that the Commonwealth 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 per cent of AGVP) by the Commonwealth 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 Commonwealth Government should contribute. *

* As described on page 13 of the FRDC's R&D Plan 2000–2005.

5B — Revenues from industry and other parties

	to 30 June 2001 $	to 30 June 2000 $
Fisheries managed by:		
Commonwealth	**877,409**	804,971
New South Wales	**239,027**	211,609
Northern Territory	**66,400**	54,000
Queensland	**530,000**	385,000
South Australia	**576,607**	495,023
Tasmania	**410,000**	257,550
Victoria	**211,716**	210,920
Western Australia	**870,050**	815,000
Sub-total	**3,781,209**	3,234,073
Projects		
Project funds received from other parties	**172,328**	322,875
Aquatic animal health activities funded by the Commonwealth Government initiative 'Building a national approach to animal and plant health'	**30,313**	n/a
Project refunds of prior years' expenditure	**260,210**	285,200
Sub-total	**462,851**	608,075
Total revenues from industry and other parties	**4,244,060**	3,842,148

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.

5C — Interest

	to 30 June 2001 $	to 30 June 2000 $
Deposits	**270,817**	374,323
Total interest received	**270,817**	374,323

5D — Proceeds and expenses from sale of assets

	to 30 June 2001 $	to 30 June 2000 $
Revenue (proceeds) from sale	**0**	450
Expense from sale	**0**	0
Total	**0**	450

5E — Other operating revenues

Revenues from other sources

	to 30 June 2001 $	to 30 June 2000 $
Other — miscellaneous	**14,082**	2,228
Total revenue from other sources	**14,082**	2,228

Note 6: Operating expenses

6A — Employee expenses

	to 30 June 2001 $	to 30 June 2000 $
Board		
Salaries and superannuation	**170,724**	119,167
Secretariat		
Salaries and superannuation	**773,374**	712,869
Total employee remuneration	**944,098**	832,036

The basis for employee remuneration is detailed at Note 1.5(a).

FRDC staff contribute to either 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. The FRDC makes contributions at the rate determined by the Government Actuary. For the twelve months to 30 June 2001 the rates were 26.3% of salary for CSS members and 11.2% of salary for PSS members with respect to superannuable salaries.

The FRDC also pays an employer productivity superannuation contribution of 3% for its employees in accordance with the *Superannuation (Productivity Benefit) Act 1988*.

6B — Suppliers expenses

	to 30 June 2001 $	to 30 June 2000 $
Board		
Travel	**105,355**	79,726
Other	**92,714**	11,506
Secretariat		
Audit fees	**10,259**	8,600
External service providers	**359,089**	204,285
Furniture and fittings expensed 8 August 2000	**42,222**	n/a
Insurance	**17,123**	19,970
Office supplies	**50,498**	24,486
Property	**82,609**	79,838
Telecommunications	**39,501**	38,236
Training	**10,927**	6,090
Travel	**36,869**	47,885
Other	**50,352**	47,321
Total suppliers expenses	**897,518**	567,943

6C — Depreciation and amortisation

	to 30 June 2001 $	to 30 June 2000 $
Secretariat		
Depreciation of furniture, fittings and equipment	**23,462**	37,414
Total depreciation and amortisation	**23,462**	37,414

Note 7: Operating expense — project expenditure

	to 30 June 2001 $	to 30 June 2000 $
Projects [1]		
Natural Resources Sustainability	**10,907,321**	7,777,398
Industry Development	**6,063,755**	5,869,572
Human Capital Development	**852,515**	n/a
Aquatic animal health activities funded by the Commonwealth Government initiative 'Building a national approach to animal and plant health'	**34,920**	n/a
Ecosystems Protection	**n/a**	3,135,857
Total project expenditure	**17,858,511**	16,782,827

(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*.

Note 8: Borrowing cost expenses

Interest

	to 30 June 2001 $	to 30 June 2000 $
Secretariat		
Interest on overdraft facilities	**384**	285
Total interest expense	**384**	285

Note 9: Operating expense — other

	to 30 June 2001 $	to 30 June 2000 $
Communications		
R&D Plan	**162,326**	67,643
Annual Report	**56,754**	38,499
R&D News	**167,083**	115,752
FRDC initiated project extension	**65,280**	109,249
Fisheries Research Advisory Bodies	**85,173**	68,664
Representative organisations consultation [1]	**1,273**	0
Other	**84,826**	49,370
Total other expenditure	**622,715**	449,177

(1) Representative organisations consultation relates to expenses incurred by the FRDC in accordance with section 15(a) of the PIERD Act.

Note 10: Financial assets

10A — Cash

	As at 30 June 2001 $	As at 30 June 2000 $
Cash at bank and on hand	**258,356**	349,113
Total cash	**258,356**	349,113

10B — Receivables

	As at 30 June 2001 $	As at 30 June 2000 $
GST receivable	**197,740**	n/a
Other debtors	**458,761**	731,837
Interest	**1,111**	0
Total receivables	**657,612**	731,837

10C — Investments

	As at 30 June 2001 $	As at 30 June 2000 $
Funds on deposit	**0**	28,997
Commercial bills	**0**	1,000,000
Total investments	**0**	1,028,997

Funds not immediately required are either deposited at call or invested in bank bills. Interest is paid at the prevailing rate and paid at the end of the month or at maturity respectively.

The average return in the seven months to 30 June 2001 was 4.75%.

Investments are recognised at cost.

Bank bills are normally held to maturity.

The "funds on deposit" account is an "at call" account.

Note 11: Non-financial assets

11A — Furniture, fittings and equipment

	As at 30 June 2001 $	As at 30 June 2000 $
Furniture, fittings and equipment — at cost	**58,838**	42,693
Accumulated depreciation	**(7,080)**	(6,347)
	51,758	36,346
Furniture, fittings and equipment — at 1 July 2000 valuation	**72,431**	157,200
Accumulated depreciation	**(44,874)**	(107,386)
	27,557	49,814
Total furniture, fittings and equipment	**79,315**	86,160

11B — Analysis of furniture, fittings and equipment

	As at 30 June 2000 $ Plant and equipment
Gross value at 1 July 2000	**199,893**
Additions — purchase of assets	58,838
Write off — recognition threshold	(127,462)
Revaluations: write-ups/(write-downs)	0
Disposals — at valuation	0
Gross value at 30 June 2001	**131,269**
Accumulated depreciation at 1 July 2000	**113,732**
Adjustment for disposals — at valuation	0
Depreciation charge for additions	7,080
Depreciation charge for assets held at 1 July 2000	16,382
Adjustments for write offs	(85,240)
Revaluations	0
Accumulated depreciation at 30 June 2001	**51,954**
Net book value at 1 July 2000	**86,160**
Net book value at 30 June 2001	**79,315**

In accordance with the Corporation's accounting policy (refer **Note 1.12**), items under the furniture, fittings and equipment heading were revalued at their deprival value, effective 30 June 2000, by Peter Maidens and Co.

11C — Other non-financial assets

	As at 30 June 2001 $	As at 30 June 2000 $
Prepayments — miscellaneous	**15,723**	3,752
Other	**0**	677
Aerial Taxi deposit	**100**	100
Total receivables	**15,823**	4,529

Note 12: Provisions

12A — Employees

	As at 30 June 2001 $	As at 30 June 2000 $
Salary and superannuation accrual	**0**	19,233
Annual leave	**96,415**	101,548
Long service leave — current	**65,196**	113,541
Long service leave — non-current	**0**	0
Total employee entitlement liability	**161,611**	234,322

2000–2001 Remuneration receivable includes, for the first time, accrued annual and long service leave entitlements. See Notes 1.5(b) Leave, 16 Remuneration of directors and 18 Remuneration of officers.

Note 13: Payables

13A — Payables

	As at 30 June 2001 $	As at 30 June 2000 $
Trade creditors — accrual	**50,591**	17,495
Trade creditors — general	**4,402**	101,124
PAYG payable	**37,392**	n/a
Total payables	**92,385**	118,619

13B — Project Payables

	As at 30 June 2001 $	As at 30 June 2000 $
Project creditors	**389,089**	27,412
Total other payables	**389,089**	27,412

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 90 days.

Note 14: Equity

Item	Accumulated results	Asset revaluation reserve	Total equity
	$	$	$
Opening balance as at 1 July 2000	1,810,633	9,650	**1,820,283**
Operating results	(1,452,262)		**(1,452,262)**
Net revaluation increment/(decrement)			**0**
Closing balance at 30 June 2001	**358,371**	**9,650**	**368,021**

Note 15: Cash flow reconciliation

15A — Reconciliation of operating surplus/(deficit) to net cash provided by operating activities

	to 30 June 2001 $	to 30 June 2000 $
Operating surplus/(deficit)	**(1,452,262)**	(1,595,607)
Depreciation of furniture, fittings and equipment	**23,462**	37,414
Assets expensed 8/8/00	**42,222**	0
(Gain)/loss on disposal of furniture, fittings and equipment	**0**	(450)
Changes in net assets and liabilities:		
(Increase)/decrease in receivables and prepayments	**62,931**	(513,936)
Increase/(decrease) in other liabilities	**(13,093)**	(36,447)
Increase/(decrease) in liability to suppliers	**(13,141)**	(3,517,102)
Increase/(decrease) in employee provisions	**(72,711)**	(9,503)
Increase/(decrease) in project expenditure payables	**361,677**	(270,560)
Total revenues from ordinary activities	**(1,060,915)**	(5,906,191)

15B — Reconciliation of cash at the end of the reporting period as shown in the Statement of Cash Flows to the related items in the Balance Sheet

	$	$
Cash at bank and on hand	**258,356**	349,112
Investments	**0**	1,028,997
Cash at bank (overdraft)	**0**	0
	258,356	**1,378,109**

Note 16: Remuneration of directors

Directors	to 30 June 2001 $	to 30 June 2000 $
Remuneration received or due and receivable by directors of FRDC	**314,436**	277,843

The basis for directors' remuneration is detailed at Note 1.5(a).

2000–2001 Remuneration receivable includes, for the first time, accrued annual and long service leave entitlements. See Notes 1.5(b) Leave, 12 Provisions and 18 Remuneration of officers. The comparatives have not been adjusted.

The Government Director, Dr Staples, received no remuneration.

Mr Bennison (Aquaculture Council of WA) and Dr Penn (Fisheries WA) took leave without pay from their respective organisations to attend Board meetings, and were remunerated by the FRDC.

The remuneration and number of directors of the FRDC fell within the following annual remuneration bands:

Annual remuneration bands $	2000–2001 Number	1999–2000 Number
0 – 9,999	**5**	3
10,000 – 19,999	**4**	6
20,000 – 29,999	**0**	0
30,000 – 39,999	**1**	0
160,000 – 169,999	**1**	1
	11	10

Due to the effect of the adjustments for the accrued annual and long service leave entitlements, the annual remuneration band for the Executive Director for 2000–2001 changed from 170,000–179,999 to 160,000–169,999. The comparatives have not been adjusted.

Four non-executive directors were in the employ of the Corporation for half a year. See Note 17.

Note 17: Related party disclosures

The directors of the FRDC during the period 1 July 2000 to 30 June 2001 were:

Dr R.E. Reichelt	Chairman
Mr A. Wood-Meredith	Deputy Chairman
Mr S. Bennison	Director
Mr I. Cartwright	Director appointed 1 January 2001
Dr D.G. Day	Director
Mr D. Newton	Director appointed 1 January 2001
Dr J. Penn	Director 1 July 2000 to 31 December 2000
Mr W. Sawynok	Director
Mr R. Stevens	Director 1 July 2000 to 31 December 2000
Dr D. Staples	Government Director
Mr P. Dundas-Smith	Executive Director

The aggregate amount of remuneration of directors is disclosed in **Note 16**.

Transactions with director related parties

Director	Organisation and position held	Nature of interest	$
Mr S. Bennison	Western Australian Fishing Industry Council: *Director*	Research projects or work undertaken by the organisation	142,813
	Aquaculture Council of WA: *Executive Director*	Research projects or work undertaken by the organisation	8,594
Mr I. Cartwright	Australian Fisheries Management Authority Scallop MAC: *Chairman*	Scallop Management Advisory Commission	31,792
	Australian Fisheries Management Authority Scallop MAC: *Chairman*	Scallop Management Advisory Commission	(16,500)
Dr D.G. Day	Australian Maritime College Council: *Member*	Research projects or work undertaken by the organisation	184,169
	Women's Industry Network Seafood Community: *Member*		38,681
Mr P. Dundas-Smith	Australian Maritime College Council: *Director*, *Vice President*	Research projects or work undertaken by the organisation	54,550
	University of Sydney — Advisory Committee of the Centre for Ecological Impacts on Coastal Cities: *Member*	Research projects or work undertaken by the organisation	179,896
Dr J. Penn	Fisheries WA: *Director — Fisheries Research*	Research projects or work undertaken by the organisation	1,122,191
	University of WA: *Research Fellow*	Research projects or work undertaken by the organisation	63,305
Dr R.E. Reichelt	James Cook University — School of Marine Biology: *Adjunct Professor*	Research projects undertaken by the Institute, universities, society and CRCs	108,672
	University of Queensland — Department of Zoology and Entomology: *Adjunct Professor*	Research projects undertaken by the Institute, universities, society and CRCs	238,274

Transactions with director related parties continued

Director	Organisation and position held	Nature of interest	$
Mr W. Sawynok	Central Queensland University: *Board Member*	Institute of Sustainable Regional Development	54,841
Dr D. Staples	Bureau of Rural Sciences: *Deputy Executive Director*	Research projects or work undertaken by the organisation	54,968
Mr R. Stevens	Estuarine Fishery Management Advisory Committee NSW Fisheries: *Chairman*	The Estuarine Fishery Management Advisory Committee	273,739
Mr A. Wood-Meredith	Queensland Seafood Industry Association: *Member*	Research projects or work undertaken by the organisation	382,250
	Centre for Food Technology DPIQ: *Director*	Research projects or work undertaken by the organisation	1,000
	CSIRO Marine Sector Advisory Committee: *Member*	Research projects or work undertaken by the organisation	2,845,736

Note 18: Remuneration of officers

	$	$
The aggregate amount of total remuneration of officers shown is:	**262,343**	263,589

The basis for officers' remuneration is detailed at Note 1.5(a).

2000–2001 Remuneration receivable includes, for the first time, accrued annual and long service leave entitlements. See also Notes 1.5(b) Leave, 12 Provisions and 16 Remuneration of directors. The comparatives have not been adjusted.

Officers/managers of the FRDC include members of the senior management team of the FRDC, namely the Business Manager and Programs Manager.

The number of officers who received or were due to receive total remuneration of $100,000 or more were:

$	**2000–2001 Number**	1999–2000 Number
120,000 – 129,999	**1**	3
130,000 – 139,999	**1**	0
	2	3

The officer remuneration includes all officers concerned with or taking part in the management of the economic entity during 2000–2001, with the exception of the Executive Director. Details in relation to the Executive Director have been incorporated into **Note 16.**

Note 19: Remuneration of auditors

	to 30 June 2001 $	**to 30 June 2000 $**
External audit fees (*excluding GST*)	**9,000**	8,600

No other services were provided by the Auditor-General during the reporting period.

Note 20: Financial instruments

20(a) — 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	10A	Deposits are recognised at their nominal amounts. Interest is credited as it accrues.	Temporarily surplus funds, mainly from monthly draw downs of appropriation, 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	10B	Receivables are recognised at the nominal amounts due, less any provision for bad and doubtful debts. Provisions are made when collection of the debt is judged to be less rather than more likely.	Credit terms are net 30 days.
Commercial bills	10C	Commercial bills are recognised at the amortised cost (i.e. at the original cost adjusted for amortisation to date of any discount or premium when originally issued). Interest is credited to revenue as it accrues.	No commercial bills were held at 30 June 2001.
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	13A	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 30 days after receipt of an invoice. .

Note 20: Financial instruments (cont.)

20(b) Interest rate risk

Financial instrument	Note	Floating interest rate		Fixed interest rate				Non-interest bearing		Total		Weighted average effective interest rate	
		00–01	99–00	1 year or less	1 to 2 years	2 to 5 years	> 5 years	00–01	99–00	00–01	99–00	00–01	99–00
Financial assets (recognised)													
Cash at bank	10A	258,056	349,113							258,056	349,113	n/a	n/a
Cash on hand	10A	0						300	0	300	0	n/a	n/a
Receivables for goods and services	10B	0						657,612	731,837	657,612	731,837	n/a	n/a
Funds on deposit	10C	0	28,997							0	28,997	n/a	5.05
Commercial bills	10C	0	1,000,000							0	1,000,000	n/a	5.00
Total financial assets (recognised)		**258,056**	**1,378,110**	**0**	**0**	**0**	**0**	**657,912**	**731,837**	**915,968**	**2,109,947**		
Total assets										**1,011,106**	**2,200,636**		
Financial liabilities (recognised)													
Trade creditors	13A							92,385	0	92,385	0	n/a	n/a
Project creditors	13B							389,089	146,031	389,089	146,031	n/a	n/a
Total financial liabilities (recognised)		**0**	**0**	**0**	**0**	**0**	**0**	**481,474**	**146,031**	**481,474**	**146,031**		
Total liabilities										**643,085**	**380,353**		

Note 20: Financial instruments (cont.)

20(c) Net fair values of financial assets and liabilities

	Notes	2000–2001 Total carrying amount	2000–2001 Aggregate net fair value	1999–2000 Total carrying amount	1999–2000 Aggregate net fair value
Financial assets					
Cash at bank	10A	258,056	258,056	349,113	349,113
Cash on hand	10A	300	300	0	0
Receivables for goods and services	10B	657,612	657,612	731,837	731,837
Commercial bills	10C	0	0	1,000,000	1,000,000
Total financial assets		**915,968**	**915,968**	**2,080,950**	**2,080,950**
Financial liabilities					
Trade creditors	13A	92,385	92,385	0	0
Project creditors	13B	389,089	389,089	146,031	146,031
Total financial liabilities		**481,474**	**481,474**	**146,031**	**146,031**

Financial Assets

The net values of cash and non-interest-bearing monetary assets approximate their carrying amounts.

Financial Liabilities

The net fare value for creditors are approximated by their carrying amounts.

The FRDC's maximum exposure 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 Performance.

20(d) Credit risk exposure

The FRDC has no significant exposure to any concentration of credit risk.

All figures for credit risk referred to do not take account of the value of any collateral or other security.

Appendix A: Legislative requirements for this report

The *Commonwealth Authorities and Companies Act 1997* (CAC Act) and the *Primary Industries and Energy Research and Development Act 1989* (PIERD Act) specify the content and standards of presentation of 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:[30]

- 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.

In turn, section 28 of the PIERD Act requires the Corporation's directors to provide particulars, among other things, of:[31]

- R&D activities wholly or partly coordinated or funded, and associated spending;
- the extent to which operations achieved the objectives of the R&D plan and implemented the annual operational plan; and
- the extent to which the Corporation has contributed to the attainment of the objects of the Act.

Further information on the PIERD Act in relation to the FRDC is in **appendix B**.

This report also addresses other Commonwealth legislation.

A COMPLIANCE INDEX (ON PAGE 175) SHOWS THE PAGE NUMBERS IN THIS REPORT ON WHICH INFORMATION NOMINATED BY LEGISLATION AND COMMONWEALTH POLICIES IS REPORTED.

30 → The sub-paragraphs are an edited version of clauses 8 to 17 of the CAC Orders.

31 → The sub-paragraphs are an edited version of portions of section 28 of the PIERD Act.

Appendix B: The Corporation's legislative foundation and the exercise of ministerial powers

Enabling legislation

The FRDC was established on 2 July 1991 under the *Primary Industries and Energy Research and Development Act 1989* (the PIERD Act).

The FRDC Board is responsible to the Minister for Agriculture, Fisheries and Forestry and to the Parliamentary Secretary to the Minister — and, through them, to Parliament.

THE OBJECTS, FUNCTIONS AND STATUTORY POWERS OF R&D CORPORATIONS ARE SPECIFIED IN THE PIERD ACT, THE TEXT OF WHICH IS AVAILABLE FROM THE INTERNET VIA THE FRDC WEBSITE.

THE FRDC'S STATEMENTS OF ITS OBJECTS, FUNCTIONS AND STATUTORY POWERS (SHOWN BELOW AND OPPOSITE) MIRROR THE WORDING OF THE PIERD ACT BUT ARE SPECIFIC TO THE FRDC AND ITS BUSINESS ENVIRONMENT. ADDITIONALLY, IN THE INTERESTS OF CLARITY THE STATEMENTS OF THE FRDC'S FUNCTIONS AND STATUTORY POWERS ARE SHORTER AND SIMPLER THAN THE WORDING OF THE ACT, WHICH IS GENERALISED TO ALL R&D CORPORATIONS.

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, evaluate and report to the Parliament, the Minister or Parliamentary Secretary, the Australian Seafood Industry Council and the Australian Recreational and Sport Fishing Industry Confederation (trading as Recfish Australia) on fisheries R&D activities that are funded; 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. THE TEXT OF THE ACT IS AVAILABLE FROM THE INTERNET VIA THE FRDC WEBSITE.

Ministerial powers

Ministerial powers (which may be exercised by the Minister for Agriculture, Fisheries and Forestry or the Parliamentary Secretary to the Minister) under the enabling legislation 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 Commonwealth 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 co-ordination 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.

Additional powers relating to adherence to government policy and to corporate governance and reporting are available to the Minister, the Parliamentary Secretary and the Finance Minister under the *Commonwealth Authorities and Companies Act 1997*.

The exercise of Ministerial powers during 2000–2001 is described on page 84.

Appendix C: Freedom of information statement

The *Freedom of Information Act 1982* (FOI Act) requires each Commonwealth 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.

This statement, in conjunction with information contained this annual report, is intended to meet the requirements of section 8 of the FOI Act.

Role, structure and functions

The FRDC's role, structure and functions are described respectively on pages 8, 11 and 130 of this annual report. Further information is on pages 8–16 of the FRDC's R&D plan. Both these publications are freely available to the public.

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 130).

Documents available for inspection

The following documents are available for inspection at the FRDC office:

R&D plan	File, publication and Internet website*
Operational procedures	Files, unpublished document
Annual operational plan	File, unpublished document
Project details	Database, files
Project agreements	Files
Final project reports	Publications and Internet website links**
Non-technical summaries of final project reports	Publications and Internet website*
R&D funding applications	Files
Annual report	File, publications and Internet website*
R&D News	File, publications and Internet 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 are also available to other websites containing full final reports.*

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.

INFORMATION CURRENTLY AVAILABLE FROM THE FRDC IN PAPER PUBLICATIONS AND IN ELECTRONIC FORM IS LISTED ON PAGE 14.

Access to documents

To seek access to FRDC documents, please contact the FRDC's Business 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 on request. 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 your place of residence.

Organisation, powers, and decisions made

The FRDC's organisation and operating context is shown in figure 2 on page 11. The FRDC's powers are summarised in appendix B (page 129). The principal decisions made by the FRDC Board during 2000–2001 are summarised in the Report of Operations starting on page 23. A ministerial direction and notifications from the Commonwealth Government are summarised on pages 85 and 86.

Arrangements for public involvement

The FRDC's relationship with its stakeholders is described on page 77 under the heading 'Representative organisations and other stakeholders'. Other aspects of public involvement are reported in the directors' review of operations and future prospects (from page 23) and in R&D Program achievements (from page 42).

You are welcome to state 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 Forestry and Conservation; and to any parliamentary committee that may concern itself with matters relating to the FRDC.

Appendix D: Project expenditure by program

Summary of project expenditure

All major investing and financing activities occurred within the context of the FRDC's three R&D Programs and management and accountability activities.

Expenditure on the three R&D Programs and on activities separately funded by the Commonwealth Government was as follows:

	2000–2001 expenditure ($m)
Program 1: Natural Resources Sustainability	10.9
Program 2: Industry Development	6.1
Program 3: Human Capital Development	0.9
Aquatic animal health activities funded by the Commonwealth Government initiative 'Building a national approach to animal and plant health'	0.03
Total	**17.9**

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. A minus sign appearing before a figure in the fourth column denotes a refund from a research provider.

Natural Resources Sustainability projects

Project ID	Project title	Organisation name	$
1988/108.80	Study of bycatch in the New South Wales east coast trawl fishery: benefit-cost analysis	NSW Fisheries	4,395
1992/066.80	National diagnostic tests for detection of epizootic haematopoietic necrosis virus (EHNV) and certification of EHNV-free fish: benefit-cost analysis	CSIRO Livestock Industries	4,395
1993/058	Development of an acoustic system for remote sensing of benthic fisheries habitat or mapping, monitoring and impact assessment	CSIRO Division of Marine Research	33,692
1993/091.80	Fishery independent study of the spawning stock of the western rock lobster: benefit-cost analysis	Dept of Fisheries Western Australia	4,395
1993/180.80	Effects of Trawling Subprogram: development of bycatch-reducing prawn trawl and fishing practices in NSW's prawn trawl fisheries: benefit-cost analysis	NSW Fisheries	4,395
1994/005	Feasibility of enhancing and rehabilitating abalone stocks by larval re-seeding	SA Research and Development Institute	33,298
1994/017	Development of a northern Australian squid fishery	Dept of Primary Industries, Queensland	18,164
1994/021	Radiometric aging of sharks	University of Tasmania	16,082
1994/022	Determining the origin of recruits to the east coast yellowfin tuna fishery and delineating the structure of yellowfin stocks in the western Pacific	CSIRO Division of Marine Research	63,190
1994/040	Habitat and fisheries production in the South East Fishery ecosystem	CSIRO Division of Marine Research	45,058
1994/042	Sampling estuarine fish species for stock assessments	NSW Fisheries	57,777
1994/045	Development, application and evaluation of the use of remotely sensed data by Australian fisheries	CSIRO Division of Marine Research	41,451
1994/161	Integrated stock assessment and monitoring program	Dept of Primary Industries, Queensland	67,906
1995/008	Development of an integrated fisheries management model for King George whiting (*Sillaginodes punctata*) in SA	SA Research and Development Institute	35,689
1995/014	Indices of recruitment and effective spawning for tiger prawns stocks in the Northern Prawn Fishery	CSIRO Division of Marine Research	60,547
1995/018	Southern rock lobster recruitment study	Natural Resources and Environment, Victoria	13,712
1995/034	Age and growth of jack mackerel, and the age structure of the jack mackerel purse seine catch	University of Tasmania	9,599

NATURAL RESOURCES SUSTAINABILITY PROJECTS CONTINUED

Project ID	Project title	Organisation name	$
1995/043	Collaborative investigation on the usage and stock assessment of bait fishes in southern and eastern Australian waters, with special reference to pilchards (*Sardinops sagax neopilchardus*); extension into Qld and NSW	Dept of Primary Industries, Queensland	42,931
1995/162	Prawn farm effluent: origin, composition and treatment	Cooperative Research Centre for Aquaculture	16,033
1995/167	Establishment of a Coastal Habitat Resources Information System for Queensland	Dept of Primary Industries, Queensland	7,472
1996/103	Determination of biological parameters required for managing the fishery for West Australian dhufish	Murdoch University	18,335
1996/105	Stock assessment of Australian herring	Dept of Fisheries Western Australia	30,715
1996/107	Synthesis of existing data on larval rock lobster distribution in southern Australia	CSIRO Division of Marine Research	5,178
1996/108.80	Fishery-independent survey of the breeding stock and migration of the western rock lobster (*Panulirus cygnus*)	Dept of Fisheries Western Australia	4,395
1996/118	Development of a fishery-independent index of abundance for juvenile southern bluefin tuna	CSIRO Division of Marine Research	46,508
1996/128	Use of archival tags for studying the movement and swimming behaviour of school sharks	CSIRO Division of Marine Research	11,958
1996/130	Biology and stock assessment of Western Australia's commercially important shark species	Dept of Fisheries Western Australia	13,216
1996/131	Stock structure of *Pristipomoides multidens* resources across northern Australia	NT Dept of Primary Industry and Fisheries	6,675
1996/133	Adaptive management of the Pilbara trawl fishery	Dept of Fisheries Western Australia	25,982
1996/138	Effects of live-fish capture and targeting spawning aggregations on logbook catch rate data in the Great Barrier Reef commercial demersal line fishery	James Cook University	18,357
1996/160	Condition and its assessment in the southern rock lobster; field application of techniques for condition assessment developed in the laboratory	SA Research and Development Institute	30,760
1996/161	Assessment of the licensed recreational fishery of Tasmania (phase 2)	University of Tasmania	12,486
1996/162	Southern shark tag database	Natural Resources and Environment, Victoria	11,986
1996/254	Effects of Trawling Subprogram: commercialisation of bycatch reduction strategies and devices in northern Australian prawn trawl fisheries	Dept of Primary Industries, Queensland	42,130
1996/257	Effects of Trawling Subprogram: ecological sustainability of bycatch and biodiversity in prawn trawl fisheries	CSIRO Division of Marine Research	59,441

Project ID	Project title	Organisation name	$
1996/284	Huon estuary study: environmental research for integrated catchment management and aquaculture	CSIRO Division of Marine Research	35,656
1997/101	Assessment of broad-scale exploitation rates and biomass estimates for the Tasmanian southern rock lobster fishery	University of Tasmania	40,482
1997/112	Determining genetic stock structure of bigeye tuna in the Indian Ocean using mitochondrial DNA and DNA microsatellites	CSIRO Division of Marine Research	22,099
1997/115	Modelling the population dynamics of high-priority South East Fishery species	CSIRO Division of Marine Research	69,476
1997/117	Stock delineation of the pink ling (*Genypterus blacodes*) in Australian waters using genetic and morphometric techniques	CSIRO Division of Marine Research	26,433
1997/122	Ecologically sustainable development of the fishery for Patagonian toothfish (*Dissostichus eleginoides*) around Macquarie Island: population parameters, population assessment and ecological interactions	CSIRO Division of Marine Research	26,488
1997/123	Determination of Patagonian toothfish age, growth and population characteristics based on otoliths	Australian National University	10,800
1997/124	Effects of line fishing on the Great Barrier Reef and evaluation of alternative potential management strategies	James Cook University	1,313
1997/125	Description of the biology and an assessment of the fishery for silver trevally off NSW	NSW Fisheries	13,659
1997/127	Assessment of the snapper fishery in Victoria	Natural Resources and Environment, Victoria	43,113
1997/132	Fisheries biology of the giant crab (stage 2)	Deakin University	45,602
1997/132.80	Review of giant crab R&D	Deakin University	11,570
1997/136	Stock assessment of the outer-shelf species in the Kimberley region of tropical Western Australia	Dept of Fisheries Western Australia	53,400
1997/137	Collection of biological data required for management of the blue swimmer crab fishery in the central and lower west coasts of Australia	Murdoch University	13,792
1997/139	Mesoscale oceanographic data analysis and data-assimilative modelling with application to Western Australian fisheries	CSIRO Division of Marine Research	39,170
1997/204	Fish in the shallows of NSW south coast estuaries: variability and diversity of fish communities and development of biological indicators for sustainability and biodiversity	University of Wollongong	44,557
1997/205	Effects of Trawling Subprogram: dynamics of large sessile seabed fauna important for structural fisheries habitat and biodiversity of marine ecosystems, and use of these habitats by key finfish species	CSIRO Division of Marine Research	49,685
1997/206	Effects of net fishing: addressing biodiversity and bycatch issues in Queensland inshore waters	Dept of Primary Industries, Queensland	44,523

NATURAL RESOURCES SUSTAINABILITY PROJECTS CONTINUED

Project ID	Project title	Organisation name	$
1997/207	Development of discard-reducing gears and practices in the estuarine prawn and fish haul fisheries of NSW	NSW Fisheries	40,159
1997/212	Impact of prawn farm effluent on coastal waterways	Australian Institute of Marine Science	28,911
1997/217	Development and evaluation of methods to assess the impact of chronic toxicity on ichthyoplankton: a pilot study	Natural Resources and Environment, Victoria	22,983
1998/102	Defining robust harvest strategies, performance indicators and monitoring strategies for the South East Fishery	CSIRO Division of Marine Research	22,309
1998/103	Synthesis of existing data on the early life history of southern Australian finfish	CSIRO Division of Marine Research	32,009
1998/109	Risk analysis and sustainability indicators for prawn stocks in the Northern Prawn Fishery	CSIRO Division of Marine Research	55,020
1998/113	Developing techniques to estimate the age of bigeye tuna and broadbill swordfish off eastern Australia: a pilot project	CSIRO Division of Marine Research	3,883
1998/116	Fisheries biology and spatial modelling of the blue swimmer crab (*Portunus pelagicus*)	SA Research and Development Institute	81,412
1998/117	Fisheries biology and assessment of the blue swimmer crab (*Portunus pelagicus*) in Queensland	Dept of Primary Industries, Queensland	33,910
1998/119	Estimating the recreational catch of the blue swimmer crab in the south-west of Western Australia	Dept of Fisheries Western Australia	-5,495
1998/120	Recreational assessment of Moreton Bay blue swimmer crab (*Portunus pelagicus*) fishery	Dept of Primary Industries, Queensland	5,900
1998/121	Collection of fisheries data required for management of the blue swimmer crab fishery in the central and lower west coasts of Australia	Dept of Fisheries Western Australia	103,461
1998/127	Description of the biology and an assessment of the fishery for adult long-finned eels in NSW	NSW Fisheries	47,305
1998/128	Biological data and model development for management of long-fin eel fisheries	Dept of Primary Industries, Queensland	107,061
1998/129	Stock assessment review workshop	Dept of Primary Industries, Queensland	8,829
1998/130	Collaborative investigation on the usage and stock assessment of bait fishes in southern and eastern Australian waters, with special reference to pilchards (*Sardinops sagax neopilchardus*); extension into Qld and NSW (stage 2)	Dept of Primary Industries, Queensland	54,350
1998/131	Stock structure and regional variation in population dynamics of the red throat emperor and other target species of the Queensland Tropical Reef Line Fishery	James Cook University	83,631

Project ID	Project title	Organisation name	$
1998/132	Distribution, abundance and population dynamics of beachworms (*Onuphidae*) in Qld/NSW and the impact of commercial and recreational fishing	University of Queensland	19,142
1998/133	Stock size of bêche-de-mer, and recruitment patterns and gene flow in the black teatfish on the Great Barrier Reef	Australian Institute of Marine Science	120,376
1998/135	Biology and management of black jewfish by the Injinoo community, Cape York	Balkanu Cape York Development Corporation	52,393
1998/137	Case study for collection of economic data on commercial fishing linked to the national framework	Dept of Primary Industries, Queensland	28,346
1998/138	Mesh selectivity in the NSW demersal trap fishery	NSW Fisheries	22,461
1998/139	Coastal stocks of fish: from which estuaries are most adults derived?	University of Sydney	13,472
1998/141	Environmental determinants of recruitment success of King George whiting	Natural Resources and Environment, Victoria	14,203
1998/146	Evaluation of recreational fishery management controls of commercially important scalefish species	Natural Resources and Environment, Victoria	9,250
1998/153	Mother-of-pearl (*Pinctada maxima*) shell: stock evaluation for management and future harvesting in Western Australia	Dept of Fisheries Western Australia	33,730
1998/156	Optimising the efficiency of enforcement in commercial fisheries	Dept of Fisheries Western Australia	40,347
1998/159	Stock structure of northern and western Australian Spanish mackerel	NT Dept of Primary Industry and Fisheries	32,727
1998/201	*Bycatch Solutions*: a handbook for fishers in non-trawl fisheries	Ocean Watch Australia Ltd	22,781
1998/202	Monitoring the catch of turtles in the Northern Prawn Fishery	Bureau of Rural Sciences	52,413
1998/203	Feeding ecology of seabirds nesting at the Abrolhos Islands, Western Australia	Dept of Fisheries Western Australia	25,674
1998/204	Effects of Trawling Subprogram: maximising yield and reducing discards in the South East Trawl Fishery through gear development and evaluation	Natural Resources and Environment, Victoria	271,601
1998/208	Habitat modification and its influence on prawn and crab fisheries	SA Research and Development Institute	118,033
1998/210	Port Curtis mud crab shell disease: nature, distribution and management	Central Queensland University	52,436
1998/212	Determination of the disease status of Western Australian commercial prawn stocks	Dept of Fisheries Western Australia	40,014
1998/215	Coastal floodplain management in eastern Australia: barriers to fish and invertebrate recruitment in acid sulphate soil catchments	NSW Fisheries	198,277
1998/219	Enhancement of populations of abalone in NSW using hatchery-produced seed	NSW Fisheries	108,976
1998/221	Impoundment stocking strategies for eastern and northern Australia	Dept of Primary Industries, Queensland	69,003

NATURAL RESOURCES SUSTAINABILITY PROJECTS CONTINUED

Project ID	Project title	Organisation name	$
1998/223	Seagrass strategic review and development of an R&D plan	CSIRO Division of Marine Research	17,235
1998/224	Assessment of the impacts associated with the harvesting of marine benthic invertebrates for use as bait by recreational anglers	University of Queensland	55,492
1998/225	Effects of Trawling Subprogram: prawn fishery bycatch and discards — fates and consequences for a marine ecosystem	SA Research and Development Institute	75,186
1998/226	Effects of Trawling Subprogram: improving the efficiency of prawn capture — refining net designs in Australian prawn fisheries to reduce bycatch and fuel costs	SA Research and Development Institute	3,325
1999/100	Spatial and seasonal stock dynamics of northern tiger prawns using fine-scale commercial catch-effort data	University of Tasmania	11,171
1999/102	Population modelling and harvest strategy evaluation for school and gummy shark	CSIRO Division of Marine Research	55,367
1999/103	Saw shark and elephant fish assessment and bycatch evaluation in the Southern Shark Fishery	Natural Resources and Environment, Victoria	47,499
1999/104	An integrated analysis of the growth rates of southern bluefin tuna for use in estimating the catch-at-age matrix in stock assessment	CSIRO Division of Marine Research	37,749
1999/105	Improved fishery independent estimates of southern bluefin tuna recruitment through integration of environmental, archival tag and aerial survey data	CSIRO Division of Marine Research	69,853
1999/106	Size at first maturity and recruitment into egg production of southern bluefin tuna	CSIRO Division of Marine Research	29,029
1999/107	Development of an operating model for evaluation of harvest strategies for the Eastern Tuna and Billfish Fishery	CSIRO Division of Marine Research	52,050
1999/108	Reproductive dynamics of broadbill swordfish (*Xiphias gladius*) in the domestic longline fishery off eastern Australia	CSIRO Division of Marine Research	59,214
1999/109	Migration and habitat preferences of bigeye tuna *Thunnus obesus*) on the east coast of Australia: a project using archival and conventional tags to determine key uncertainties in the species' stock structure, movement dynamics and CPUE trends	CSIRO Division of Marine Research	12,534
1999/111	Development and application of a combined industry–scientific acoustic survey of orange roughy in the Eastern Zone	CSIRO Division of Marine Research	112,304
1999/112	Arrow squid in southern Australian waters: supplying management needs through biological investigations	University of Tasmania	46,117
1999/113	Application of industry acoustic techniques to surveying of NSW redfish stocks: a feasibility study	Biospherics Pty Ltd	11,195

Project ID	Project title	Organisation name	$
1999/116	Development of a spatially structured model for stock assessment and Total Allowable Catch decision analysis for Australian abalone fisheries	Natural Resources and Environment, Victoria	164,181
1999/119	Sustainable tiger prawn (*Penaeus monodon*) populations for broodstock supply	Dept of Primary Industries, Queensland	106,203
1999/120	Reference point management and the role of catch-per-unit effort in prawn and scallop fisheries	Dept of Primary Industries, Queensland	86,233
1999/122	Biology, management and genetic stock structure of mangrove jack (*Lutjanus argentimaculus*) in Australia	Dept of Primary Industries, Queensland	124,194
1999/123	Age validation in tailor (*Pomatomus saltatrix*)	Dept of Primary Industries, Queensland	68,819
1999/125	Tropical Resource Assessment Program: phase 2, model application and validation	Dept of Primary Industries, Queensland	91,834
1999/128	Research to develop and manage the sea urchin fisheries of NSW and eastern Victoria	NSW Fisheries	142,698
1999/134	Migratory dynamics and recruitment of snapper *Pagrus auratus*) in Victorian Waters	Natural Resources and Environment, Victoria	146,594
1999/138	Jellyfish fishery development and assessment	Natural Resources and Environment, Victoria	133,783
1999/140	Impact of management change to an individual transferable quota system in the Tasmanian rock lobster fishery	University of Tasmania	133,665
1999/145	Stock assessment models with graphical user interfaces for key SA marine finfish stocks	SA Research and Development Institute	71,686
1999/147	Greening Australia's Fisheries: a national strategy for application of environmental management systems in the Australian fishing industry	Southern Fishermen's Association Inc.	32,295
1999/150	Pilchard (*Sardinops sagax*) nursery areas and recruitment process assessment between different regions in southern Western Australia	Dept of Fisheries Western Australia	60,611
1999/151	Stock assessment of Spanish mackerel (*Scomberomorus commerson*) in WA	Dept of Fisheries Western Australia	235,158
1999/152	Age, growth, reproductive biology and stock assessment of grass emperor (*Lethrinus laticaudis*) in Shark Bay, Western Australia	Dept of Fisheries Western Australia	54,254
1999/153	Development of a rigorous sampling methodology for a long-term annual index of recruitment for finfish species from south-western WA	Dept of Fisheries Western Australia	211,548
1999/154	Determining biological characteristics of the champagne crab (*Hypothalassia armata*) for management purposes	Murdoch University	71,798
1999/155	Modelling Western Australian fisheries with techniques of time series analysis: examining data from a different perspective	Dept of Fisheries Western Australia	20,685
1999/158	Implementation of the National Recreational and Indigenous Fishing Survey	Agriculture, Fisheries and Forestry – Australia	390,064

NATURAL RESOURCES SUSTAINABILITY PROJECTS CONTINUED

Project ID	Project title	Organisation name	$
1999/160	Assessing Australia's future resource requirements to 2020 and beyond: strategic options for fisheries	University of Canberra	108,242
1999/161	Sustainable fisheries management through enhanced access rights and resource security: a industry paper for presentation at Fishrights '99	SA Fishing Industry Council	6,100
1999/162	Evaluating the effectiveness of marine protected areas as a fisheries management tool	University of Tasmania	213,239
1999/163	A coordinated commercial fishing industry approach to the use of marine protected areas	University of Canberra	115,809
1999/164	Application of molecular genetics to the Australian abalone fisheries: forensic protocols for species identification and blacklip stock structure	University of Tasmania	137,333
1999/205	The effect of barramundi nodavirus on important freshwater fishes	Dept of Primary Industries, Queensland	39,424
1999/215	Links between seagrass habitats, piscivorous fishes and their fish prey	University of Melbourne	17,750
1999/217	Stable isotope tracing of the contribution of seagrass production to subtropical fisheries species occurring outside seagrass areas	Griffith University	13,527
1999/222	Developing techniques for enhancing prawn fisheries, with a focus on brown tiger prawns (*Penaeus esculentus*) in Exmouth Gulf	CSIRO Division of Marine Research	270,890
1999/225	Development of a model of the spread of the pilchard fish kill events in southern Australian waters	CSIRO Division of Marine Research	35,658
1999/226	Generation of diagnostic reagents for pilchard herpes virus	CSIRO Livestock Industries	32,255
1999/227	Pilchard mortality events in Australia and related world events	Dept of Primary Industries and Resources SA	31,095
1999/229	A quantitative assessment of the environmental impacts of mussel aquaculture on seagrasses	International Risk Consultants	54,783
1999/230	Inventory and assessment of Australian estuaries	CSIRO Land and Water	250,030
1999/336	Fish movement and migration: an Australian Society for Fish Biology workshop	Australian Society for Fish Biology	20,900
2000/100	Age and growth of bigeye tuna (*Thunnus obesus*) from the eastern and western Australian Fishing Zone	CSIRO Division of Marine Research	69,774
2000/101	Development of harvest strategies for selected South East Fishery species	CSIRO Division of Marine Research	35,114
2000/102	Spawning and reproductive biology of blue grenadier in south-eastern Australia and winter spawning aggregation off western Tasmania	Natural Resources and Environment, Victoria	45,090

Project ID	Project title	Organisation name	$
2000/105	Preparation of a field guide to sharks and rays caught in Australian fisheries	CSIRO Division of Marine Research	37,672
2000/108	Population structure of the Patagonian toothfish (*Dissostichus eleginoides*) in Australian waters	CSIRO Division of Marine Research	35,609
2000/109	Stock assessment and management strategy evaluation for sub-Antarctic fisheries	CSIRO Division of Marine Research	29,366
2000/112	Assessment of illegal catches of Australian abalone, phase 2: development of desk-based survey methods	Natural Resources and Environment, Victoria	52,687
2000/120	Population dynamics and assessment of sand and rock flathead in Victorian waters	Natural Resources and Environment, Victoria	29,350
2000/121	Population dynamics and reproductive ecology of the southern calamari in Tasmania	University of Tasmania	98,044
2000/123	Risk analysis and sustainability of southern rock lobster (*Jasus edwardsii*) resources in SA	SA Research and Development Institute	31,539
2000/125	Implementation of an age-structured stock assessment model for pilchards (*Sardinops sagax*) in SA	SA Research and Development Institute	51,432
2000/127	Predicting and assessing recruitment variation: a critical factor for the management of the *Pinctada maxima* fishery in WA	Dept of Fisheries Western Australia	49,268
2000/131	Assessing short-term movements of western rock lobsters by analysis of carbon and oxygen isotope ratios in their exoskeleton	Dept of Fisheries Western Australia	33,456
2000/132	Characterisation of the inshore fish assemblages of the Pilbara and Kimberley coasts	Dept of Fisheries Western Australia	90,337
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	Dept of Fisheries Western Australia	98,633
2000/135	Regrowth of pilchard (*Sardinops sagax*) stocks off southern WA following the mass mortality event of 1998–99	Dept of Fisheries Western Australia	22,510
2000/137	Determination of the biological parameters required for managing the fisheries of four tuskfish species and western yellowfin bream	Murdoch University	50,767
2000/138	Minimising the cost of future stock monitoring, and assessment of the potential for increased yields from oceanic snapper (*Pagrus auratus*) stock off Shark Bay	Dept of Fisheries Western Australia	32,440
2000/139	Quantification of changes in recreational catch and effort on inner Shark Bay snapper species following implementation of responsive management measures	Dept of Fisheries Western Australia	13,611
2000/142	Methods for monitoring abundance and habitat for northern Australian mud crab (*Scylla serrata*)	NT Dept of Primary Industry and Fisheries	80,949

NATURAL RESOURCES SUSTAINABILITY PROJECTS CONTINUED

Project ID	Project title	Organisation name	$
2000/145	National application of sustainability indicators for Australian fisheries	Dept of Fisheries Western Australia	95,675
2000/146	Developing environmental management standards for the Australian seafood industry	Ocean Watch Australia Ltd	114,878
2000/149	AAHL Fish Diseases Laboratory bacteriology workshop	CSIRO Livestock Industries	18,496
2000/151	Control of *Perkinsus* disease in abalone	University of Queensland	59,675
2000/153	Integrating fishing industry knowledge of fishing grounds with scientific data on seabed habitats for informed spatial management and ESD evaluation in the South East Fishery	CSIRO Division of Marine Research	51,107
2000/157	Development of a fisheries habitat suitability model utilising a geographic information system	Natural Resources and Environment, Victoria	55,294
2000/159	The importance to commercial and recreational fish species of the various habitats found in the near-shore marine waters and estuaries of south-western Australia	Murdoch University	68,295
2000/160	Developing surrogates for ecosystems, assessing the impacts of trawling, and modelling the performance of spatial closures on the Northern Prawn Fishery	CSIRO Division of Marine Research	150,664
2000/163	Toxicity and sub-lethal effects of persistent pesticides on juvenile prawns and a common inter-tidal seagrass species	University of Adelaide	32,361
2000/164	Atlantic Salmon Aquaculture Subprogram: development of novel methods for assessment of sediment condition and determination of management protocols for sustainable finfish cage aquaculture operations	University of Tasmania	78,437
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	Dept of Fisheries Western Australia	59,227
2000/169	Effects of Trawling Subprogram: assessment of bycatch in the Great Australian Bight Trawl Fishery	Natural Resources and Environment, Victoria	73,327
2000/170	Effects of Trawling Subprogram: bycatch weight, composition and preliminary estimates of the impact of bycatch reduction devices in Queensland's trawl fishery	Dept of Primary Industries, Queensland	57,510
2000/172	Bycatch assessment of the estuarine commercial gillnet fishery in NSW	NSW Fisheries	37,645
2000/173	Effects of Trawling Subprogram: assessment and improvement of BRDs and TEDs in the Northern Prawn Fishery — a cooperative approach by fishers, scientists, fisheries technologists, economists and conservationists	CSIRO Division of Marine Research	207,506

Project ID	Project title	Organisation name	$
2000/176	Assessment and management of potential impacts of prawn trawling on estuarine assemblages	University of Sydney	100,543
2000/179	Habitat restoration and management: a trial of an investment-based approach	WBM Oceanics Australia	43,030
2000/180	Restocking the Blackwood River Estuary with black bream (*Acanthopagrus butcheri*)	Challenger TAFE	37,020
2000/182	Eradicating European carp from Tasmania and implications for national European carp eradication	Inland Fisheries Services, Tasmania	28,962
2000/185	Rock Lobster Enhancement and Aquaculture Subprogram: evaluating the release and survival of juvenile rock lobsters released for enhancement purposes	University of Tasmania	62,857
2000/186	Assessment of the impacts of hydro-electric dams on eel stocks in Tasmania and an evaluation and assessment of mitigation strategies	University of Tasmania	71,363
2000/187	Direct sensing of the size and abundance of target and non-target fauna in Australian fisheries: a national workshop	University of Western Australia	15,133
2000/189	Effects of Trawling Subprogram: implementation and assessment of bycatch reduction devices in the Shark Bay and Exmouth Gulf trawl fisheries	Dept of Fisheries Western Australia	135,253
2000/190	Development of a business plan for enhancement of saucer scallops in sub-tropical waters	Dept of Primary Industries, Queensland	23,997
2000/192	The Third International Billfish Symposium	University of Queensland	12,500
2000/194	Maximising survival of released under-sized west coast reef fish	Dept of Fisheries Western Australia	99,636
2000/195	Assessing the impact of proposed marine protected areas on SA rock lobster catches	SA Research and Development Institute	7,500
2000/196	World's best practice in environmental management of shrimp farming	Agriculture, Fisheries and Forestry – Australia	7,500
2000/197.01	Commonwealth fisheries policy review	Fisheries Research and Development Corporation	13,419
2001/069	Compliance program evaluation and optimisation in commercial and recreational Western Australian fisheries	Dept of Fisheries Western Australia	89,353
2001/072	Development of options for improving the planning and managing of abalone wild-catch R&D	Abalone Industry Association of SA Inc.	28,788
2001/100	National strategy for the survival of line caught fish: planning, project management and communications	Australian National Sportfishing Association	12,650
Total Natural Resources Sustainability projects			**10,907,321**

Industry Development projects

Project ID	Project title	Organisation name	$
1993/151	Commercialisation of triploid Sydney rock and Pacific oysters	NSW Fisheries	14,550
1994/075.80	Enhancement of yabby production from Western Australian farm dams: benefit-cost analysis	Dept of Fisheries Western Australia	4,395
1994/085	Abalone Aquaculture Subprogram: optimisation of essential lipids in artificial feeds for Australian abalone	CSIRO Division of Marine Research	16,153
1994/134.02	Development of a code of practice for handling live rock lobster	Western Australian Fishing Industry Council	15,428
1995/060	Diagnosis and identification of *Aeromonas salmonicida* and detection of latent infections in carrier fish	CSIRO Livestock Industries	-2,500
1995/102	Development of a selective longline system for the capture of Ray's bream	Australian Maritime College	24,728
1995/166	High-quality eggs and nauplii for the Australian prawn industry	Australian Institute of Marine Science	53,171
1995/176	Options for reducing dependency of the Australian aquaculture industry, ornamental fish industry, commercial and recreational fishing industry and stockfeed industry on imported aquatic imports	Aquaculture Development & Veterinary Services Pty Ltd	2,360
1996/301	Diagnosis and prevention of the mid-crop mortality syndrome of pond-reared black tiger prawns (*Penaeus monodon*)	Dept of Primary Industries, Queensland	7,119
1996/302	Development of the aquaculture capability of the brown tiger prawn (*Penaeus esculentus*)	CSIRO Division of Marine Research	89,211
1996/314	Aquaculture chemical registration	Aquaculture Development & Veterinary Services Pty Ltd	13,269
1996/341	Maintenance and operation of the Australian Seafood Extension and Advisory Service	Dept of Primary Industries, Queensland	24,051
1996/342	Production of micro-algal concentrates for aquaculture: an extension to project 93/123	NSW Fisheries	10,410
1996/344	Rock Lobster Post-harvest Subprogram: physiological studies of stress and morbidity during post-harvest handling and storage of western rock lobster (*Panulirus cygnus*)	Curtin University of Technology	26,888
1996/357	Selective breeding for disease resistance and fast growth in Sydney rock oysters	NSW Fisheries	41,234
1996/385	Abalone Aquaculture Subprogram: manufactured diet development	SA Research and Development Institute	78,446
1996/391	Aquaculture Diet Development Subprogram: ingredient evaluation	NSW Fisheries	43,557
1996/398	Intensive cultivation of a calanoid copepod for live food in fish culture	Curtin University of Technology	15,339
1997/222	Development of continuous prawn cell lines for virus isolation and cultivation	CSIRO Livestock Industries	10,296

Project ID	Project title	Organisation name	$
1997/307	Biochemical measures of health of farmed tuna using surrogate species	Flinders University	9,596
1997/309	Elucidation of the characteristics of inland fresh and saline water bodies that influence growth and survival of black bream	Dept of Fisheries Western Australia	25,228
1997/312	Assessment of eastern Australian glass eel stocks and associated eel aquaculture	Natural Resources and Environment, Victoria	51,384
1997/316	Development of immuno-assays to measure markers of growth and stress in farmed fish	CRC for Tissue Growth and Repair	21,161
1997/319	Enhancement of yabby production from farm dams	Dept of Fisheries Western Australia	110,797
1997/321	Selective breeding of Pacific oysters	University of Tasmania	20,228
1997/329	Evaluation of novel micro-heterotrophs that produce polyunsaturated fatty acids, for incorporation into aquaculture feeds	University of Tasmania	48,906
1997/342	Hooking into Asian seafood markets: commercial development of selected under-utilised Australian fisheries resources for Asian markets	Dept of Primary Industries, Queensland	18,909
1997/344	Pearl oyster genetics	Australian Institute of Marine Science	85,412
1997/361	Southern Bluefin Tuna Aquaculture Subprogram Project 1: implementation and coordination of research experiments conducted with farmed southern bluefin tuna to assess manufactured diets, feeding regimes and harvesting techniques	SA Research and Development Institute	186,774
1997/362	Southern Bluefin Tuna Aquaculture Subprogram Project 2: development and optimisation of manufactured feeds for farmed southern bluefin tuna	SA Research and Development Institute	163,354
1997/363	Southern Bluefin Tuna Aquaculture Subprogram Project 3: experimental analyses of the effects of ration and feeding frequency on the thermodynamics, energetics, growth and condition of farmed southern bluefin tuna	CSIRO Division of Marine Research	17,723
1997/364	Southern Bluefin Tuna Aquaculture Subprogram Project 4: effect of husbandry and handling techniques on the post-harvest quality of farmed southern bluefin tuna	Dept of Primary Industries, Queensland	20,141
1997/405	Development of value-added prawn products through assessing and refining the cold chain and freezing techniques of brine immersion freezers	Dept of Primary Industries, Queensland	9,760
1997/410	Development of value-adding products and preliminary marketing trials for jack mackerel (*Trachurus declivis)*	Australian Maritime College	6,324
1997/416	Development of a smoked karasume and a karasume in sauce	Dept of Primary Industries, Queensland	6,440
1998/165	Framework for valuing fisheries resource use	University of Queensland	89,250

INDUSTRY DEVELOPMENT PROJECTS CONTINUED

Project ID	Project title	Organisation name	$
1998/166	Estimation of gross value of fisheries production	Australian Bureau of Agricultural and Resource Economics	32,695
1998/209	Detection and abundance of *Paramoeba* species in the environment	CSIRO Division of Marine Research	12,000
1998/300	Rock Lobster Enhancement and Aquaculture Subprogram: propagation of rock lobster — development of a collaborative national project with international partners	University of Tasmania	9,297
1998/301	Rock Lobster Enhancement and Aquaculture Subprogram Project 1: facilitation, administration and promotion	Barneveld Nutrition Pty Ltd	99,327
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	Dept of Fisheries Western Australia	150,593
1998/305	Rock Lobster Enhancement and Aquaculture Subprogram Project 5: determination of the optimum environmental and system requirements for juvenile and adult rock lobster holding and grow-out	University of Adelaide	3,300
1998/306	Abalone Aquaculture Subprogram: early life history of abalone (*Haliotis rubra*, *H. laevigata*): settlement, survival and early growth	Deakin University	51,690
1998/311	Application of extra-cellular enzyme techniques to studying the role of bacteria in the ecology of prawn ponds and diseases of *P. monodon* and *P. japonicus*	University of Western Sydney, Macarthur	205,609
1998/314	Evaluation of anti-foulants on over-catch, other forms of biofouling and mud worm in Sydney Rock Oysters	University of New South Wales	52,734
1998/319	Oyster depuration: a re-assessment of depuration conditions and the role of bacterial and viral indicators in determining depuration effectiveness	University of New South Wales	39,744
1998/322	Aquaculture Diet Development Subprogram: feed development for Atlantic salmon (*Salmo salar*)	University of Tasmania	68,585
1998/329	Visual development in the WA dhufish (*Glaucosoma hebraicum*)	Challenger TAFE	2,507
1998/338	Prevention of occupationally related infections in western rock lobster fishermen	Western Australian Fishing Industry Council	26,351
1998/352	Live export opportunities for value-adding of Australian freshwater and estuarine fishes	Southern Fishermen's Association Inc.	27,185
1998/354	Electronic cooking end-point determination and the effectiveness of alternative cooking methods for Crustacea	Dept of Primary Industries, Queensland	104,519
1998/357	Update of the Australian prawn farming industry R&D plan	Australian Prawn Farmers Association	519

Project ID	Project title	Organisation name	$
1999/201	Development of selective enrichment culture-polymerase chain reaction for detection of bacterial pathogens in covertly infected farmed salmonid fish	University of Tasmania	49,400
1999/305	Abalone Aquaculture Subprogram: identification of insulin-like peptides from abalone	Flinders University	15,785
1999/307	Optimal stocking density for Sydney and Pacific oyster cultivation	University of Sydney	8,704
1999/315	Rock Lobster Enhancement and Aquaculture Subprogram: propagation techniques	University of Tasmania	37,473
1999/319	Aquaculture Diet Development Subprogram: post-harvest enhancement of sea urchin roe for the Japanese market	SA Research and Development Institute	48,198
1999/320	Factors required for successful aquaculture of black bream in inland water-bodies: extension to project 1997/309	Murdoch University	94,333
1999/323	Aquaculture Diet Development Subprogram: rapid development of diets for Australian snapper	NSW Fisheries	66,374
1999/328	Development of intensive commercial aquaculture production technology for Murray cod	Natural Resources and Environment, Victoria	125,900
1999/331	Nutritional value of Australian seafood stage 2: factors affecting oil composition of edible species	CSIRO Division of Marine Research	117,795
1999/333	Establishment of Seafood Services Australia stage 1: extension and advisory services	Dept of Primary Industries, Queensland	48,466
1999/334	Aquaculture diet development subprogram: inclusion of data on the nutritional value of ingredients used in aquaculture feeds in the Australasian Livestock Feed Ingredient database	SA Research and Development Institute	37,500
1999/346	Hooking into Asian festivals	Dept of Primary Industries, Queensland	10,991
1999/347	Hooking into Asian seafood markets	Dept of Primary Industries, Queensland	35,453
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	Australian Prawn Promotion Association	63,918
1999/357	Establishment of Seafood Services Australia stage 1: seafood quality management and seafood safety (SeaQual Australia)	Queensland Seafood Industry Association	386,455
1999/358	Evaluating effective quality monitoring methods for the Australian seafood industry	Dept of Primary Industries, Queensland	51,706
1999/361	Development of a stock protection system for flexible oceanic pens containing finfish	Tasmanian Salmonid Growers Association Ltd	21,305
1999/371	Factors affecting the profitability of the Northern Territory demersal fishery	NT Dept of Primary Industry and Fisheries	12,860
1999/372	Off-season trial of artificial rock lobster baits	Dept of Fisheries Western Australia	12,573

INDUSTRY DEVELOPMENT PROJECTS CONTINUED

Project ID	Project title	Organisation name	$
1999/373	Development of a dry, pathogen-free, water-stable lobster bait: investigation into operational parameters	Food Centre of Western Australian Inc.	9,657
1999/376	Southern Bluefin Tuna Aquaculture Subprogram: development of a strategic plan for the propagation of southern bluefin tuna	Agriculture, Fisheries and Forestry – Australia	18,932
1999/381	Aquaculture Diet Development Subprogram review	Barneveld Nutrition Pty Ltd	4,000
1999/424	Value adding to fish processing waste through aquafeed development	Natural Resources and Environment, Victoria	20,000
2000/200	Abalone Aquaculture Subprogram: facilitation, administration and promotion	Abalone Aquaculture Consultancy Pty Ltd	62,590
2000/201	Abalone Aquaculture Subprogram: selective breeding of farmed abalone to enhance growth rates	SA Research and Development Institute	90,686
2000/202	Abalone Aquaculture Subprogram: development of spermatozoa cryo-preservation techniques in farmed abalone	SA Research and Development Institute	9,047
2000/203	Abalone Aquaculture Subprogram: adaptation of nutritional technologies developed for greenlip abalone for the production of suitable manufactured feeds for blacklip abalone	SA Research and Development Institute	40,447
2000/204	Abalone Aquaculture Subprogram: commercial control of spawning in temperate abalone	University of Tasmania	38,907
2000/205	Abalone Aquaculture Subprogram: potential for antibiotic use in abalone for disease control	University of Tasmania	15,856
2000/206	Sustainable genetic improvement of Pacific oysters in Tasmania and South Australia	CSIRO Division of Marine Research	87,271
2000/210	Development of commercial production systems for mud crab (*Scylla serrata*) aquaculture in Australia: hatchery and nursery	NT Dept of Primary Industry and Fisheries	82,133
2000/211	Rock Lobster Enhancement and Aquaculture Subprogram: investigation of tail fan damage in live-held adult rock lobsters	University of Adelaide	36,146
2000/212	Rock Lobster Enhancement and Aquaculture Subprogram: the nutrition of juvenile and adult lobsters to optimise survival, growth and condition	CSIRO Division of Marine Research	82,700
2000/214	Rock Lobster Enhancement and Aquaculture Subprogram: advancing the hatchery propagation of rock lobsters	University of Tasmania	101,225
2000/215	Improved performance of marron using genetic and pond management strategies	Dept of Fisheries Western Australia	123,184
2000/219	Southern Bluefin Tuna Aquaculture Subprogram: management, service delivery, infrastructure and technical support	SA Research and Development Institute	357,995

Project ID	Project title	Organisation name	$
2000/220	Southern Bluefin Tuna Aquaculture Subprogram: use of steam extrusion and nutritional surrogates to develop a suitable manufactured diet to replace bait fish as the primary source of nutrients for Southern Bluefin Tuna	SA Research and Development Institute	85,077
2000/221	Southern Bluefin Tuna Aquaculture Subprogram: quality and nutritional evaluation of baitfish used for tuna farming	Tuna Boat Owners Association of South Australia	32,675
2000/223	Atlantic Salmon Aquaculture Subprogram: facilitation, administration and promotion	University of Tasmania	71,608
2000/224	Atlantic Salmon Aquaculture Subprogram: molecular genetic tools for the Tasmanian Atlantic salmon industry — development and application	CSIRO Division of Marine Research	98,934
2000/226	Publication of a manual for the hatchery production of snapper (*Pagrus auratus*)	Challenger TAFE	16,237
2000/231	New targets for aquaculture — stage 1	Australian Institute of Marine Science	78,882
2000/234	National commercial fishing industry response to changes to the USL code	Western Australian Fishing Industry Council	22,882
2000/240	Operation of Seafood Services Australia: technical information and advice	Dept of Primary Industries, Queensland	98,319
2000/242	South East Fishery Industry Development Subprogram: facilitation, administration and promotion	Natural Resources and Environment, Victoria	25,710
2000/245	Seafood Services Australia: seafood food safety risk assessment — phase 2	M&S Food Consultants Pty Ltd	32,231
2000/246	Abalone Aquaculture Subprogram: quality systems for abalone (*Haliotis*) farming in SA, Vic, Tas and WA	M&S Food Consultants Pty Ltd	25,000
2000/247	Southern Bluefin Tuna Aquaculture Subprogram: using contemporary grading technologies to maximise product quality of farmed tuna — husbandry and seasonal effects on muscle development, fat content and flesh colour	Flinders University	53,884
2000/250	Rock Lobster Post Harvest Subprogram: facilitation, administration and promotion	Curtin University of Technology	57,478
2000/251	Rock Lobster Post Harvest Subprogram: development of a method for alleviating leg loss during post-harvest handling of rock lobsters	University of Western Australia	111,379
2000/252	Rock Lobster Post Harvest Subprogram: optimising water quality in rock lobster post-harvest processes	University of Tasmania	72,684
2000/256	Development of manufactured attractants as a means to harvest prawns specifically	Australian Institute of Marine Science	87,012
2000/257	Analytical techniques for assessment of water quality, contamination and quality assurance in farmed Pacific oysters in SA	Flinders University	71,322

INDUSTRY DEVELOPMENT PROJECTS CONTINUED

Project ID	Project title	Organisation name	$
2000/263	Rock Lobster Enhancement and Aquaculture Subprogram: reducing rock lobster larval rearing time through hormonal manipulation	Australian Institute of Marine Science	29,212
2000/264	Australian eel aquaculture industry development strategy and associated investment analysis	Natural Resources and Environment, Victoria	30,000
2000/266	Atlantic Salmon Aquaculture Subprogram: effective treatments for the control of amoebic gill disease	University of Tasmania	43,196
2000/267	Development of a health management strategy for the silver perch aquaculture industry	NSW Fisheries	25,019
2000/268.01	NSW oyster industry R&D workshop 2000	Fisheries Research and Development Corporation	2,252
2000/269	Marine scalefish sector: Seafood Services Australia food safety pilot project	SA Fishing Industry Council	14,900
2000/400.01	Operation of Seafood Services Australia: product and process development	Fisheries Research and Development Corporation	34,269
2000/401	A code of practice for the on-board handling of shark from Western Australian demersal gillnet and demersal longline fishery	Western Australian Fishing Industry Council	43,042
2000/483	Prawn allergen identification and purification	Elisa Systems	5,000
2000/485	Shelf life study for vacuum packed barramundi fillets	Seafarmers Pty Ltd	4,000
2001/235	Rock Lobster Post Harvest Subprogram: striking a balance between melanosis and weight recoveries in western rock lobster (*Panulirus cygnus*)	Curtin University of Technology	49,439
2001/313.08	Ex ante benefit-cost analysis of 2001 applications and ex post benefit-cost analysis of projects	Esys Development	40,000
2001/402	Developing case ready retail and bulk catering pack for seafood using MAP technology	Kailis Bros Pty Ltd	10,000
Total Industry Development projects			**6,063,755**

Human Capital Development projects

Project ID	Project title	Organisation name	$
1993/214.05	Recruitment of population dynamicist	NSW Fisheries	80,200
1996/343	ASIEN: Delivering R&D outcomes through training	Australian Seafood Industry Council	6,750
1997/337	Training for fisheries managers	Australian Maritime College	65,217
1998/165	Framework for valuing fisheries resource use	University of Queensland	882
1998/166	Estimation of gross value of fisheries production	Australian Bureau of Agricultural and Resource Economics	1,692
1998/342	Aquaculture genetics workshop	Aquaculture Council of Western Australia Inc.	4,802
1998/348	Quantitative Training Unit for Fisheries (phase 2)	University of Sydney	42,218
1998/351	Development and production of the second edition of the Australian Seafood Catering Manual	Dept of Primary Industries, Queensland	80,565
1999/335	Seventh international symposium on genetics in aquaculture	Australian Institute of Marine Science	39,612
1999/340	Seafood Directions '99: the inaugural biennial national seafood industry conference	Seafood Council (SA) Ltd	13,263
1999/353	Australian Rural Leadership Program	Australian Rural Leadership Foundation	75,000
1999/354	QFISH Foresight Project: a strategic planning and futuring project to create a strong coordinated commitment by all stakeholders to an agreed vision of the fisheries of the future	Dept of Primary Industries, Queensland	83,297
1999/356	Empowering fishing women to capitalise on networks	Women's Industry Network — Seafood Community	21,078
2000/265	International Association of Astacology (freshwater crayfish) symposium and workshop	Curtin University of Technology	11,250
2000/303	Seafood Directions 2001: second biennial national seafood industry conference	Queensland Seafood Industry Association	45,000
2000/304	A workshop to investigate the development of training and accreditation procedures for provision of scientific data by fishing industry	CSIRO Division of Marine Research	11,119
2000/307	Development and delivery of a model for a national seafood industry advanced leadership program	Australian Fisheries Academy	98,850
2000/308	Developing Australian fisheries management training	Australian Maritime College	78,425
2000/311	Development of research methodology and quantitative skills for integrated fisheries management in Western Australia	Murdoch University	26,496
2000/312.01	Australian Prawn Farmers Association conference 2000	Fisheries Research and Development Corporation	1,786
2000/313	Recfish Australia R&D plan	Recfish Australia	14,921

Project ID	Project title	Organisation name	$
2001/305	Inaugural National Abalone Convention	Abalone Industry Association of SA Inc.	14,000
2001/310	Developing a community communication plan and communication resources for the seafood industry	Judith Ham Consulting	36,092
Total Human Capital Development projects			**852,515**

Commonwealth-funded Aquatic Animal Health project

Project ID	Project title	Organisation name	$
2000/601	Aquaplan resources and funding consultancy	Econosearch	34,919
Total Commonwealth-funded Aquatic Animal Health activities			**34,919**

Total R&D expenditure	**17,858,511**

Appendix E: Report of the committee to select FRDC directors

COMMITTEE FOR SELECTION OF DIRECTORS
OF THE
FISHERIES RESEARCH AND DEVELOPMENT CORPORATION

c/- Fisheries and
Aquaculture Branch
AFFA
GPO Box 858
CANBERRA ACT 2601

31 May, 2001

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

Dear Senator,

Report of the Selection Committee

This report summarises the activities of the Selection Committee in respect of directors of the Fisheries Research and Development Corporation.

The period of appointment for nominated directors of the Fisheries Research and Development Corporation expired on 31 December 2000. Senator the Hon Judith Troeth, Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry, appointed Ms Jenny Varcoe-Cocks as Presiding Member of the Selection Committee with effect from 19 June 2000 in accordance with section 122 of the *Primary Industries and Energy Research and Development Act 1989* (PIERD Act).

Selection Committee

Nominations for the Committee were sought from the Australian Seafood Industry Council and Recfish Australia in accordance with section 124 of the PIERD Act. The Selection Committee comprised:

Mr Ross Hodge, Executive Director, Seafood Industry Victoria
Mr John Harrison, Executive Officer, Amateur Fishermen's Association, NT
Mr Ted Loveday, Chief Executive, Queensland Seafood Industry Association
Mr John Cole, Chairman, WA Fishing Industry Council
Mr Robert Lister, Chief Executive, Tasmanian Fishing Industry Council
Mr Nigel Scullion, Chair, Australian Seafood Industry Council

Selection Process

The Committee agreed in principle on the core criteria required of Board members, which included demonstrated expertise in one or more of the following fields:

- 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

The vacancies were advertised through the media Australia-wide and existing Board members were encouraged to apply. The advertisements attracted strong interest and some 140 applications were received. The positions were advertised through the AFFA website. The selection process included wide-ranging networking and consultation with affiliated organisations. Professional data banks were also accessed through relevant agencies. The research process ensured that a relevant range of skills and experience were identified in the selection process.

The Selection Committee conferred and agreed on the balance of skills and personal attributes ideally required, and also confirmed that candidates as individuals should demonstrate a capability to bring sound judgment and wide-ranging experience to the Board. The Presiding Member also conferred with the FRDC Chairperson for his views

on the future strategic direction of the FRDC and the ideal appropriate mix of skills and experience required of the Board.

Board Appointments

Candidates were selected for interview from both the advertisement and search processes. Interviews were conducted in Melbourne over a two-day period. Following the interviews the Selection Committee conferred on the choice of recommended candidates. The Committee made its final decisions taking into account the balance and range of attributes required and ensuring the need for diversity and importantly that professional, scientific and strategic business acumen were evident.

Recommendations were made to the Parliamentary Secretary on 17 October 2000. The Parliamentary Secretary made the following appointments:

Mr Bill Sawynok (re-appointed)
Mr Sandy Wood-Meredith (re-appointed)
Dr Diana Day (re-appointed)
Mr Simon Bennison (re-appointed)
Mr David Newton (new appointment)
Mr Ian Cartwright (new appointment)

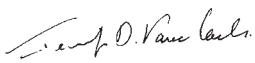
The term of appointment is from 1 January 2001 to 31 August 2003.

As required by section 129 of the PIERD Act, Ms Jenny Varcoe-Cocks subsequently abolished the Selection Committee.

The Department of Agriculture, Fisheries and Forestry – Australia nominated executive support for this assignment.

Expenses incurred were as follows.

Item	$ (GST exclusive)
Selection Committee travel and expenses	9,150
Applicants travel and expenses	8,987
Advertising – newspapers and web page	19,492
Presiding member consultation fees	9,100
Secretarial costs (supporting Selection Committee)	3,380
Fees charged by AFFA for administrative support	15,730
TOTAL	**65,839**



Jenny Varcoe-Cocks
Presiding Member

Glossary

2000–2001	The financial year 2000–2001, namely 1 July 2000 to 30 June 2001.
AFFA	See *Agriculture, Fisheries and Forestry – Australia*.
AFMA	See *Australian Fisheries Management Authority*.
ANAO	The Australian National Audit Office.
Agriculture, Fisheries and Forestry – Australia	The general usage name for the Commonwealth's Department of Agriculture, Fisheries and Forestry. Among other things, the department manages the Ministers' portfolio responsibilities for the rural R&D corporations.
AGVP	See *average GVP*.
annual operational plan	The 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.
Aquaplan	A plan under which AFFA is implementing the Commonwealth Government's initiative 'Building a national approach to animal and plant health'. The plan is also guiding the FRDC's Aquatic Animal Health Subprogram.
ARSFIC	See *Australian Recreational and Sport Fishing Industry Confederation*.
ASIC	See *Australian Seafood Industry Council*.
Australian Fisheries Management Authority	The Commonwealth statutory authority responsible for the management of fisheries under Commonwealth jurisdiction.
Australian Recreational and Sport Fishing Industry Confederation	The peak body representing the recreational sector of the industry (trading as Recfish Australia). See also *Australian Seafood Industry Council*.
Australian Seafood Industry Council	The peak body representing the commercial sector of the industry. See also *Australian Recreational and Sport Fishing Industry Confederation*.
average GVP	Average gross value of production. The FRDC's primary revenue source is based on the average gross value of fisheries production for the three preceding years, as described on page 12.
baseline of the territorial sea	For the most part, the low-water mark along the coast of continental Australia and its island territories. However, it also consists of bay and river closing lines and some straight lines between the mainland and adjacent islands and across parts of the coast that are deeply indented.
BCA	Benefit-cost analysis.
benchmark	Point of reference against which change may be measured.
biodiversity	See *ecologically sustainable development*.

CAC Act	The *Commonwealth Authorities and Companies Act 1997*, which specifies some of the Commonwealth Government's reporting and corporate governance requirements.
CAC Orders	*Commonwealth Authorities and Companies Orders 1998* (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.
during the year	During the financial year, i.e. 1 July 2000 to 30 June 2001.
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]
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 a Commonwealth 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 a Commonwealth 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.
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. Australia's exclusive economic zone was declared in 1994 under the *Maritime Legislation Amendment Act* (Commonwealth) 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 2000 to 30 June 2001.
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 traditions (see *traditional sector* under *fishing industry* entry); their recreational fishing (that is, not using traditional practices); subsistence fishing (following traditional 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 traditional sector* comprises enterprises and individuals associated with fisheries resources from which Aboriginal and Torres Strait Islander people derive products in accordance with their traditions.
FRAB	Fisheries Research Advisory Body. The roles of the FRABs are described on page 78.
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.
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 Commonwealth Minister for Agriculture, Fisheries and Forestry. The term may include the Parliamentary Secretary to the Minister and the Minister for Forestry and Conservation, who also exercise ministerial powers.
ministerial powers	Powers exercised under the provisions of legislation, especially the PIERD Act, by the Minister or Parliamentary Secretary.
NHT	Natural Heritage Trust.
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. * [The fishing industry comprises commercial, recreational and traditional sectors, as defined on pages 17–18.]
output	The goods and services (mainly knowledge, processes and technology) that the FRDC and its R&D partners produce for external organisations or individuals.
Parliamentary Secretary, the	The Parliamentary Secretary to the Commonwealth Minister for Agriculture, Fisheries and Forestry, who exercises ministerial powers in relation to rural R&D corporations. See also *Minister*.
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.
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 was certified when this report was published was AS/NZS ISO 9002:1994; the FRDC is also preparing for certification against a newer standard, 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, Commonwealth 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 funding of 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	See *Australian Recreational and Sport Fishing Industry Confederation*.
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	A series of R&D projects (soon to be incorporated as a company by the FRDC and the seafood industry) providing an Australia-wide service to people who catch, farm, process, transport, wholesale, retail, export, import or cook seafood. Seafood Services Australia seeks to foster an Australian seafood industry that is profitable and internationally competitive, uses fisheries natural resources in an ecologically sustainable way, and is forward-looking, innovative and socially resilient. It does so by: ■ working with the seafood industry, nationally, so that the industry makes the most of its opportunities and adapts promptly and flexibly to changing business environments; ■ facilitating the seafood industry's uptake of R&D outputs and other forms of knowledge, processes and technology; and ■ obtaining and disseminating information from around the world that benefits the seafood industry.
SeaQual Australia	An activity of Seafood Services Australia that provides guidance on management systems and standards for quality (including food safety) and sustainability. The names "SeaQual" and "SeaQual Australia" and the associated logo are licensed by Seafood Services Australia to kindred organisations. See *Seafood Services Australia*.
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*.
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 governments of the Commonwealth, the states and the territories; and the people of Australia.
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 Department of Prime Minister and Cabinet document *Requirements for departmental annual reports*. The FRDC's supplier selection policy is described on page 82.
sustainable	A characteristic of a process or a state that can be maintained indefinitely.

traditional sector of the industry	See *fishing industry* and (for context) *fishing by Aboriginal and Torres Strait Islander people*. "Customary" is an alternative to "traditional" in some other countries.
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.

Compliance index

This index shows the numbers for pages on which information is provided in response to legislation and Commonwealth 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* and its supporting CAC Orders for the Report of Operations;
- the *Environment Protection and Biodiversity Conservation Act 1999*;
- other legislation, such as the *Freedom of Information Act 1982*, the *Occupational Health and Safety (Commonwealth Employment) Act 1991*, and the *Commonwealth Electoral Act 1918*;
- ministerial notifications of Commonwealth Government policy;
- the document *Requirements for annual reports*, approved by the Joint Committee of Public Accounts and Audit and promulgated by the Department of the Prime Minister and Cabinet in June 2001;
- other Commonwealth 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.

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A major milestone on the journey to ecologically sustainable development

The FRDC's new R&D plan is the first strategic publication that deals with the whole Australian fishing industry. At its core is a forecast of factors that will be important for all three sectors of the industry and the natural resources on which they depend.

An ambitious 20-year time-frame was adopted since many strategic goals for ESD will be achieved only by pursuing them persistently over the long term. Through extensive consultation with stakeholders, the FRDC has ensured that the plan addresses issues of concern throughout the industry and community.

Senator the Hon. Judith Troeth, Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry, launched the plan in February. With her at the launch were Peter Dundas-Smith, Executive Director of the FRDC (left) and Dr Russell Reichelt, Chairman of the FRDC.

The plan is already influencing the directions of fisheries R&D and is being widely used — not only for R&D — by the fishing industry, government agencies, the research community and other stakeholders. It will be re-focused every year in keeping with the FRDC's philosophy of continual improvement.

The Fisheries Research and Development Corporation
is a statutory authority of the Commonwealth Government's
Department of Agriculture, Fisheries and Forestry – Australia