

No. 11

PARLIAMENT OF NEW SOUTH WALES
LEGISLATIVE COUNCIL

STANDING COMMITTEE ON
STATE DEVELOPMENT

Report
on

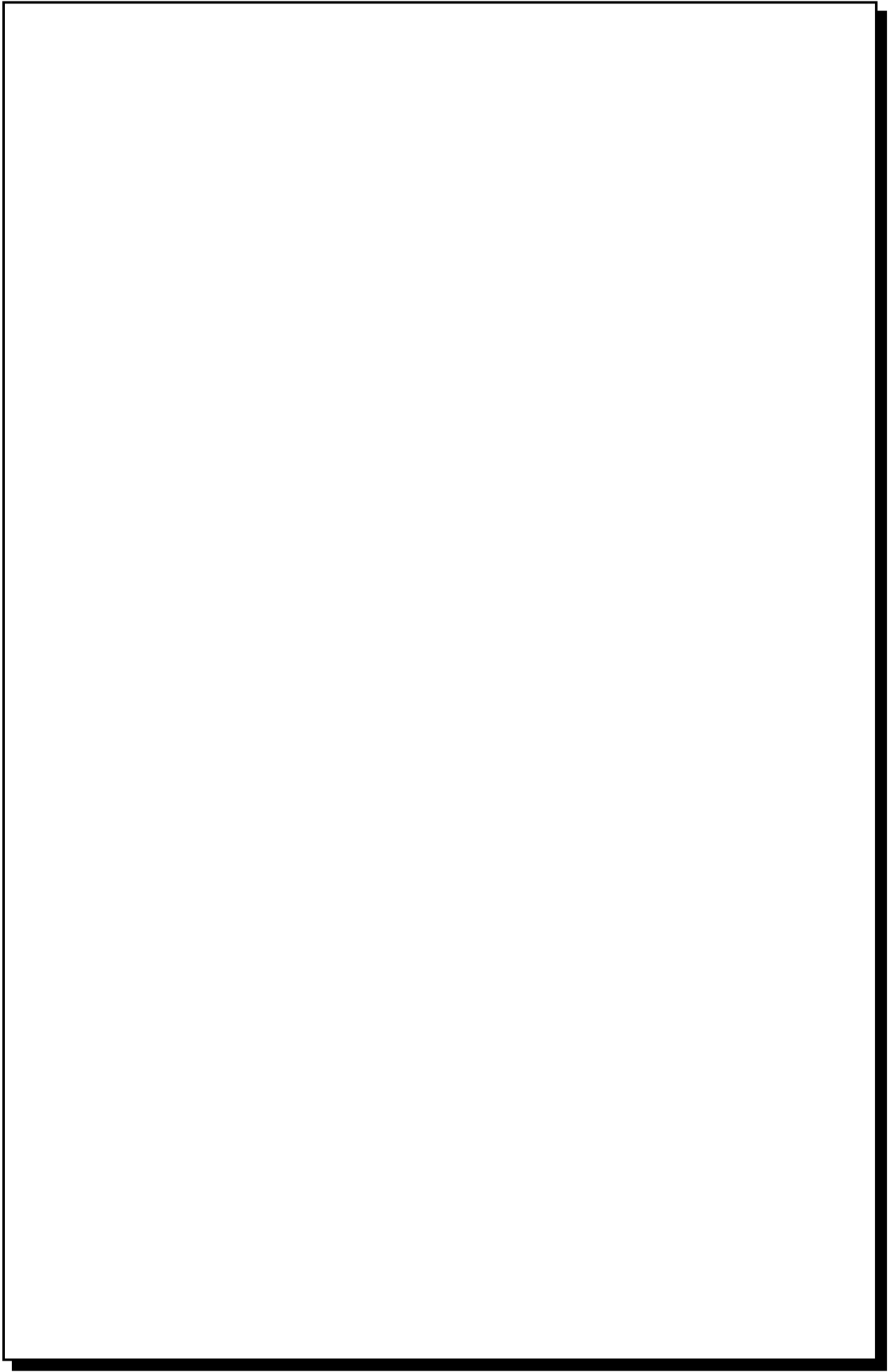
Fisheries Management and Resource
Allocation in New South Wales

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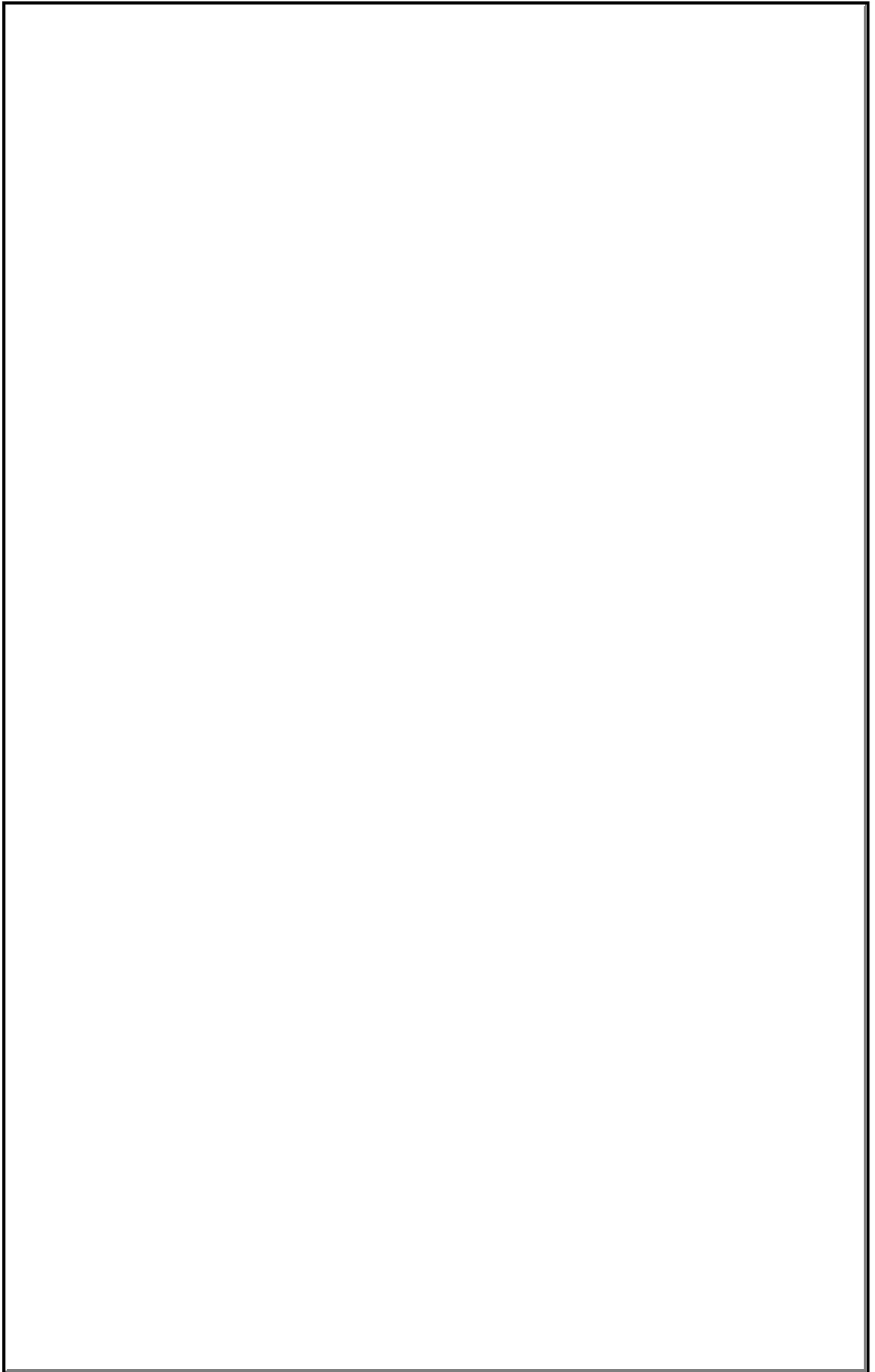


THE INQUIRY'S TERMS OF REFERENCE

Fisheries Management and Resource Allocation in New South Wales

(Reference Received 1 May 1996)

1. That the Standing Committee on State Development inquire into and report on fisheries management and resource allocation in New South Wales and, in particular:
 - a. the implementation and administration of the Fisheries Management Act 1994;
 - b. resource sustainability under current management and administrative practices;
 - c. habitat protection within New South Wales;
 - d. consultative mechanisms within the commercial and recreational fishing sectors and the relevant Department;
 - e. research priorities relating to fisheries management within New South Wales;
 - f. aboriginal participation in the fishing industry and in fisheries management; and
 - g. the licensing, management and monitoring of recreational fishers in New South Wales.
2. That the Committee obtain such expert advice as may be necessary to assist the Committee with its inquiry.
3. That the Committee report by 30 September 1997.



COMMITTEE MEMBERSHIP

The Hon Patricia Staunton, AM, MLC
Australian Labor Party
(2 May 1995 to 2 September 1997) Chairman

The Hon Tony Kelly, MLC
Australian Labor Party
(From 24 September 1997) Chairman

The Hon Dr Brian Pezzutti, RFD, MLC
Liberal Party Deputy Chairman

The Hon Ian Cohen, MLC
The Greens

The Hon Jenny A Gardiner, MLC
National Party

The Hon John R Johnson, MLC
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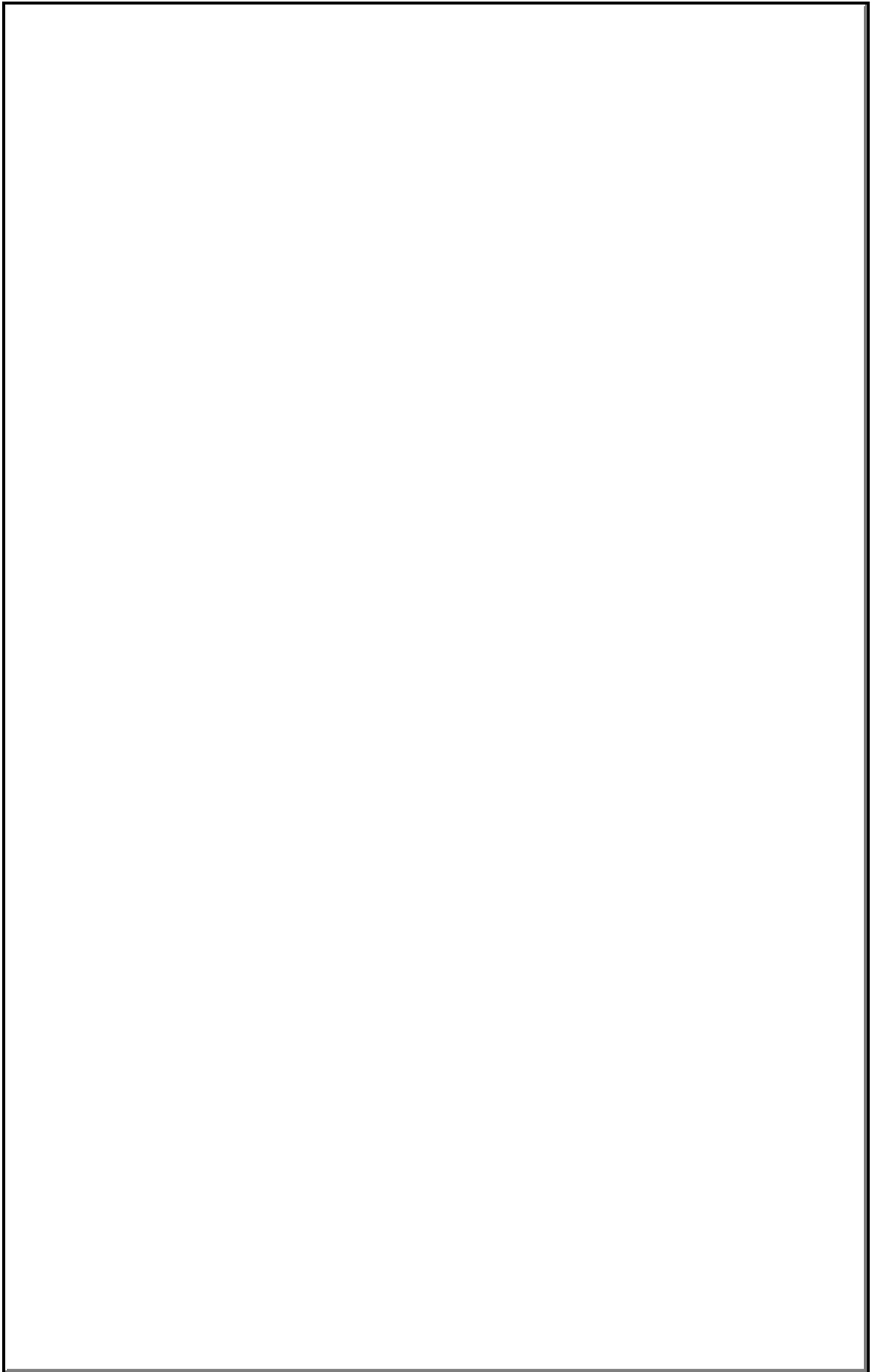
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Secretariat Staff

Mr Stewart Webster
Dr Michael Lowry
Ms Annie Marshall

Director
Senior Project Officer
Committee Officer



CHAIRMAN'S FOREWORD

This report is the culmination of 18 months work by the Standing Committee on State Development. The Standing Committee received the reference for the Fisheries Management and Resource Allocation Inquiry on 1 May 1996. It soon became apparent that the original reporting date of 30 September 1996 was inadequate to ensure that the Standing Committee could give proper consideration to each Term of Reference. In recognition of this, the Legislative Council extended the reporting date to 30 September 1997. Following the resignation of my predecessor, the Hon Patricia Staunton, in September 1997, the reporting date for this inquiry was further extended to 12 November 1997.

The Standing Committee also conducted a related inquiry, Fisheries Advisory Bodies, during this time. Two additional hearings were held in February 1997 and Report Number 16, *The Fisheries Management Amendment (Advisory Bodies) Act 1996*, was tabled on Friday 11 July 1997.

The Standing Committee advertised for public submissions in relation to the Fisheries Management and Resource Allocation Inquiry on Saturday 28 September 1996. A total of 86 submissions were received from recreational and commercial fishers, environmental groups, NSW Fisheries, academics and members of the public. Evidence was also obtained from 129 witnesses during 18 public hearings held between January and July 1997.

This report is divided into four parts. Part 1 introduces many of the issues dealt with later in the report through providing a history of fishing and fisheries management in New South Wales and a description of the physical nature and management of Australian fisheries. Part 2 addresses the administration of the *Fisheries Management Act 1994*. The Act's main provisions are outlined, followed by a description of the implementation of the Act and the present fisheries management and resource allocation functions and performance of NSW Fisheries. Part 3 deals with resource sustainability issues including: marine and inland habitat management; the role and potential of aquaculture in the supplementation of wild-capture fisheries; and the role of fisheries research in providing the Minister and NSW Fisheries with reliable information on which fisheries management decisions can be based. Part 4 focuses on resource assessment and equity issues, with specific reference to compensation and indigenous participation in the fishing industry. The Standing Committee makes 33 recommendations throughout the report which aim to improve the conservation, sustainable development and equitable allocation of the fisheries resources of New South Wales.

In my capacity as Chair and on behalf of the Members of the State Development Committee, I would like to thank the Secretariat staff involved in

the research and preparation of this report. Thanks must go to the Director, Stewart Webster, and the Committee Officer, Annie Marshall, for their management of the inquiry process and work on the final report. I extend special thanks to the Senior Project Officer, Michael Lowry, who was recruited in August 1996 specifically to assist the Standing Committee with the inquiry. Michael's research, grasp of the material and drafting of the final report was invaluable. I would also like to thank John Wilkinson and Stewart Smith of the Parliamentary Research Service for their assistance in the preparation of Chapters 1 and 6 respectively.

Finally, I would like to express my sincere appreciation for all those individuals and organisations who contributed to the inquiry through lodging submissions and appearing before the Committee.

Hon Tony Kelly MLC
Chairman

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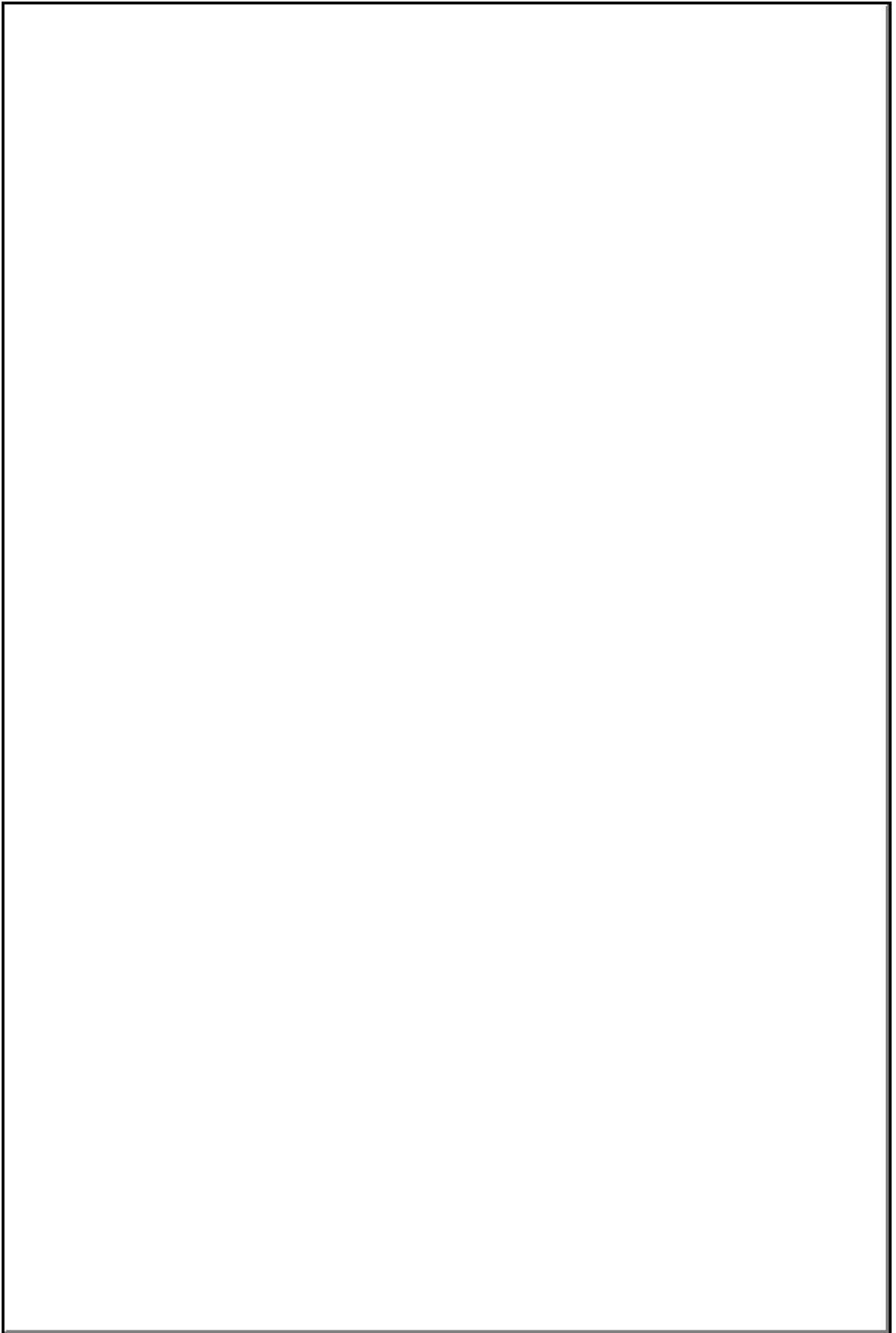
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ESTABLISHMENT AND FUNCTIONS OF THE STATE DEVELOPMENT COMMITTEE

In June 1988, the Legislative Council of the New South Wales Parliament resolved to establish two Standing Committees, the Standing Committee on Social Issues and the Standing Committee on State Development. After the 1995 elections, a third Committee, the Standing Committee on Law and Justice, was established as well.

The Standing Committee on Privilege and Ethics, which does not have a Secretariat, was also reconstituted by resolution.

The functions of the State Development Committee, as set out in the Resolutions of the Legislative Council, are to inquire into, consider and report to the Council on:

- options for future policy directions and emerging issues to ensure that opportunities for sound growth and wise development for the benefit of the people in all areas of New South Wales are pursued;
- any proposal, matter or thing concerned with economics and finances, resources and energy, transportation, tourism, public administration, local government, the Olympics, primary industry, industrial and technological developments and environmental issues in New South Wales;
- employment practices, issues and conditions; and
- any proposal, matter or thing concerned with the problems or disadvantages uniquely or predominantly experienced in country areas, including the viability of cities and towns in those areas.

OPERATION OF THE COMMITTEE

Matters for inquiry may be referred to the Committee by:

- resolution of the Legislative Council
- a Minister of the Crown
- way of relevant annual reports and petitions.

The Committee reports to the Legislative Council. The Committee's reports may include draft Bills designed to give effect to the report's recommendations. The Committee may publish papers and evidence taken in public, as it considers appropriate. In that connection the Committee may prepare and distribute discussion papers as aids to its inquiries.

Committee reports must be laid before the Legislative Council within ten days of their being adopted by the Committee. The reports are given precedence for debate during General Business.

The Leader of the Government in the Legislative Council is required to respond within six months to any recommendations for Government action that have been set out in Standing Committee reports.

In terms of the Legislative Council resolution establishing the Committee, the Committee may:

- summon witnesses
- make inspections
- call upon the services of government organisations and their staff, with the consent of the appropriate Minister

- accept written submissions concerning inquiries from any person or organisation
- conduct public hearings
- meet and make joint reports with other Committees of the legislatures of the Commonwealth and the States.

GLOSSARY

TERM OR ACRONYM	DEFINITION
ACA	Advisory Council on Aquaculture
ACCF	Advisory Council on Commercial Fishing
ACFR	Advisory Council for Fisheries Research
ACoRF	Advisory Council on Recreational Fishing
AFMA	Australian Fisheries Management Authority
AFTA	Australian Fishing Tackle Association
AFZ	Australian Fishing Zone
AMRAC	Aquaculture Management and Research Advisory Committee
CFAC	
CFRC	Commercial Fishers Representative Council
ESD	Ecologically Sustainable Development
FCA	Fishing Council of Australia
FIRAC	Fisheries Industry Research Advisory Committee
FMCs	Fisheries Management Committee
FRDC	Fisheries Research and Development Corporation
HPP	Habitat Protection Plans
IPAs	Intertidal Protected Areas
ITQs	Individual Transferable Quotas
MACs	Management Advisory Committees
NCC	Nature Conservation Council
NRAC	Natural Resources Audit Council (NSW)
NSWSIC	NSW Seafood Industry Council
OCS	Off Shore Constitutional Settlement
OMAC	Oyster Management Advisory Committee
ORAC	Oyster Research Advisory Committee
PEPs	Protection of the Environment Policies
PISA	Primary Industries South Australia
QFMA	Queensland Fisheries Management Authority

TERM OR ACRONYM	DEFINITION
RACAC	Resource and Conservation Assessment Council (NSW)
RFAC	Recreational Fishing Advisory Council
RICs	Regional Industry Conveners
RLCRF	Regional Liaison Committees for Recreational Fishing
SARDI	South Australian Research and Development Institute
SARFAC	South Australian Recreational Fishing Advisory Council
SEF	South East Fishery
SMFs	Share Managed Fisheries
TACC	Total Allowable Catch Committee
VFLOs	Volunteer Fishing Liaison Officers
ZACs	Zonal Advisory Committees

PUBLICATIONS BY THE STATE DEVELOPMENT COMMITTEE

TYPE	DATE	TITLE
Discussion Paper 1	May1989	Public Sector Tendering & Contracting in New South Wales: A Survey
REPORT 1	August 1989	Public Sector Tendering & Contracting in New South Wales: Supply of Goods and Services
REPORT 2	October1989	Public Sector Tendering & Contracting in New South Wales: Local Government Tendering & Contracting
Discussion Paper 2	November1989	Coastal Development in New South Wales: Public Concerns & Government Processes
Discussion Paper 3	June 1990	Public Sector Tendering & Contracting in New South Wales: Capital Works Tendering & Contracting : Management Options
REPORT 3	April 1991	Public Sector Tendering & Contracting in New South Wales: Capital Works Tendering & Contracting: Volume A
REPORT4	September1991	Coastal Planning & Management in New South Wales: A Framework for the Future: Volume I
Supplement to 4	September 1991	An Alternative Dispute Resolution Primer

REPORT 5	December 1991	Public Sector Tendering & Contracting in New South Wales: Capital Works Tendering & Contracting: Volume B
REPORT 6	December 1991	Payroll Tax Concessions for Country Industries: Volume I
REPORT 7	June 1992	Public Sector Tendering & Contracting in New South Wales: Supply of Goods and Services: Follow Up Report
REPORT 8	October 1992	Coastal Planning & Management in New South Wales: the Process for the Future: Volume II
REPORT 9	April 1993	Public Sector Tendering & Contracting in New South Wales: Local Government Tendering & Contracting: Follow Up Report
Discussion Paper 4	August 1993	Regional Business Development in New South Wales: Trends, Policies and Issues
REPORT 10	May 1994	Regional Business Development in New South Wales: Achieving Sustainable Growth: Principles for Setting Policy, Volume I
REPORT 11	November 1994	Regional Business Development in New South Wales: Achieving Sustainable Growth: Initiatives for Setting Policy, Volume II
REPORT 12	August 1996	Rationales for Closing the Veterinary Laboratories At Armidale and Wagga Wagga and the Rydalmere Biological and Chemical Research Institute
REPORT 13	October 1996	Factors Influencing the Relocation Of Regional Headquarters of Australian And Overseas Corporations to New South Wales
REPORT 14	April 1997	Interim Report on The Fisheries Management Amendment (Advisory Bodies) Act 1996

REPORT 15	April 1997	Waste Minimisation And Management
REPORT 16	July 1997	The Fisheries Management Amendment (Advisory Bodies) Act 1996
Discussion Paper 5	October 1987	Future Employment and Business Opportunities in the Hunter Region

EXECUTIVE SUMMARY

In tabling this report, the Standing Committee on State Development seeks to increase awareness of the major problems facing the State's fisheries and, through its recommendations to the Government, address existing shortcomings in the present fisheries management system. The Report is divided into four parts. The first introduces the principal issues by examining the New South Wales fishery's history and predominant physical and administrative characteristics. Part two

The History of Fishing and Fisheries Management in New South Wales

Prior to European colonisation, fish and other aquatic species constituted a significant source of food for both inland and coastal aborigines. Aboriginal fishing activity appears to have had little impact on fish populations or distributions.

RECOMMENDATIONS

Recommendation 1

That the Offshore Constitutional Settlement be resolved as a priority by NSW Fisheries to ensure a holistic (consistent) approach to fisheries management across the State/Commonwealth boundary (3 NM).

Recommendation 2

That the Minister implement share management immediately after 30 April 1998 in fisheries whose MACs request it.

Recommendation 3

That kingfish trapping be recommenced on an experimental basis. NSW Fisheries and ex commercial kingfish trappers should operate this pilot scheme for 1 year. Independent assessment of the recreational take, the black market take and the charter boat take should be carried out along with a detailed stock assessment.

Kingfish traps as a method should be assessed for their efficiency, bycatch, state of the fish as landed and value at point of sale in comparison with line fishing for kingfish.

The Total Allowable Catch Committee should be furnished with the results of the assessment and take into account the commercial data for the years 1990- 1995. A TAC for kingfish should be set within 3 months of receiving the detailed stock assessment and take data, and no longer than 18 months from the tabling of this report.

Recommendation 4

The Standing Committee recommends that to protect the beach haul fishery, other boat-based fishing methods (including purse seine operators) should not be able to operate within 500m of the shore. (Shore being defined as the limit of the high water mark).

Recommendation 5

That the activities of charter boats be clearly defined and regulated by a system of registration and licencing. The lodgement of catch returns should be a condition of this licence.

Recommendation 6

That the Government amend the Fisheries Management Act 1994 and/or associated regulations to broaden the Department's awareness of, and contact with, the post harvest sector, and to provide fish marketing organisations with a more formal role in liaising with fishers. These amendments should establish a more comprehensive framework to combat the black market trade in fisheries product and provide a means of informing fishers of ways to maximise the value of their catch.

Recommendation 7

That a compulsory levy (to be determined through consultation with industry) be collected from the first receiver, levied on each kilo of product caught or imported into NSW. Funds raised from this levy should be used to improve quality assurance, product development, seafood promotion, and environmental sustainability.

Recommendation 8

That a benchmarking process which identifies the duties of the enforcement branch and the associated level of resources required be undertaken, followed by an assessment of the ability of the enforcement branch, as currently resourced, to comply with these expectations.

Recommendation 9

That a Volunteer Fishing Liaison programme be established in New South Wales. The role of Volunteer Fishing Liaison Officers should be limited to education and offence reporting, with no enforcement duties.

Recommendation 10

That the NSW Government introduce a general recreational fishing licence. Licence fees should be set between \$20 and \$30 per annum, with special arrangements for short and long term licences, children and families. The revenue raised through these licences must be held in trust under the control of a Board of Trustees to engender trust in the system by, and ensure accountability to, recreational fishers.

Recommendation 11

That:

- the application form for a general recreational fishing licence ask the applicant to estimate (1) how many hours per month they spend fishing and (2) what percentage of this time is spent fishing warm freshwater, alpine freshwater, estuarine, ocean beach and deep sea environments. The form should make it clear that this information will be used to allocate funds to these fishery types;
- the information from (1) be used, in conjunction with research funded through the licence fee trust, to determine average recreational catches per unit of effort with a view to estimating the recreational catch in each defined fishery; and
- the information derived from (2) be used to allocate licence fee revenue to research and management programs relating to fisheries with the greatest recreational effort.

Recommendation 12

That the recreational fishing licence trust fund research into the effectiveness of present recreational fish size and bag limits, new methods to control recreational catches and the size and extent of black market fishing activity with a view to refining mechanisms to manage non-commercial fishing effort.

Recommendation 13

That the Government amend Part 3 of the Fisheries Management Act 1994 to provide for a recreational share holding in share management fisheries, based on the recreational component of the catch for each fishery, with management and community contributions for such share holdings to be drawn from the recreational fishing licence trust.

Recommendation 14

That the Government amend the restricted fishery regulations to provide for a recreational allocation of TAC for restricted fisheries based on the recreational component of the catch for each fishery, with any consequential financial contributions to be drawn from the recreational fishing licence trust.

Recommendation 15

That the Government, when setting up the recreational fishing licence trust, empower the board of trustees to buy the shares of commercial fishers in share management fisheries on behalf of recreational fishers.

Recommendation 16

That the Government, when amending the Fisheries Management Act and associated regulations in accordance with Recommendation 13, provide for the purchase of part of any recreational share holding by commercial fishers.

Recommendation 17

That the Government release its Coastal Policy without further delay.

Recommendation 18

- 1) The Office of Natural Resources and Policy review, as a priority, all natural resource legislation relating to integrated land and water management and development in the coastal zone.

- 2) The performance measures for the review shall be:
 - a) to rationalise, simplify and strengthen the legislative framework (60 Acts) which currently manage NSW Coastal zone.
 - b) the creation of clear and accountable lines of responsibility and management of coastal resources by state agencies.
 - c) a clear separation of the roles of resource management , resource use or extraction regulation, and the monitoring and reporting of the State of NSW coastal resources.
 - d) provision for a compulsory mechanism whereby agencies share and consult in a strategic manner regarding decisions which affect natural resources in the coastal zone.
- 3) That the coastal resources review be implemented in this calender year and report back to Government by June 1998.

Recommendation 19

That an adequately resourced task force, including representatives of the Department of Land and Water Conservation, NSW Agriculture and NSW Fisheries, be established immediately. This task force should be charged with concurrently:

- reviewing the legislative framework related to acid sulphate soil run-off with a view to removing contradictory provisions so that the regulatory agencies (for example, EPA, DLWC, NSW Fisheries) can more effectively manage impacted areas; and
- assessing the effectiveness and necessity of existing drainage works with a view to recommending the removal, redesign or relocation of drainage works to the relevant Minister[s].

Recommendation 20

That NSW Fisheries, in consultation with the National Parks and Wildlife Service, conduct an extensive research survey to identify key areas of habitat along the New South Wales coast for classification as Marine Parks.

Recommendation 21

That the Government ensure that the Fishways Program is adequately funded to enable the removal of unnecessary barriers to fish migration and the installation of suitable fishways where necessary. The programme should set targets for the removal of barriers within one year of the tabling date, and report to Parliament within five years.

Recommendation 22

That the Government make available the funds necessary to expedite the work of NSW Fisheries and the Department of Land and Water Conservation into methods of ameliorating the thermal effects of large impoundments. The aim of this work should be the prioritisation of the capital works necessary to alleviate the cold water pollution throughout the State with a view to implementing a staged conversion program.

Recommendation 23

That the Department of Land and Water Conservation expedite its river bank willow eradication programme with the financial and non-financial support of the programme's beneficiaries, including funds raised through a recreational licence fee.

Recommendation 24

That NSW Fisheries, in cooperation with DLWC and the Murray Darling Basin Commission, develop and commence a pilot study in the Macquarie Valley with the specific goals of estimating the combined effects on native and introduced fish species of:

- the partial restoration of the river's natural flow regime in accordance with the Macquarie Marshes Water Management Plan;

- the elimination of cold water pollution downstream of Burrendong Dam; and
- the removal of barriers to fish migration and the installation of fishways (in conjunction with the Fishways Program).

The results of this pilot study should be used to determine the most effective methods of restoring inland fish habitats across New South Wales.

Recommendation 25

That an interdepartmental task force be formed to identify geographic zones within New South Wales suitable for specific types of aquacultural development. This task force should consist of representatives from NSW Fisheries, the Department of Urban Affairs and Planning, the Environment Protection Authority, the Department of Land and Water Conservation, and other relevant agencies and be charged with developing a strategic plan which:

- outlines clear and zone-specific criteria against which aquaculture development applications will be judged. These criteria should include environmental parameters;
- can be used as the basis of aquaculture development plans as provided for under Part 6 of the Fisheries Management Act 1994;
- provides for a predetermined period of community consultation, including public advertisement of proposals and provision for public submissions; and
- nominates a lead agency to act as the point of contact in the development approval process and coordinate the responses of other agencies.

Recommendation 26

That NSW Fisheries be given a statutory obligation to consult with relevant seafood marketing bodies prior to committing significant funds to research the suitability of particular species for aquacultural production.

Recommendation 27

That the Director of Fisheries be advised of research results but not hold power of veto over the publication of those results.

Recommendation 28

That the Advisory Council on Fisheries Research should identify, as a priority, a consultative process to develop clear and consistent guidelines for the Department and the Advisory Council on Fisheries Research for the identification, prioritisation, assessment, peer review and publication of research. This process should identify a consultative role for each Advisory Council and Management Advisory Committee.

That NSW Fisheries engage each Advisory Council and Management Advisory Committee in the process of identifying key research and data needs.

Recommendation 29

That Aboriginal community licences be introduced and that "general purpose licences" be developed to accommodate the indigenous fishing methods of the Aboriginal commercial fishers in the assessment of catch history.

NSW Fisheries should review catch history requirements for indigenous fishers who have been excluded under current restricted fisheries regulations.

Recommendation 30

That NSW Fisheries establish an Indigenous Resource Management Committee as a priority. This committee should be constituted under the Fisheries Management Act 1994. The Indigenous Resource Management Committee should have representation from the following stakeholders:

- NSW Aboriginal Land Council;
- Department of Aboriginal Affairs;
- Aboriginal and Torres Strait Islander Commission (NSW);
- Indigenous commercial fishers;

- Indigenous recreational fishers;
- NSW Fisheries; and
- Nature Conservation Council.

The Committee should aim to progress indigenous access to fisheries and provide representation to RACAC (see Recommendations 31 and 32).

Recommendation 31

NSW aquatic resources, including fish and fish habitat, be assessed as part of the continuing work of RACAC so as to provide an accurate, current and ongoing assessment statement of the state of NSW fisheries.

Recommendation 32

That the Fisheries Management Act 1994 be amended to provide for the provision of adjustment assistance and/or the payment of compensation to commercial fishers who either are excluded from their fishery as a result of a resource allocation decision (eg marine park) or wish to surrender their endorsement. Specific compensation and structural adjustment packages should be determined by RACAC.

Recommendation 33

That a Fishing Industry Structural Adjustment Unit of NSW Fisheries be established to determine, in consultation with RACAC and affected stakeholders, individual structural adjustment packages. The Government must ensure that this Unit is adequately funded.

1 THE HISTORY OF FISHING AND FISHERIES MANAGEMENT IN NEW SOUTH WALES ¹

This chapter sets out the history of fishing in New South Wales from pre-European colonisation to the introduction of the *Fisheries Management Act 1994*. Significant events in relation to recreational and commercial fishing, State and Commonwealth fisheries management and fisheries research are listed chronologically.

1.1 Aboriginal Fisheries Exploitation Prior to Colonisation

Prior to colonisation by Europeans, both the inland and coastal fisheries of New South Wales were exploited by aboriginal people for food and trade. Fishing technologies used included nets, hook and line, spears, and fixed and moveable traps.² There is evidence that both women and men took part in fishing activities, and that canoes and berley were also utilised.³

Although fish constituted a significant proportion of the diet of coastal aboriginal communities, aboriginal fishing activity appears to have had little impact on fish populations or distributions. Analysis of estuarine and coastal mounds of shells and fishbones, known as middens, around the Sydney area indicates that snapper, bream, groper, wrasse, morwong, mulloway, leatherjacket, flathead, tailor, blackfish, and various molluscs were eaten by local tribes.⁴

1.2 1788 to 1864: Initial European Fishing Activity

Small scale fishing activity by Europeans commenced immediately after the establishment of the colony at Port Jackson in 1788. The strain of over 1,000 extra

¹ For a more detailed history of commercial fishing in NSW see J Wilkinson (1997). *Commercial Fishing in Nsw: Origins and Development to the Early 1990s*, Briefing Paper No 15/97, NSW Parliamentary Library Research Service, Sydney.

² P J Kailola, M J Williams, P C Stewart, R E Reichelt, A McNee, and C Grieve, (1993). *Australian Fisheries Resources*, Bureau of Resource Sciences and the Fisheries Research and Development Corporation, Canberra, p 8

³ NSW Fisheries (1997). *Heritage and Conservation Register*, NSW Fisheries, Sydney, p 13

⁴ NSW Fisheries (1997), *Heritage and Conservation Register*, pp 15-16

mouths to feed on the area's natural resources, including its fisheries, contributed to the starvation of Aborigines during the winter of 1788. In response, Governor Phillip issued a General Order to fishing parties to give part of their catch to Aborigines if approached.⁵

The earliest reference to a local commercial fishing industry appears in the Sydney Gazette of 14 December 1806, which referred to a boatload of salted fish that was landed at the Hospital Wharf, Circular Quay. Fish auctions were first held in Sydney about 1827.⁶

Whaling was the dominant form of commercial fishing in NSW in the first half of the 19th Century. Whaling was undertaken primarily for export, with whale products being the leading export of the Colony until 1833.⁷ Although whaling declined in the second half of the century as the demand for whale oil fell (due to increased use of gas for lighting and cooking), the industry did lead to the establishment of ports which later re-emerged as major centres in NSW for the deep-sea fishing industry, with Eden being the most prominent.⁸

As whaling declined, some of those in the industry turned to supplying table fish for local consumption. This industry was geographically constrained by limitations on the transport of fish due to putrefaction, the tainting of other goods during transit, and a relatively small local population centred on Sydney. Michael Lorimer, in his MA Thesis, *The Technology and Practices of the New South Wales Fishing Industry 1850 - 1930*, notes that by the 1860s:

The only significant market was that of Sydney, which was supplied by a small group of fishermen living in the... suburbs around Port Jackson. Using small open boats, no longer than 25 [feet], propelled by sail and oars, they worked the enclosed waters of Port Jackson and the nearby offshore reefs and headlands. The number of operating fishing boats is unclear from the very limited documentary data available. I would

⁵ NSW Fisheries (1997), *Heritage and Conservation Register*, p 15

⁶ NSW Fisheries (1997), *Heritage and Conservation Register*, p 18

⁷ P Pownall (1979). *Fisheries of Australia*, Fishing News Books, Farnham, Surrey, p 90

⁸ Pownall (1979), *Fisheries of Australia*, p 91

suggest that there were less than 25 boats... Fish, at this time, was a luxury item rather than a normal feature of the diet... Between 1850 and 1863 the fishing industry remained static with fish reaching the Sydney consumer regularly from Port Jackson and occasionally in winter from Broken Bay and Botany Bay.⁹

1.3 1865 to 1888: Technological Innovation, Government Intervention, and the Introduction of Trout

By the mid-1860s the use of fine-mesh nets that destroyed large quantities of fry and the practice of 'stalling', whereby fixed nets were used to isolate shallow bays or mud flats at high tide in order to leave fish stranded at low tide, had seriously depleted stocks in the waters around Sydney. Eventually concerned fishers enlisted the assistance of Richard Driver Jnr MLA in bringing the matter before a Parliamentary select committee.¹⁰

Gerard Carter, former Legal Officer with NSW Fisheries, has noted that:

The outcome of the Select Committee's considerations was the *Fisheries Act 1865*. That Act divided the year into winter and summer months and specified the description of nets which could lawfully be used during... [each] period. The Act also made it an offence to fix or stake any net within a mile of the shore or at the mouth of any river. The administration of the Act was entrusted to the Police and Customs Departments.¹¹

Regular fish shipments to Sydney from outside the Greater Sydney Region commenced in the early 1870s with the introduction of steamships.¹² The expansion

⁹ M Lorimer (1984). *The Technology and Practices of the New South Wales Fishing Industry 1850 - 1930*, MA Thesis, University of Sydney, pp 92-93

¹⁰ Godden Mackay Consultants (1997). *NSW Fisheries Heritage and Conservation Register*, Godden Mackay Consultants, Sydney, p 19

¹¹ G Carter (1986). *Fisheries Law in New South Wales*, NSW Department of Agriculture, Sydney, p 19

¹² Lorimer (1984), *The Technology and Practices of the New South Wales Fishing Industry 1850 - 1930*, pp 94-101

of the commercial fishing industry was further encouraged with the erection of a fish market building in Woolloomooloo by the Sydney Municipal Council in 1872, the widespread availability of ice from butter factories, and the expansion of the railway networks emanating out of Sydney and Newcastle in the 1880s.¹³

Despite the restrictions of the *Fisheries Act 1865*, overfishing continued in the Sydney area with the 1880 Royal Commission on Fisheries commenting that:

Port Jackson, although at one time, and not many years ago, holding a very high rank among our fishing grounds for all kinds of the best net fish, is now scarcely deserving as being regarded as a source of supply at all. And this is owing... to the ceaseless and often wanton process of netting to which every bay and flat has been subjected for the past fifteen or twenty years. The wholesale destruction within the harbour caused by... nets... with meshes almost small enough for a naturalist's hand has of course produced its natural effect on the outside grounds, where the snapper can now only be taken in very small quantities...¹⁴

In relation to species introduction and translocation into the Colony's inland fisheries the Royal Commission reported:

There can be no doubt that the transfer from one part of the country to another of the best of our fresh-water fishes is a much more sensible and feasible proceeding than the introduction with much trouble and at great expense of some of the most useless fishes of the European rivers. Old associations, however natural, connected with the names of gudgeon, carp, perch, &c., should not induce us to stock our rivers or fish-ponds with such inferior fishes. But it is quite possible to go too far even in the much better direction of the transfer of our western fishes to our eastern waters. The cod, as we have before observed, is a most destructive fish,

¹³ Lorimer (1984), *The Technology and Practices of the New South Wales Fishing Industry*, pp 94-101

¹⁴ Fisheries Inquiry Commission (1880). *Report of the Royal Commission 13 May 1880*, NSW Legislative Assembly, Sydney, p 23

swallowing up everything that comes in its way, not excepting its own species; and its introduction into new waters might result in the final destruction of other kinds. Some caution, therefore, should be used in the introduction of such a formidable fish; more particularly when from the same near source we can get supplied with fish of much better quality and less destructive tendencies. We allude to the fishes known in the Murrumbidgee as the “golden perch” and “silver bream” ... For the purposes of food and all other objects to be attained by the stocking with good fish of our eastern rivers and fish-ponds these fishes are infinitely superior to the cod, and their ova can be obtained for transport with ease.¹⁵

The Royal Commission recommended that a Fisheries Commission be established, and a year later the Colonial Government obtained passage of the *Fisheries Act 1881* providing for five Commissioners acting in an honorary capacity.

Carter has pointed out that:

The *Fisheries Act 1881* was the first comprehensive legislation in New South Wales dealing with fisheries. The Act set up a body of five Commissioners to administer the Act and provided for the regular supervision of the fisheries by inspectors. Extensive regulation-making powers were vested in the Governor. The Act dealt with fishing nets, closed seasons for net fish, closed fisheries, fishermen’s and boat licences, prawn fishing, torpedoes and dynamite, unmarketable (under-weight) fish ... protection of certain fish and the territorial jurisdiction of the Act.¹⁶

Dissatisfaction among commercial fishers with the degree of Government intervention in the industry following the implementation of the *Fisheries Act 1881* led to another inquiry into the industry by a select committee of the Legislative Assembly. The result was the *Fisheries Act (Amendment Act) 1883* which reduced the regulation of the industry.

¹⁵ Fisheries Inquiry Commission (1880), *Report of the Royal Commission 13 May 1880*, p 37

¹⁶ Carter (1986), *Fisheries Law in New South Wales*, p 20

The abundance of naturally occurring oysters was a significant aspect of fisheries in New South Wales last century, with the NSW oyster industry supplying both Sydney and Victorian demand from the 1850s to the 1870s.¹⁷ As with other fisheries, over-exploitation came to affect the oyster industry and by the 1870s the oyster beds were showing signs of exhaustion. In response, the Government obtained passage of the *Oyster Beds Act 1884* which limited foreshore leases to a maximum length of 2,000 yards and lease terms to 15 years. However, by this time overfishing and the worm *polydora ciliata* had all but destroyed the natural beds which had been the mainstay of the industry.¹⁸ Subsequently oyster collectors discovered that the foreshore or rock oyster was more resistant to the worm and began to limit themselves to collecting naturally occurring rock oysters.¹⁹

The first documented releases of trout into New South Wales waters occurred in 1888, although trout may have been released for sport by anglers as early as 1872.²⁰ During 1888, 300 yearling brown trout were released in the Yass, Braidwood and Monaro districts by Mr John Gale and Mr F Campbell of Queanbeyan, and the NSW Fisheries Commission released around 2,000 brown trout fry around Armidale and 300 yearling brown trout in the upper reaches of the Shoalhaven River. All of these fish were sourced from Victoria and released for recreational use. The first fish hatching in New South Wales occurred the following year, with 5,000 brown trout eggs being incubated in Phillip Street, Sydney.²¹

By this time, the commercial industry had explored most of the estuarine and near-shore fishing grounds within NSW, with commercial activity stretching from Twofold Bay in the south to the Clarence River in the north. Lorimer has provided the following with regard to the relative importance of specific fishing grounds in 1888:

¹⁷ Lorimer (1984), *The Technology and Practices of the New South Wales Fishing Industry*, p 104

¹⁸ *An Act for the Amendment of the "Fisheries Act 1881", the Promotion of Oyster Culture and the Regulation of Oyster Fisheries 1884*

¹⁹ Lorimer (1984), *The Technology and Practices of the New South Wales Fishing Industry*, p 82

²⁰ State Fisheries (1939). *Report on the Fisheries of New South Wales for the Year Ended 30th June 1938*, NSW Legislative Assembly, Sydney, p 6

²¹ See NSW Fisheries (1997), *Heritage and Conservation Register*, p 24 and State Fisheries (1939), *Report on the Fisheries of New South Wales for the Year Ended 30th June 1938*, p 6

The major supplier [to the Sydney market] was now the *Clarence River* (15.62 per cent), followed by *Port Stephens* (11.78 per cent), *Botany Bay* (11.27 per cent), *Lake Illawarra* (9.44 per cent), *Lake Macquarie* (8.35 per cent), with another 14 areas supplying the remainder.²²

1.4 1889 to 1913: Creation of the Fisheries Board and Initial Fisheries Research

In the late 1880s some within the commercial fishing industry were still unhappy with what they believed to be an onerous degree of Government regulation and enlisted the support of Frank Farnell MLA. Farnell criticised the Fisheries Commission in Parliament “for want of practical knowledge, and the officers under them for their administration of the Act”.²³ Another Parliamentary select committee that included Farnell among its membership was appointed. This committee reported in August 1889 that the Act was unnecessarily restrictive and operated harshly upon those in the industry, recommending that the Fisheries Commission be abolished.²⁴ A second royal commission into the industry, conducted between 1894 and 1895, also criticised the Fisheries Commission, concluding that the Commissioners “do not seem to have given any attention to the development of the fisheries”, and advocated the undertaking of further research activity.²⁵ Despite these criticisms, no further legislative action was taken until the turn of the century.

In 1894 the first documented capture of trout from New South Wales waters was achieved by Mr R U B Rose, of Dalgety. In the same year rainbow trout were first imported into New South Wales in the form of eggs from New Zealand²⁶ and the NSW Fisheries Commission built trout hatching troughs below Prospect Reservoir.

²² Lorimer (1984), *The Technology and Practices of the New South Wales Fishing Industry*, pp 95-96

²³ Godden Mackay Consultants (1997), *NSW Fisheries Heritage and Conservation Register*, pp 20-21

²⁴ Godden Mackay Consultants (1997), *NSW Fisheries Heritage and Conservation Register*, pp 20-21

²⁵ *Royal Commission on Fisheries 1894-5*, pp 33, 35

²⁶ T C Roughley (1961). *Fish and Fisheries of Australia*, Angus and Robertson, Sydney, pp 282-283

The following year Prospect Hatchery was established. This was the State's first fish hatchery, with large scale releases of rainbow, brown, and loch leven (*salmo levenensis*) trout commencing from 1898.²⁷

At this early stage in development of the recreational inland fishery, the Fisheries Commissioners relied upon individuals with an interest in trout acclimatisation for information in relation to the success of trout introductions into each area. The Commissioners also encouraged catch-and-release practices for conservation purposes. Referring to trout, the Commissioners report of 1899 stated:

Until these fish are thoroughly established the Commissioners look to the local people to protect them.

Many fishing enthusiasts in the interior have supported us in this respect by returning trout to the water when caught on lines baited for other fish, and it is the desire of the Commissioners that similar action should be taken in those waters that are only sparingly supplied with this species of fish.²⁸

The reasoning behind the large scale introduction of trout was given by the Fisheries Commissioners in 1900:

To realise the efforts we are making to stock our rivers with trout, it should be borne in mind that many of the waters in which they are being liberated are devoid of edible fish life. On the eastern slopes of our northern tablelands the only edible inhabitants of the streams are eels, and on the western slopes there are no fish except where cod have been introduced from the rivers of the plain country.

Very much the same may be said of the streams of the western and southern highlands. A food supply of great commercial

²⁷ NSW Fisheries (1997), *Heritage and Conservation Register*, p 24

²⁸ Fisheries Commissioners (1899). *Fisheries of the Colony*, Report of Commissioners of Fisheries for Year 1898, NSW Legislative Assembly, p 8

value is thus being introduced into the waters of these districts where no food supply previously existed.²⁹

The commercial inland fishery began to be developed on the Murray-Darling system in the mid to late 1800s, with golden perch and Murray cod being regularly supplied to the Sydney, Melbourne and Adelaide fish markets. Murray cod dominated early catches, comprising 75 per cent of river fish available at the Melbourne Wholesale Fish market in 1900.³⁰ The sustainability of the fishery was questioned as early as 1899, with the Fisheries Commissioners requesting legislative action to ban the use of traps which spanned the entire stream and therefore prevented free fish passage up and down the river.³¹

In 1898, in line with the recommendations of the second Royal Commission into the fishing industry, the Colonial Government commissioned HMCS *Thetis* to undertake trawling experiments off the New South Wales coast. These experiments, which were carried out as far north as the Manning River and as far south as Jervis Bay, met with some success.

In 1900 the demand for fish plummeted as a result of a serious fish-kill in Port Jackson, thought to be a consequence of the use of chemicals in response to the bubonic plague outbreak in Sydney. In response to this threat to the industry's viability, the Fisheries Commissioners closed Port Jackson to commercial fishing. In addition, the See Government obtained passage of the *Fisheries Act 1902*, which:

... prescribed a Board consisting of a chairman (appointed by the Governor for three years) and nine other members, one required to be a licenced fisherman of five years's standing and an oyster lessee of equal experience... and six representatives of the crown. The Board was given extensive powers and responsibilities under the new chairman, Frank Farnell, to supervise the industry, to carry out investigations likely to be of service, and to ensure observance of regulations

²⁹ Commissioners of Fisheries (1900). *Fisheries of the Colony*, Report of the Commissioners of Fisheries for Year 1899, NSW Legislative Assembly, p 9

³⁰ Kailola et al (1993), *Australian Fisheries Resources*, p 264 & p 267

³¹ Fisheries Commissioners (1899), *Fisheries of the Colony*, p 7

regarding dimension of nets, closure of inland and tidal waters, net-fishing etc.³²

The Government also engaged Harald Dannevig as NSW Superintendent of Fisheries Investigations and Fish Hatcheries in 1902. Dannevig had been in charge of the Aberdeen Marine Fish Hatchery, Scotland. David Stead, a naturalist, was appointed as Scientific Assistant to Dannevig.³³ Upon arrival Dannevig quickly selected a site at Port Hacking in the vicinity of Cronulla for the construction of a marine fish hatchery to replace a temporary facility on the southern shore of Port Hacking near the village of Bundeena.³⁴

By 1905 a strong oyster industry based on farming had been established in New South Wales.

Dannevig wrote:

A considerable proportion of the foreshores and shallow areas of the river estuaries are most excellent natural oyster-beds, where fine oysters are annually procured in large quantities. These areas are leased from the Government by private people, who through constant attention to the beds are able to materially increase the natural yield; about 391,921 lineal yards of foreshore are at present held in this manner, from which the Government derives an annual revenue of about £4,000. The wholesale value of the oysters taken is estimated at about £27,000 yearly, and in retail a similar additional amount is approximately realised.³⁵

³² Godden Mackay Consultants (1997), *NSW Fisheries Heritage and Conservation Register*, pp 23-27

³³ Godden Mackay Consultants (1997), *NSW Fisheries Heritage and Conservation Register*, pp 26-29

³⁴ NSW Fisheries (1997), *Heritage and Conservation Register*, pp 24-31

³⁵ Dannevig contribution in W H Hall (1906). *The Official Year Book of New South Wales 1904-5*, Government of New South Wales, p 757

In 1906 construction of the Port Hacking fish hatchery was completed. A major aim of the hatchery was the acclimatisation of fish from other parts of Australia, a task in which the hatchery met with only limited success.³⁶

Meanwhile, the Federal Government decided to have a trawler built to explore the Australian coast for possible trawling grounds. This boat was built at the NSW Government shipyard at Newcastle and commissioned, in 1909, as HMAS *Endeavour*. Harald Dannevig, who was by then the Commonwealth Director of Fisheries, was appointed to lead the investigations and the first explorations were undertaken around Shoalhaven Bight during the same year. T C Roughley has written that:

The work of the *Endeavour* laid the foundation for commercial trawling in Australian waters, for it demonstrated convincingly that there were at least two areas, one along the south-eastern Australian coast, the other in the Great Australian Bight, where fish of good edible quality existed in quantities comparable with the best of the grounds in the northern hemisphere.³⁷

In 1910, the Wade State Government introduced the *Fisheries (Amendment) Act 1910*. According to Godden and Mackay the new legislation:

... amended the 1902 Act by establishing the principle of Ministerial administration and the former Board of Fisheries became the Fisheries Branch of the Chief Secretary's Department. The amended Act 'contemplated' the appointment of a Chief Inspector of Fisheries and an Advisory Board consisting of no more than five persons to advise the Minister, who was charged with the control and regulation of the sale of fish and oysters, whether produced in the state or imported. The amendment was not implemented until early in 1911 when it was 'not deemed necessary to... appoint... an Advisory Board as experience has shown that such a board is not so far necessary'.³⁸

³⁶ NSW Fisheries (1997), *Heritage and Conservation Register*, pp 31-32

³⁷ Roughley (1961), *Fish and Fisheries of Australia*, p 171

³⁸ Godden Mackay Consultants (1997), *NSW Fisheries Heritage and Conservation Register*, p 34

Despite its geographical expansion late last century, the fishing industry was still carried out on a small-scale basis. The 1911 Royal Commission on Food Supplies and Prices noted “a lack of organisation along commercial lines” with the supply of fish to the Sydney market being largely dependent on fishers working individually or in groups of two or three. The Royal Commission also noted that fishers had relatively little capital invested in the industry and earned relatively low incomes.³⁹

Despite the relatively low earnings from fishing, there was a marked increase in the number of commercial fishers in New South Wales between 1901 and 1913, when there were 706 and 2,220 fishers respectively. By 1929 the number of commercial fishers in New South Wales had declined marginally to 2008.⁴⁰

1.5 1914 to 1930: Widespread Use of Motorised Fishing Vessels and the Establishment of Government Fishing Operations

NSW commercial fishers began using motorised boats during the early 1900s following the introduction of steam and petrol powered boats in Britain in the 1880s. While steam engines could effectively power large trawlers, they proved to be unsatisfactory for smaller boats, requiring constant attention and taking up a large proportion of the hull. This led the generally small-scale New South Wales commercial fishing industry to use small, petrol powered boats suitable for teams of two or three.⁴¹

The first sectors of the industry to use motorised boats were the offshore crayfishing and snapper fleets, allowing fishers to reach the limit of their fishing grounds and return in one day. The mechanisation of estuary-based fleets took place over a longer period due to the lower economic return attached to this activity.⁴²

³⁹ NSW Parliament (1911). *Royal Commission on Food Supplies and Prices 1911-1912, Report*, NSW Government, Sydney, p 27

⁴⁰ Lorimer (1984), *The Technology and Practices of the New South Wales Fishing Industry*, table 6

⁴¹ Lorimer (1984), *The Technology and Practices of the New South Wales Fishing Industry*, pp 48-52

⁴² Lorimer (1984), *The Technology and Practices of the New South Wales Fishing Industry*, pp 48-52

Prior to the First World War, estuary-based fishing dominated the NSW catch, with less than 10 per cent of the Sydney fish supply coming from off-shore fisheries in 1912.⁴³ In 1914 the Holman Government decided to set up a publicly-owned company called the State Trawling Industry to encourage the development of off-shore fishing and to supply Sydney and Newcastle with large quantities of cheap fish. David Stead was sent to Great Britain to examine steam trawling methods and acquire the necessary ships and crews. Three such ships arrived in April and May 1915. Trawling operations began in June of the same year, landing large quantities of fish. In 1916 the Government decided to expand its fishing operations and placed an order for three more trawlers with the State Dockyard in Newcastle.⁴⁴ The Government also established an integrated fishing and marketing system, with the new company opening four retail outlets in Sydney by 1916. By 1922 this network had grown to 20 outlets, 14 of which were in the Sydney area.⁴⁵

In terms of impact on the market, these trawlers were noticeably successful. Lorimer has remarked that “Quite rapidly the trawlers captured almost fifty per cent of the Sydney market”.⁴⁶ By 1919 new coastal depots had been opened by the State Trawling Industry for receiving, cleaning and distributing the trawler catch on the Clarence River, at Port Stephens, at Newcastle, at Eden and on the St Georges Basin.

The tourism benefits of recreational fishing were also beginning to be recognised around this time. The 1916 Official Year Book of New South Wales noted:

Trout fishing now constitutes an important attraction for tourists and sportsmen in the districts watered by the Murrumbidgee and Snowy Rivers and their tributaries.⁴⁷

⁴³ NSW Parliament (1911), *Royal Commission on Food Supplies and Prices 1911-1912*, pp 27-28

⁴⁴ Lorimer (1984), *The Technology and Practices of the New South Wales Fishing Industry*, pp 72-74

⁴⁵ Lorimer (1984), *The Technology and Practices of the New South Wales Fishing Industry*, pp 72, 115

⁴⁶ Lorimer (1984), *The Technology and Practices of the New South Wales Fishing Industry*, p 97

⁴⁷ *1916 Official Year Book of New South Wales*, p 1185

While off-shore commercial fishing and recreational angling grew rapidly during World War One, fisheries research in New South Wales suffered a significant setback during the same period with the closure of the Port Hacking fish hatchery for the duration of the war.⁴⁸

By 1920, in the face of consistently large financial losses arising from State Trawling Industry operations, the Storey Government replaced David Stead with a Mr Summer-Greene as Manager. Lorimer notes that, "Summer-Greene... began a major cost-cutting program, starting by closing most of the coastal depots and gradually reducing the number of retail shops".⁴⁹

In 1923 the Fuller Government decided to sell off the operation which had a running loss of over £180,000.⁵⁰ The steam trawlers were eventually sold to private companies.

In 1928, trout releases in New South Wales exceeded one million for the first time.⁵¹

By 1930 the NSW trawling industry was concentrated into three main companies, namely: Coastal Trawling Limited, which was soon joined in a merger with Red Funnel Trawlers; Cam and Sons, formed by the Italian C Caminetti who had imported a number of trawlers from Italy; and A A Murrell, who began in 1926 with an English trawler, acquiring a second in 1929 and more in 1930.⁵²

1.6 1931 to 1945: Conservation Concerns and Further Technological Innovation

⁴⁸ Godden Mackay Consultants (1997), *NSW Fisheries Heritage and Conservation Register*, pp 31-36

⁴⁹ Lorimer (1984), *The Technology and Practices of the New South Wales Fishing Industry*, p 74

⁵⁰ Lorimer (1984), *The Technology and Practices of the New South Wales Fishing Industry*, pp 74-75

⁵¹ State Fisheries (1939), *Report on the Fisheries of New South Wales for the Year Ended 30th June 1938*, NSW Legislative Assembly, Sydney, p 7

⁵² Lorimer (1984), *The Technology and Practices of the New South Wales Fishing Industry*, p 75

In delivering large quantities of fish to the State's markets, steam trawlers had a marked impact on tiger flathead stocks. Sloane, Cook and Company have observed that, despite the high catches during the 1920s (towards 4,000 tonnes in some years), "Catches fell rapidly and progressively after 1931 ... resulting in the voluntary restriction of the fleet to 13 boats (down from a maximum of 17) in 1935."⁵³

In 1934 the Stevens Government decided to repeal the existing fisheries legislation and replace it with what became the *Fisheries and Oyster Farms Act 1935*. In introducing the new bill, the Colonial Secretary, Frank Chaffey, noted:

Right throughout the history of fisheries in this state the revenues derived have, in some years, been many thousands of pounds short of the expenditure... in the majority of cases there will be increases on what is being paid at the present time.⁵⁴

A few weeks later, Chaffey informed Parliament that the proposed "licence fee varies according to size from 5s. to £25. The object is to secure revenue from owners of large vessels of 100 tons or more."⁵⁵

In 1935 control of trout streams and the supervision of hatcheries was transferred to Acclimatisation Societies. The Department did not regain control over these activities until 1959.⁵⁶

In 1936 a new form of trawling, Danish seining, was introduced into New South Wales. This technique eventually became the dominant trawling method. Danish seining was carried out by vessels up to 80ft in length in ocean waters generally shallower than those fished by steam trawlers (between 55 and 75 metres).⁵⁷ The

⁵³ Sloane, Cook and Company (1978), *The Demersal Fishing Industry in New South Wales, vol II*, Report prepared for NSW Fisheries on behalf of the NSW Department of Public Works, Sloane, Cook and Company, Sydney, p 4

⁵⁴ Second Reading Speech, Fisheries and Oyster Farms Bill 1935. *NSW Parliamentary Debates*, Legislative Assembly, 19 September 1935, Sydney, pp 209-213

⁵⁵ *Sydney Morning Herald*, 3 October 1935, p 15

⁵⁶ Roughley (1961), *Fish and Fisheries of Australia*, p 283

⁵⁷ NSW Parliament (1953), *Parliamentary Committee on Fish Marketing 1953*, NSW Government, Sydney, p 6

technique involves the use of a net secured to the boat by a long rope at each end and the following procedure: One of the ropes is attached to a buoy and thrown overboard; The boat then turns to form a large loop with the net at the far end; The boat then moves ahead with the action of the ropes in the water guiding the fish into the net; When the ropes and the net have almost been drawn together by the fish enclosed, the net is hauled on board.⁵⁸ According to T W Houston, from the late 1930s onwards:

... seiners commenced working along the New South Wales coast... and the annual total catch... reached a peak in the financial year 1938-39. Normal fishing operations were curtailed in 1939, and in 1940 most of the fishing vessels were taken over for wartime duties. Production decreased as a consequence and it was not until 1944-45, when the fleet was being rehabilitated, that the annual total catch showed signs of improvement. The trend of rising catch culminated in 1946-47 with the third and highest peak of production... The... seiners, working mainly from the ports of Newcastle, Sydney, Wollongong, Ulladulla, and Eden, mostly fish[ed] the grounds close to their home ports but occasionally move[d] up and down the coast according to reports of availability of fish.⁵⁹

In 1937 the Commonwealth's Council for Scientific and Industrial Research (CSIR) proposed using the Port Hacking fish hatchery site as a centre for its fisheries research. At that time, the NSW Fisheries Division had only recently resumed significant research at the hatchery. Nevertheless, the following year the site was transferred to the Commonwealth on condition that it also house the NSW Fish Biology Branch and allow occasional use by students of the University of Sydney.⁶⁰

In 1941 the McKell Government decided to take an interventionist approach to the commercial fishing industry, obtaining passage of the *Fisheries and Oyster Farms*

⁵⁸ NSW State Fisheries and NSW Fish Marketing Authority (1979). *Fisheries and Fish Marketing in NSW*, NSW Fish Marketing Authority, Sydney, p 11

⁵⁹ T W Houston (August 1955). "The New South Wales Trawl Fishery: Review of Past Course and Examination of Present Condition" in the *Australian Journal of Marine and Fresh Water Research*, vol 6, no 2, p 166

⁶⁰ Godden Mackay Consultants (1997), *NSW Fisheries Heritage and Conservation Register*, pp 38-39

(Amendment) Act 1942 the next year. As the 1953 NSW Parliamentary Committee on Fish Marketing commented, this Act altered the 1935 Act:

to make provision for the constitution of fish districts and to require all fish sold for human consumption to be first brought to and sold in the markets established in such districts. It also provided, *inter alia*, for the cancellation of agents' licences and the conduct of markets by the Chief Secretary as a corporation sole.⁶¹

Two years later the then Prime Minister, John Curtin, requested the support of the McKell Government "in the organisation of the fishing industry on a co-operative basis for the purpose of rationalising the marketing and distribution of fish". The bill introduced by the McKell Government to implement this was rejected in the Legislative Council. In response the McKell Government in 1945 invoked "the provisions of the 1942 legislation... and control of the Sydney Fish Market was assumed by the Chief Secretary as a corporation sole."⁶²

Due to its lower capital cost and use of smaller, less powerful boats, Danish seining was actively promoted by the Government during and shortly after World War Two in the hope that it would lead to an expansion of the industry and open up new fishing grounds.⁶³ A New South Wales Parliamentary committee, established in 1953 to inquire into fish marketing, reported that the main Danish seining activity at that time occurred from Port Stephens in the north to Eden in the south.⁶⁴ The introduction of seine trawling was significant for it eventually was responsible for expanding the catch of certain species and opening up new fishing grounds, particularly ocean prawning.⁶⁵

⁶¹ NSW Parliament (1953), *Parliamentary Committee on Fish Marketing 1953*, p 5

⁶² NSW Parliament (1953), *Parliamentary Committee on Fish Marketing 1953*, p 5

⁶³ P Williamson (1984). *Growth and Management of the New South Wales Demersal Fisheries*, M Ec Thesis, University of Sydney, p 27

⁶⁴ NSW Parliament (1953), *Parliamentary Committee on Fish Marketing 1953*, p 6

⁶⁵ V C F Han (1962). "The Australian Fishery for Morwong", *Fisheries Management Seminar Papers*, Sydney, Fisheries Division, Department of Primary Industry, Canberra, pp 41-45

1.7 1946 to 1979: Establishment of Fish Cooperatives and Stricter Licensing Requirements

Following World War Two the Federal Government renewed its efforts in the area of fisheries research aimed at developing new fisheries. For example, in 1957 the Commonwealth Government funded a prawn survey off the east coast by the trawler *Challenge*. The success of the survey resulted in large numbers of boats commencing commercial operations from NSW ports.⁶⁶

From 1946 the Commonwealth Government began establishing fishermen's cooperatives in all states as part of the post World War Two reconstruction programme.⁶⁷ Thirteen were subsequently formed up and down the NSW coast as follows:

TABLE 1.1⁶⁸
Formation of Fishermens Co-operative Societies

FISHERMEN'S CO-OPERATIVE SOCIETIES	YEAR OF FORMATION
Clarence River	1946
Macleay River	1946
Laurieton	1946
Byron Bay	1947
Bermagui	1947
Hastings River	1947
Nambucca River	1947
Wallis Lake	1947
Evans Head	1947

⁶⁶ Sloane, Cook and Company (1978), *The Demersal Fishing Industry in New South Wales*, vol I, p 24

⁶⁷ J Glaister (1996). *Review of Fisheries Consultation in New South Wales*, NSW Fisheries, Sydney, p 41

⁶⁸ NSW Parliament (1953), *Parliamentary Committee on Fish Marketing 1953*, p 8

FISHERMEN'S CO-OPERATIVE SOCIETIES	YEAR OF FORMATION
Eden	1947
Newcastle	1947
Nowra	1947
Richmond River	1948

Other co-operatives were later established at Woolli, Coffs Harbour, Crowdy Head, Port Stephens, Mannering Park, Tuggerah, Hawkesbury River, Wollongong, Lake Illawarra, Greenwell Point and Ulladulla.⁶⁹

In 1949 the McGirr Government obtained passage of the *Co-operation (Amendment) Act 1949* which provided for:

The granting of approval by the Governor, subject to certain conditions, to co-operative trading societies to establish, operate and control fish markets... The establishment of advisory committees to make recommendations to the Minister in relation to the promotion, etc of co-operatives of particular types...⁷⁰

In the early 1950s the Commonwealth Government sought to assert greater authority over the number of fishing boats operating in its territorial waters with the Menzies Government obtaining passage of the *Fisheries Act 1952*. This Act was the first comprehensive Federal fisheries act and provided for Commonwealth licensing and regulation of Australian fishing boats operating between 3 miles and 200 miles offshore. The states retained control over fishing in their territorial seas out to 3 miles.⁷¹

⁶⁹ Sloane Cook and Company (1978), *The Demersal Fishing Industry of New South Wales*, vol I, p 37

⁷⁰ NSW Fish Marketing Authority (1971). *Fish Marketing in New South Wales: Historical Summary*, NSW Fish Marketing Authority, Sydney, p 2

⁷¹ Meryl Williams and Phillip Stewart, "Australia's Fisheries" in Patricia Kailola (ed) 1993, *Australian Fisheries Resources*, Bureau of Resource Science, Department of Primary Industries and Energy, Canberra, pp 15-16. Gerard Carter has remarked that "the *Fisheries Act 1952*... relies on section 51 (x) of the Commonwealth Constitution, which confers power on the Commonwealth Parliament to make laws

Preservation of NSW fish stocks continued to be a problem throughout the 1940s and 1950s. A 1953 NSW Parliamentary committee reported that a degree of oversight and control over the operations of fishers and the prevention of the sale of undersized fish was necessary to protect stocks and fishing grounds.⁷²

In 1958 a general NSW freshwater angling license was established, replacing the existing trout angling fee paid to the acclimatisation societies.⁷³ These licenses cost £1 per annum, with 49,350 being issued during 1958-59.⁷⁴

In 1961 what is now the Narrandera Fisheries Centre was opened to conduct inland fisheries research.

In the same year the last remaining steam trawler ceased operations following continued overfishing of flathead. This represented a rapid decline of the method, with the major steam trawling companies, Red Funnel and Cam and Sons, having collectively owned around ten steam trawlers during the early 1950s harvesting about 30 per cent of the NSW catch (around 2,800 tonnes).⁷⁵

In 1963, following long-running negotiations between commercial fishers and the New South Wales Government, the Heffron Government established the New South Wales Fish Authority and obtained passage of the *Fisheries and Oyster Farms (Amendment) Act 1963*. This Act conferred on the Authority the conduct and management of Fish Markets previously maintained by the Chief Secretary from 18

with respect to 'Fisheries in Australian waters beyond territorial limits.' See Gerard Carter 1986, *Fisheries Law in New South Wales*, NSW Department of Agriculture, Sydney, p 43

⁷² NSW Parliament (1953), *NSW Parliamentary Committee on Fish Marketing 1953*, p 12

⁷³ NSW Fisheries (1997). *A Freshwater Recreational Fishing Fee?*, Discussion Paper, p 1

⁷⁴ Roughley (1961), *Fish and Fisheries of Australia*, p 284

⁷⁵ NSW Parliament (1953), *NSW Parliamentary Committee on Fish Marketing 1953*, p 6; and NSW State Fisheries and NSW Fish Marketing Authority (1979), *Fisheries and Fish Marketing in NSW*, p 21

April 1964.⁷⁶ In 1966 the Fish Authority relocated the main Sydney market to a new, larger (6-acre) site at Pyrmont.

In 1968 the Commonwealth extended Australia's declared fishing zone to 12 nautical miles from the coast, allowing the Commonwealth to regulate foreign boats within this zone. The *Continental Shelf (Living Natural Resources) Act* also came into force in 1968, extending Australia's jurisdiction to the edge of the continental shelf for sedentary marine species such as pearl oysters.⁷⁷

Over-exploitation of New South Wales' existing fishing grounds intensified during the 1960s. Peter Sloane has noted that, "By the late 1960s many of the grounds on the continental shelf were being heavily exploited and catches were static or falling".⁷⁸

In response to declining catches, the Askin Government intensified fishing research effort by building and equipping the 82-ft (25m) fisheries research vessel *Kapala* to undertake intensive marine resources surveys. The *Kapala* began operations in 1970 and was fitted with modern electronic fish-finding navigational aids and catching gear.⁷⁹

The Fish Marketing Authority later described the significance of the *Kapala's* contribution to the development of new fishing grounds as follows:

commercial stocks of gemfish and ... other deep-water fish ... were proven during the early 1970s by the ... *Kapala*. As the results of *Kapala's* exploratory fishing were made available to commercial trawl fishermen, they shifted their efforts from the more inshore fisheries to the newer waters... What has been happening is an important shift of fishing effort to deeper waters, accompanied by a change in the composition - rather than the size - of the total ocean waters catch sent to market...

⁷⁶ NSW Fish Marketing Authority (1971), *Fish Marketing in New South Wales: Historical Summary*, p 5

⁷⁷ Kailola et al (1993), *Australian Fisheries Resources*, p 62

⁷⁸ SCP Consultants (1996). *Some Background Data on the South-Eastern Australian Fisheries*, unpublished report, p 3

⁷⁹ Pownall (1979), *Fisheries of Australia*, p 111

By... 1976-7 the gemfish catch had grown 185 per cent in a year to 2,109,000 kilograms and was the single largest component of the trawl fish sent to market.⁸⁰

The growth of the gemfish catch is illustrated in the table below.

TABLE 1.2 ⁸¹

Gemfish Catch in NSW: 1970s

YEAR	TONNES
1971-1972	83 tonnes
1972-1973	90 tonnes
1973-1974	555 tonnes
1974-1975	649 tonnes
1975-1976	739 tonnes
1976-1977	2,109 tonnes

Another significant species of fish identified by the *Kapala* as amenable to mid-water trawling was the redfish, which grew from 94 tonnes landed in 1966-1967 to 1,421 tonnes in 1976-1977.⁸²

⁸⁰ NSW Fish Marketing Authority (1971), *Fish Marketing in New South Wales: Historical Summary*, pp 8-9

⁸¹ Sloane Cook and Company (1978). *The Demersal Fishing Industry in New South Wales*, vol II, p 31

⁸² Sloane Cook and Company (1978), *The Demersal Fishing Industry of New South Wales*, vol II, pp 15-18

In 1972 the number of Danish seine trawlers operating in NSW waters peaked at 48.⁸³ Danish seining then rapidly declined with the advent of otter trawling, when many Danish seiners were converted to the new method.⁸⁴ The principal advantage of the new method was that light otter trawl gear could be used by small diesel-powered vessels.

In 1972 the Brackish Water Fish Culture Research Station, now the Port Stephens Research Centre, was opened. The Station initially focussed on prawn aquaculture but shifted its emphasis to oyster research later in the decade.

In January 1975 the Askin Government removed the administration of the Act from the Chief Secretary's Department to the Minister for Lands and Forests. In 1976 the Wran Government established NSW State Fisheries as a separate department under the Minister for Conservation.⁸⁵

1979 was a significant year for both National and State fisheries management with the Commonwealth's declaration of the Australian Fishing Zone and significant amendments to the State's fisheries legislation. The declaration assumed sovereign rights over living resources within 200 nautical miles of the coast in anticipation of the 1982 United Nations Convention on the Law of the Sea⁸⁶.

When the Wran Government introduced the bill for what was to become the *Fisheries and Oyster Farms (Amendment) Act 1979*, Lin Gordon, the Minister for Water Resources and Conservation, declared that the new legislation would:

... amend section 25 of the [1935] Act by rearranging... the provisions relating to the licensing of professional fishermen... Many persons who are not genuine commercial fishermen have been granted licences in the past to the disadvantage of the full-time bona-fide commercial fishermen... in the general

⁸³ NSW Parliament (1953), *NSW Parliamentary Committee on Fish Marketing 1953*, p 5; Williamson (1984), *Growth and Management of the New South Wales Demersal Fisheries*, p 28

⁸⁴ NSW Fisheries (1997), *Heritage and Conservation Register*, p 21

⁸⁵ Godden Mackay Consultants (1997), *NSW Fisheries Heritage and Conservation Register*, p 53

⁸⁶ Kailola et al (1993), *Australian Fisheries Resources*, p 16

interests of the industry, it would appear to be necessary to clamp down on the part-time... fisherman, who wishes to fish only during the lucrative prawn and crayfish seasons... Consequently section 25 of the Act is to be amended to provide that a fisherman's licence shall not be issued to a person... unless he proposes to derive the major part of his income from... the taking and sale of fish...⁸⁷

Prior to this, commercial fishing in New South Wales had been open-access. While this new legislation laid the basis for the future introduction of fundamental changes in the operation of commercial fishing in the State⁸⁸, the Wran Government remained generally in favour of open access. The then Director of NSW Fisheries, Donald Francois, commented in 1980 that "We think... natural forces ... operating in... [a] free enterprise system" were the appropriate basis for commercial fishing in New South Wales, rather than "government intervention."⁸⁹

The *Fisheries and Oyster Farms (Amendment) Act 1979* also transformed the NSW Fish Authority into the Fish Marketing Authority and required the sale of all fish sent to the Sydney Metropolitan area to be conducted through the Sydney Fish Market in order to prevent private sales undermining the Authority's new auction system.⁹⁰

1.8 1980 to 1988: The Expansion of Deep Sea Trawling and the Inauguration of the South East Trawl Fishery

In the few years leading up to 1980 New South Wales fishers expanded their operations to deeper waters at the edge of the continental shelf to exploit mid-water

⁸⁷ Second Reading Speech. Fisheries and Oyster Farms (Amendment) Bill 1979. *NSW Parliamentary Debates*, Legislative Assembly, 28 February 1979, pp 2584-2585

⁸⁸ Carter (1986), *Fisheries Law in New South Wales*, p 110

⁸⁹ Geoffrey Waugh (1984). *Fisheries Management: Theoretical Developments and Contemporary Applications*, Westview Press, Boulder, Colorado, p 192 citing Donald Francois (1980), "The New South Wales Abalone Fishery", paper presented to the *Seminar on Economic Aspects of Limited Entry and Associated Fisheries Management Measures*, Melbourne

⁹⁰ NSW State Fisheries and NSW Fish Marketing Authority (1979), *Fisheries and Fish Marketing in NSW*, p 51

stocks such as gemfish, mirror dory, ling and ocean perch. By the early 1980s, deep water catches accounted for the majority of total trawl landings.⁹¹

New methods and gear were required to take advantage of these new fisheries. According to Sloane:

The industry dealt with the problem of changing fishing techniques in two ways. At first, during the mid- to late 1970s, existing boats were refitted with new gear, particularly net drums and stern gantries... in the early to mid-1980s profitability in the industry was high. Commercial operators were willing and able to invest in new specially designed larger boats, with more powerful engines. They incorporated better on-board handling facilities, such as refrigerated seawater (RSW) tanks, for the larger catches being landed.⁹²

Other technological innovations which came into widespread use during this period were the echo sounder and satellite navigation (which allowed vessels to go closer to reefs).

In 1980 the NSW Minister for Fisheries, by an order published in the Government Gazette under the newly introduced section 22A of the *Fisheries and Oyster Farms (Amendment) Act 1979*, declared the abalone fishery to be the State's first restricted fishery.

The process has been described by Geoffrey Waugh, fisheries economist, as follows:

The introduction of the licence limitation scheme in 1980 by the New South Wales State Fisheries had as its object the restriction of effort to protect the stock and at the same time maintain 'reasonable incomes' to the fishermen... Under the scheme... the required number of divers was estimated by

⁹¹ SCP consultants (1996), *Some Background Data on South-Eastern Australian Fisheries*, p 7, citing Bureau of Agricultural Economics (1982), *Survey Results of the South East Trawl Fishery 1978-79 - 1980-81*, Bureau of Agricultural Economics, Canberra

⁹² SCP Consultants (1996), *Some Background Data on South-Eastern Australian Fisheries*, pp 3-4

calculating the number of divers which current annual production rates could support at the income considered fair or reasonable as determined by... [an] economic survey... At an income of \$24,750 this was equivalent to 22 divers on the basis of the value of the catch in 1977-78 and 30 divers on the basis of value of the catch in 1976-77. The goal for the State Fisheries was to reduce the number of divers (which was 131 full-time and part-time divers in 1977-78) towards this level, but at the same time ensure that the allocation of permits to dive for abalone... [were] granted on an equitable basis. A set of four criteria were determined in negotiations between State Fisheries and the United Abalone Divers' Association to act as the basis for the allocation of permits. Under the agreement reached, a successful applicant... [had to] fulfil the following criteria: Three years active fishing in the fishery... An allowance to be made for longevity of a diver's activity in the fishery... an allowance to be made for fishermen who do not satisfy criteria owing to illness... An allowance to be made for aborigines who have been engaged in taking abalone... Under these conditions 59 licences were issued ... All other divers were issued notices to immediately cease activities in the abalone fishery.⁹³

In 1981 the Fraser Government announced that new facilities for the marine laboratories (of what had become the Commonwealth Scientific, Industrial and Research Organisation) would be built at Hobart. In late 1984, just prior to the completion of CSIRO's new Hobart facilities, the Port Hacking research site was transferred back to the NSW Government. State marine fisheries research continued at Port Hacking assisted by the Fisheries Research Vessel *Kapala*.

By 1981/82, NSW fish landings had peaked at 28,000 tonnes. Although there was a sudden decline to 22,400 tonnes in 1983/84, finfish landings remained fairly stable at around 25,000 tonnes until the early 1990s.⁹⁴

⁹³ Waugh (1984), *Fisheries Management: Theoretical Developments and Contemporary Applications*, pp 215-216

⁹⁴ SCP Fisheries Consultants (1991), *Fishing Industry Review: Report to the NSW Department of Public Works*, SCP Fisheries Consultants, Sydney, p 1 and B C Pease and A Grinberg (1995), *New South Wales Commercial Fisheries Statistics 1950-1992*, NSW Fisheries, Sydney, p 24

Despite this catch stability, by the mid 1980s there were signs of over exploitation of specific stocks, particularly gemfish and southern bluefin tuna.⁹⁵ The NSW tuna catch declined from 3,267 tonnes in 1981-1982 to 899 tonnes in 1983-1984⁹⁶, while the NSW gemfish catch fell from 5,059 tonnes in 1980 to 2,800 tonnes in 1984.⁹⁷

Concerns in the early 1980s over indications of declining fish stocks in the seas off New South Wales, Victoria and Tasmania led the Federal Minister for Primary Industry, Peter Nixon, to declare in July 1981 that it was “vital that fishing be maintained within safe levels”. He also announced that the Federal and State governments were considering a proposal to limit the fishing fleet “in waters extending from northern New South Wales into eastern Bass Strait”.⁹⁸

In October 1981 representatives of the four states involved (NSW, Victoria, Tasmania and South Australia) and the Federal Government - termed, collectively, the South Eastern Fisheries Committee - issued a report on options for the future management of the fishery.

In 1982 the Wran State Government increased the fee for a fisherman’s licence from \$2 per annum to \$100 per annum in an effort to retain in the industry only those who were committed to earning their living through fishing.⁹⁹

The following year the Wran Government abolished fisheries as a separate department and re-established it as the Division of Fisheries within the Department of Agriculture.

⁹⁵ SCP Fisheries Consultants (1991), *Fishing Industry Review, Report to the NSW Department of Public Works*, p 1

⁹⁶ A Caton, K McLoughlin and M J Williams (1990), *Southern Bluefin Tuna: The Scientific Background to the Debate*, Bureau of Resource Sciences, Department of Primary Industry, Canberra, pp 12-13

⁹⁷ K R Rowling (1994), “Gemfish” in Richard Tilzey (ed), *The South East Fishery: A Scientific Review with Particular Reference to Quota Management*, Bureau of Resource Sciences, Department of Primary Industries and Energy, Canberra, p 118

⁹⁸ Tilzey (1994), Introduction, *The South East Fishery: A Scientific Review with particular reference to Quota Management*, p 18

⁹⁹ Williamson (1984), *Growth and Management of the New South Wales Demersal Fisheries*, p 92

In January 1984 the Federal Minister for Primary Industry, John Kerin, issued a draft management plan for what was termed the South East Trawl Fishery. The plan divided the fishery into Traditional and Developing Zones, put forward a limitation on the number of boats that could operate in the Traditional Zone, and proposed controlled entry for the Developing Zone. The fishing industry, through the Australian Fisheries Council, subsequently notified the Hawke Government of their general approval of the plan.

In June 1985 the Hawke Government introduced the scheme, inaugurating the South East Trawl Fishery (SETF). The following year a South East Trawl Management Advisory Committee was established in order to facilitate consultation between the commercial fishing industry, administrators and scientists.

In the same year the Wran Government introduced a moratorium on the issuing of all new commercial fishing boat licences.¹⁰⁰

1.9 1988 to 1994: Departmental Upheaval and Introduction of the Fisheries Management Act 1994

In 1988 inland recreational angling licenses were abolished following the election of the Greiner Government.

In the same year the Hawke Government, in response to the marked decline in the gemfish catch, introduced a SETF total allowable gemfish catch of 3,000 tonnes.¹⁰¹ This was the first Total Allowable Catch (TAC) set in Australia.

In 1989 the structure of the State's fisheries administration was again disturbed with the proposal to relocate the Department of Agriculture, including the Division of Fisheries, to Orange by 1991. The relocation of the Department of Agriculture eventually went ahead without the Division of Fisheries, which was re-established

¹⁰⁰ Pease and Grinberg (1995), *New South Wales Commercial Fisheries Statistics 1950-1992*, p 13

¹⁰¹ K R Rowling, "Gemfish" in Tilzey (ed) (1994), *The South East Fishery: A Scientific Review With Particular Reference to Quota Management*, p 117

as a separate agency, renamed NSW Fisheries, and placed under the new Ministry of Natural Resources.¹⁰²

In 1989, a committee was formed of Federal and state fisheries directors in order to produce recommendations for the future management of the South East Trawl Fishery. The Resource Assessment Commission wrote that:

This committee reported in December 1989 and recommended that a system of individual transferable quotas be introduced. The Minister for Primary Industries and Energy announced in 1990... an individual transferable quota system based on quantity for the fishery...¹⁰³

On the basis of the committee's report, the Hawke Government subsequently obtained passage of the *Fisheries Management Act 1991*. Under this legislation the Federal Government established the Australian Fisheries Management Authority (AFMA) which then assumed control of fisheries management in Commonwealth waters on behalf of the Federal Government.

Using the New Zealand Government's fishing policy as an example, the Greiner Government also set out to introduce substantial changes in the NSW fishing industry by granting commercial fishers tradable fishing rights. As the Minister for Natural Resources in the succeeding Fahey Government, Ian Causley, informed Parliament in late 1992, "a fishing right", in the legislation that the Fahey Government hoped to introduce, "would be for a fixed quantity or fixed proportion of an allowable catch".¹⁰⁴

The Greiner Government also set out to hand back to the industry the responsibility for managing and regulating fish marketing in New South Wales. In March 1992 the then Premier, Nick Greiner, and the then Minister for Agriculture and Fisheries, Ian

¹⁰² Godden Mackay Consultants (1997), *NSW Fisheries Heritage and Conservation Register*, p 43

¹⁰³ Tony Battaglione, Debbie Brown, Drew Collins, Padma Lal, Paul Morris, Patrick Power, Chris Reid, Heather Roper, Michelle Scoccimarro, Michael Stephens, Jeremy Witham and Doug Young (1993), *Use of Economic Instruments in Coastal Zone Management*, Resource Assessment Commission, Canberra, p 46

¹⁰⁴ Second Reading Speech. Fisheries and Oyster Farms (Management Plans) Bill 1992. *NSW Parliamentary Debates*, Legislative Assembly, 24 November 1992, p 9790

Causley, announced that “the Government and the industry will work together towards the aim of the... fishing industry - managing the markets and taking over from the government the regulation of fish marketing in New South Wales”.¹⁰⁵

In 1994 the Fahey Government obtained passage of the *Fisheries Management Act 1994* with the aim of balancing fisheries exploitation with resource sustainability (see Chapter three).

The constant upheaval in the NSW commercial fishing industry and State Government restrictions on entry since the early 1980s have served to significantly reduce the number of licensed fishers working in New South Wales. In 1983-1984 there were 3,259 fishing licences held in NSW. By 1997, the number of licences had fallen to 1,835.¹⁰⁶

¹⁰⁵ NSW Fish Marketing Authority (1994), *Annual Report 1992-1993*, p 22

¹⁰⁶ Source: NSW Fisheries

3 THE FISHERIES MANAGEMENT ACT 1994

3.1 The Introduction of the *Fisheries Management Act 1994*

3.1.1 Rationale for the *Fisheries Management Act 1994*

By the early 1990s, New South Wales' fish stocks were under increasing pressure as a result of habitat degradation and increased fishing effort stemming from more efficient fishing technology and growth in the recreational and commercial sectors. Historically the NSW commercial fishery had been managed on an open access basis with effort determined by market forces. By 1992/93 the industry was based on the catch of 265 species landed at 55 ports using 44 fishing methods in 33 ocean zones and 84 estuaries.¹ The management of such a diverse multi-method, multi-species fishery was further complicated by the inherent difficulties of accurately determining the catch of the recreational sector and the level of black market activity.

Until this time, the response of fisheries management to this challenge had focussed on the capping of effort in the commercial sector through limiting the number of fishers in the industry and restricting commercial fishers to set areas. Control over the size of the recreational catch was limited to fish size and bag limits.

In recognition of the need to effectively limit total fishing effort, protect habitat, and provide greater security for the commercial industry, a working group was formed to review the existing *Fisheries and Oyster Farms Act 1935* in 1993. A member of the Working Group, Dr Michael Young, has described how the failure of the *Fisheries and Oyster Farms Act 1935* to provide fishers with long term access rights encouraged opportunistic, non-sustainable practices:

The previous NSW Fishery management system was based on annual fishing licenses, renewed by custom every year. The annual licence framework created uncertainty as there was no guarantee of renewal and license conditions were often changed in what appeared to be an ad hoc manner. Regulations were reactionary in nature and generally implemented or modified each time a problem emerged.

¹ E Scibner and A Kathuria (1996). *New South Wales Commercial Fisheries Statistics 1992/93*, New South Wales Fisheries, Fisheries Research Institute, Cronulla,

Fishers argued that this encouraged people to find ways to make a quick profit and cheat the system.²

Dr Young also outlined the circumstances that led to the review as follows:

In common with many other of the world's fisheries, fish stocks in NSW have been declining, recreational fishing pressure is increasing, existing license provisions encourage the use of inefficient gear and technology, and incomes from fishing are low. In addition, the regulatory regime prevented investment in the gear and equipment necessary for efficient exploitation of the available stock, and a large black market of fish existed. There was wide spread political dissatisfaction with various governments' inability to manage the State's fisheries in anything other than a reactionary and crisis management style. The challenge was to find a mechanism that would solve as many problems as possible.³

The recommendations of the working group led to a decision by the Greiner Government to replace the *Fisheries and Oyster Farms Act 1935* with what was to become the *Fisheries Management Act 1994*. Mr Paul Crew, the Director of Fisheries at the time, told the Standing Committee that the Department had consulted widely with recreational and commercial fishing representatives while drafting the new Act. Referring to the level of support for the *Fisheries Management Act 1994*, Mr Crew stated:

The work that preceded the development of the Act was done in total consultation with both the commercial and the recreational sectors of the New South Wales fishing industry. I made a major effort to visit as many fishing ports and have as many public meetings with fishermen and industry people as I could with my staff. I had a dedicated and professional staff, and the industry showed a strong preparedness to work with us. In fact, the industry developed working teams to progress aspects of the management plans for development of a new

² M Young (1995). *The Design of Fishing Right Systems - the New South Wales Experience*, Ocean and Coastal Management, 1995. Vol. 28, (1-3), p 45-61

³ M Young (1995), *The Design of Fishing Right Systems - the New South Wales Experience*, p 45-61

Fisheries Act. I was endeavouring as quickly as possible to bring the Government and industry together in a partnership arrangement. I have always believed passionately in the need for industry to be deeply involved in any issues that affect its wellbeing and future.

At every opportunity I made it perfectly clear that this was not going to be a Government or Departmental push to deliver what it felt it should deliver; it was going to be a partnership, and industry had to have some stewardship of its future. The process started on a fairly rocky road, probably because for several decades the industry had been used to almost a confrontational approach from the Department. Generally, consultation was fairly minimal in as much as the industry was told what would happen, rather than be involved in the process to any great degree. I sought to turn that around totally. I believe that I was successful in doing that because when the Act was finally debated in the House I thought it was unprecedented that members of the recreational and commercial sectors were present in the House supporting the Act all the way through. When the Act was finally passed there was jubilation in the then Minister's office; the executive officers of the recreational and commercial sectors at last felt that they had an Act that would provide some security for their future. They now had management in place that they could work to achieve. It was also a fairly happy day for me because we had achieved something fairly quickly and, more importantly, it was done with the total support of the executive bodies of the commercial and recreational sectors of the industry.⁴

The *Fisheries Management Act 1994* was proclaimed on 16 January 1995.

3.1.2 Definition and Aim of Share Managed Fisheries

The key new management strategy embodied in the *Fisheries Management Act 1994* was the concept of share management. Share management is designed to

⁴ Evidence of Mr Crew, 4 April 1997 p 3

encourage the sustainable exploitation of fish stocks by providing participants with long term “property rights” or shares in the fishery. Dr Young wrote:

The legislation establishes a ‘core property right’ as a legally transferable entitlement to a proportional share of all commercial fishing opportunities associated with the fishery.⁵

Dr Trevor Ward, Senior Biodiversity Specialist - CSIRO, justifies the granting of property rights as follows:

Without property rights, markets fail to efficiently allocate the resources used in the harvest of fish. This market failure leads to overcapitalisation of the fishery, excessive fishing effort levels and biological overfishing of the stocks, ie, too many fishermen harvesting too few fish”.⁶

A share of a fishery may be in the form of: a proportion of the total allowable catch (TAC) for the fishery; units of net size, engine power and/or boat length; or a combination of these and other factors.

The new share management provisions of the *Fisheries Management Act 1994* incorporated a user pays approach to fisheries management by providing for fees to be levied on commercial fishers to meet the cost of management and to provide a return to the community for the use of a publicly owned resource.

3.2 Description of the *Fisheries Management Act 1994*

A brief description of the contents of each part of the *Fisheries Management Act 1994* is given below. Particular attention is given to those parts of the Act covering issues that received most attention during the Inquiry.

3.2.1 Part 1- Preliminary

⁵ M Young (1995), *The Design of Fishing Right Systems - the New South Wales Experience*, pp 45-61

⁶ T Ward, D Leadbitter and K Ridge (1997), *Maintaining Biodiversity in Sustainable Fisheries*, draft review and scoping paper prepared for Environment Australia

Part 1 describes the objects of the Act, provides definitions for terms used in the Act, and specifies the waters to which the Act applies.

The general object of the Act is described in s. 3(1) as being to conserve, develop and share the fishery resources of the State for the benefit of present and future generations. The specific objects of the Act are listed in s.3(2) as follows:

- (a) to conserve fish stocks and protect key fish habitats;
- (b) to promote a viable commercial fishing industry;
- (c) to provide quality recreational fishing opportunities;
- (d) to appropriately share resources between the users of the resource; and
- (e) to promote ecologically sustainable development.

While the term “ecologically sustainable development” (ESD) is not defined in the Act, s. 30 states that when determining allowable catches, the TAC Committee is to have regard to conservation, maintenance of biodiversity, and the precautionary principle. These are the essential elements of ESD as they are defined in the Commonwealth *Fisheries Management Act 1991*.

3.2.2 Part 2 - General Fisheries Management

Part 2 of the Act provides the “tool box” for fisheries management in New South Wales. Division 1 provides for the notification and duration of fishing closures, with s. 8(1) defining a fishing closure in the following terms:

The Minister may from time to time, by notification, prohibit, absolutely or conditionally, the taking of fish, or a specified class of fish, from any waters or from specified waters.

Division 2 provides for the declaration by regulation of bag limits, minimum legal sizes, maximum legal sizes, or legal size ranges, for any species of fish. It also provides for the declaration of protected species.

Division 3 provides for the registration or prohibition of classes of fishing gear and the lawful use of nets and traps.

Division 4 provides for the establishment of a Total Allowable Catch Setting and Review Committee for the purpose of determining the total allowable catch for any commercial fishery.

S. 27(1) requires that the TAC Committee consist of at least four members appointed by the Minister including: a Chairperson neither engaged in the administration of the Act or commercial fishing; a natural resource economist not employed by the Government; a fishery scientist not employed by the Government; and persons “who have appropriate fisheries management qualifications”.

S. 29 provides for the TAC Committee to make TAC determinations free from Ministerial control or direction, although the Minister may direct the TAC Committee on the procedure to be followed in making a determination and may require the TAC Committee to reconsider a determination. S. 31 requires the TAC Committee to undertake public consultation prior to making a determination and s. 32 provides for reviews of TAC determinations.

Division 5 outlines legitimate defences to the taking of otherwise illegal fish, provides for the public right to fish privately owned inland waters under certain conditions, the removal of obstructions to recognised fishing grounds, and the making of regulations relating to the general management of fisheries.

Divisions 1,2,3, and 5 also specify the penalties relating to breaches of these provisions.

3.2.3 Part 3 - Commercial Share Management Fisheries

Part 3 contains the provisions for commercial share managed fisheries.

3.2.3.1 Staged Implementation

Division 1 outlines the steps required for the staged implementation of a share managed fishery. The stages outlined in s.(41) are summarised as follows:

TABLE 3.1

Steps in Staged Implementation

Stage 1	Consultation	The Minister is to consult relevant industry bodies about which fisheries should become share managed fisheries.
Stage 2	Identification of fishery and shareholders	When the fishery is identified as a share management fishery by the inclusion of a description of the fishery in schedule 1. During the second stage, an interim Management Advisory Committee for the fishery is established, the criteria for the allocation of shares in the fishery are determined, eligible persons are entitled to apply for shares and shares are issued provisionally.
Stage 3	Access to fishery limited to shareholders	When access to the fishery is limited to provisional shareholders. Appeals against the provisional issue of shares are determined and a draft management plan for the fishery is prepared.
Stage 4	Full implementation	When the management plan for the fishery commences, shareholdings are confirmed, and other rights of shareholders are fully identified, exercisable, and subject to review.

3.2.3.2 Declaration of Share Management Fisheries

The Act does not clearly specify the criteria on which the suitability of a fishery to enter share management is determined, but Division 2 provides guidelines for industry consultation as follows:

- 43(1) The Minister is required to consult with relevant commercial fishing industry bodies about which fisheries should become share managed fisheries.

A fishery will be declared a share managed fishery by proclamation by the Governor on the recommendation of the Minister.

3.2.3.3 Compensation Provisions

The removal of a fishery from Schedule 1 (share management fisheries) cancels all shares in the fishery. The provisions and contingencies for the removal of a fishery from Schedule 1 are contained in s.44 of the Act. S.44 states in part:

- 44(3) If the description of the fishery is omitted after the commencement of the management plan for the fishery, the holders of the cancelled shares are entitled to

compensation from the State for the market value before the cancellation of the shares they held.

44(4) The amount of compensation payable is to be determined by agreement between the Minister and the person entitled to compensation. If the amount of compensation is not agreed, it is to be determined by the Valuer-General.

44(6) A person who is dissatisfied with the amount of compensation offered to the person under this section or with any delay in the payment of compensation may appeal to the Land and Environment Court.

3.2.3.4 Issue of Shares

Division 3 outlines the way in which shares are issued to participants in a share management fishery. Shares are to be allocated in accordance with s. 46 to 50 as follows. Applications for shares will be sought through the issue of a public notice outlining the share allocation provisions. The issue of shares will be dependent on the fisher's historical participation, catch history and/or previous entitlements. Shares will then be issued on a provisional basis subject to appeals to the Share Management Fisheries Appeals Panel in relation to the allocation of shares in accordance with s.82 to 88 of Division 9. The fishery will then become a limited access fishery until all appeals in relation to the fishery have been finalised and the fishery's management plan has been developed. The Minister then makes the final issue of shares to eligible persons with effect from the commencement of the management plan.

3.2.3.5 Management Plans and Management Advisory Committees

The operational basis for each declared share management fishery will be contained within a management plan. Division 5 of the Act requires the preparation of such plans, outlines their general content, and specifies the penalties to apply for contravention of a plan. S. 57(1) of the Act identifies the types of operational controls that the plan may include. These include the species that can be fished, the times and periods that fish can be taken, and the use of boats and gear in the fishery. In addition, the management plan must include performance indicators to monitor the degree to which the plan's objectives and ecologically sustainable

development are being attained and specify at what point a review of the management plan is required.

Management Advisory Committees (MACs) have been established under the *Fisheries Management Act 1994* as amended by the *Fisheries Management Amendment (Advisory Bodies) Act 1996*⁷ in accordance with the Fisheries Management (General) Amendment (Management Advisory Committees) Regulation 1997.

S. 230(4) of the *Fisheries Management Act 1994* (as amended) lists the functions of each Management Advisory Committee as follows:

- (a) to advise the Minister on the preparation of any management plan or regulations for the fishery,
- (b) to monitor whether the objectives of the management plan or those regulations are being attained,
- (c) to assist in a fishery review in connection with any new management plan or regulations, and
- (d) to advise on any other matter relating to the fishery.

Management Advisory Committees provide a forum for relevant stakeholders to consult with the Department on the development of a management plan. Management plans for each of the fisheries are to be made by regulation, with each management plan coming into effect with the commencement of the regulation.

3.2.3.6 Matters Related to Shareholding

Participation in a share managed fishery is dependent on possessing the minimum number of shares fixed for that fishery by the management plan. S. 67 allows the setting of separate minimum shareholdings for persons who acquire shares after the initial share issue and the staged increase of minimum shareholding requirements over time.

⁷ For more detail on the role of MACs and other fisheries advisory bodies within the *Fisheries Management Act 1994* see the Standing Committee's Report Number 16: *Report on the Fisheries Management Amendment (Advisory Bodies) Act 1996*.

The provisions determining maximum shareholding are as follows:

- 72(1) The maximum shareholding in a share managed fishery is the maximum share holding fixed in the management plan for the fishery.
- 72(2) If no maximum shareholding is fixed in the plan, the maximum share holding is 5 per cent of the number of shares in the fishery at the commencement of the plan.

S. 73 of the Act sets out the provisions for the duration of shareholdings as follows:

- 73(1) Shares in a share managed fishery are issued for a period of ten years (calculated from the commencement of the management plan for the fishery).

The shareholding is then renewed for another ten years either at expiration, provided no fishery review has been conducted during this period, or from the date of commencement of any new management plan introduced as a result of a fishery review.

3.2.3.7 Management and Community Contribution Levies

The Act provides for the payment by shareholders in share management fisheries of both a management charge and a community contribution proportional to their share holding. S. 76 outlines the requirements in relation to the management charge as follows:

- 76(2) The management charge is to be such amount as the Minister considers necessary to meet the costs of management for that fishery, being costs of management that are attributed to industry by the management plan for the fishery.

S. 76 also states that the management plan is to prescribe the maximum management charge payable and may authorise payment of the charge by instalment.

With respect to the community contribution, s. 77 states, inter alia:

- 77(1) Shareholders in a share management fishery are required to make a periodic contribution for their right of access to the fishery (a “**community contribution**”).
- 77(5) The rate of the community contribution, method of its payment and other matters concerning its payment are to be prescribed by the management plan, and not otherwise.
- 77(6) The management plan for the fishery may exempt a shareholder from making the community contribution (or reduce any such contribution) if the full rights to fish in the fishery in accordance with the share holding have not been exercised during the relevant period.
- 77(7) The Treasurer’s concurrence is required before any provisions relating to community contributions are inserted in a management plan.

In addition, s. 77 also states that community contributions for a share management fishery are payable after the commencement of the management plan for that fishery and are to be credited to the Consolidated Fund.

3.2.3.8 Allocation and Transfer of TAC

With respect to the allocation of total allowable catch for share management fisheries the Act states:

- 78(2) The Minister is to allocate among shareholders in all relevant share management fisheries the whole total allowable catch of fish for the commercial fishing sector.
- 78(3) An allocation among shareholders in a particular fishery is to be made in proportion to the shareholdings of the persons concerned.

- 78(5) An allocation is to be made to all shareholders, whether or not they hold the minimum shareholding required to fish in the fishery.

With respect to the transfer of total allowable catch for share management fisheries, the Act states:

- 79(1) A shareholder in a share management fishery may transfer to any other shareholder in that fishery the whole or any part of his or her allocation under this Division of the total allowable catch concerned in accordance with the management plan for the fishery.

In addition, s. 80 provides for the carrying over of unused TAC by a shareholder from one period to the next, or the bringing forward of part of the next period's TAC to the present period, subject to the management plan.

3.2.4 Part 4 - Licensing and Other Commercial Fisheries Management

Division 1 deals with commercial fishing licences.

S. 102 states:

- 102(1) A person must not take fish for sale from waters to which this Act applies unless the person is authorised to do so by a commercial fishing licence.

S. 103 stipulates who may hold such a licence, specifically excluding corporations from doing so. S. 104 lists the provisions relating to the licensing of commercial fishers, including the time such a license remains in force and the grounds for Ministerial cancellation or suspension of a license.

S. 106 of the *Fisheries Management Act* requires that:

- 106(1) A commercial fisher must, if the regulations so require, pay to the Minister an annual contribution towards:
- (a) the cost of carrying out research into commercial fisheries; or

- (b) any other costs relating to the commercial fishing industry

106(2) The amount of the contribution is to be specified in or determined by the regulations.

Division 2 deals with the licensing of commercial fishing boats and the registration of fishing boat crew members. S. 107 states:

107(1) the master of a boat must not use the boat for any of the following purposes unless the boat is licensed under this Division:

- (a) to take fish for sale from waters to which this Act applies;
- (b) to land fish in New South Wales that were taken from other waters (after the boat departed from a port in New South Wales).

Division 3 relates to exploratory, developmental and other restricted fisheries. Any fishery which is not share managed is classed as a restricted fishery under s. 111 of the Act:

111(1) The regulations may declare that the fishery (not being a share managed fishery) is a restricted fishery for the purposes of this Act during the period specified by the declaration.

111(2) The fishery may be described in the declaration as an exploratory, developmental or other class of restricted fishery.

S. 112 requires that persons taking fish for sale in a restricted fishery not only possess a commercial fishing licence, but that that licence is also endorsed to do so.

S. 115 relates to compensation and states:

115 Compensation is not payable by or on behalf of the State because a fishery ceases to be a restricted

fishery at the end of the period for which it was declared to be a restricted fishery or at any time during that period.

Division 4 requires that a person who receives fish for commercial purposes from a commercial fisher be a registered fish receiver, and also requires that such fish receivers supply fisheries officers with certain information regarding fish received.

Division 5 requires commercial fishers to keep records of all fish taken by the fisher and/or boat and to send a copy of such records to the Director of Fisheries. The Division also requires persons in possession of a prescribed quantity of fish to produce records in relation to the fish when requested to do so by a fisheries officer.

Division 6 establishes a right of appeal to the district court if a person is dissatisfied with decisions made in relation to licensing under this Part.

3.2.5 Part 5 - Co-operation with Commonwealth and Other States in Fisheries Management

Part 5 enables the State to participate in the establishment and operation of joint fisheries management authorities (Joint Authorities) with the Commonwealth and/or other states. Division 1 contains definitions. Division 2 provides for the Minister to exercise powers conferred on the Minister by Joint Authorities and, similarly, for Joint Authorities to delegate powers to individuals, including those employed by States and the Commonwealth.

Division 3 provides for the management of a particular fishery by arrangement with other States and/or the Commonwealth in accordance with s. 71 or 72 of the Commonwealth *Fisheries Management Act 1991*. S. 136 requires that fisheries managed by New South Wales under such an arrangement are to come under the provisions of the *Fisheries Management Act 1994* except in matters relating to foreign boats and matters that occurred before the arrangement took effect. S. 137 states that the objectives of Joint Authorities charged with the management of fisheries under New South Wales law are to be:

- ensuring, through proper conservation, preservation and fisheries management measures, that the living resources of the waters to which this Act applies are not endangered or overexploited; and

- achieving the optimum utilisation and equitable distribution of those resources.

S. 138 enables such a Joint Authority to exercise the powers conferred on the Minister by the Act to the exclusion of the Minister. S. 141 allows the Governor to make or amend regulations to give effect to a decision of a Joint Authority.

3.2.6 Part 6 - Aquaculture Management

Division 1 includes definitions and provides for the determination of aquaculture development plans by the Minister. Such plans may relate to any aspect of the commercial aquaculture industry including aquaculture of a particular species of fish or marine vegetation or aquaculture in a particular area.

These plans may contain:

- the description of areas suitable for specified types of aquaculture;
- suitable methods for undertaking any type of aquaculture; and
- suitable species for aquaculture in a particular area.

Such development plans must include performance indicators to monitor the effectiveness of the plan and whether ecologically sustainable development is being attained. Aquaculture development plans must also specify at what point a review of the plan is required when a performance indicator is not being satisfied.

Division 2 relates to aquaculture permits, with s. 144 stating:

144(1) A person must not undertake aquaculture except under the authority of an aquaculture permit.

Such permits must specify the area or areas within which the holder is authorised to undertake aquaculture and the species authorised to be cultivated. The Division also outlines the permit application, suspension, cancellation, and appeals process, and provides for the payment to the Minister of an annual contribution towards the costs of administration, environmental monitoring, and research as regulated.

Division 3 enables the lease of public water land for aquaculture. Such leases must specify the species of fish or marine vegetation authorised to be cultivated within the

leased area. The term of such leases must not exceed 15 years. An aquaculture lease does not confer the right of exclusive possession of the leased area. In addition to an amount paid in connection with an auction or public tender for an aquaculture lease, an additional periodic rental is to be paid by the lessee.

Division 4 deals with diseased fish and marine vegetation within an aquaculture lease. The Division provides the Minister with the power to declare a quarantine area, thereby: restricting or prohibiting the sale of fish or marine vegetation from the area; restricting or prohibiting the taking of fish or marine vegetation to or from the area; and requiring specified action by the permit holder.

Division 5 relates to miscellaneous provisions, including the ordering of restoration work to be carried out in relation to illegal aquaculture operations.

3.2.7 Part 7 - Protection of Aquatic Habitats

Part 7 of the Act relates to the protection of aquatic habitats. S. 192 states:

192(1) The Minister may, in accordance with this section, determine plans for the protection of any habitat of fish ("habitat protection plans"), whether the habitat is critical for the survival of the species or required to maintain harvestable populations of the species.

192(2) A habitat protection plan:

(a) may relate to habitat that is critical for spawning, shelter or other reason; and

(b) may apply generally or to particular areas or fish; and

(c) is to describe the importance of particular habitat features to which it applies; and

(d) may set out practical methods for the protection of any such habitat features; and

(e) may contain any other matter concerning the protection of the habitat of fish that the Minister considers appropriate.

Public consultation is required before such plans are determined. The Act also states:

193(2) Public authorities are to have regard to any habitat protection plan that is relevant to the exercise of their functions.

If a public authority proposes to exercise any function that is inconsistent with a habitat protection plan, and the conflict cannot be resolved between the Ministers involved, the matter is to be referred to the Premier for resolution. Any such resolution is to be given effect whether or not it conflicts with a habitat protection plan.

Division 2 relates to aquatic reserves. In accordance with s. 194, the Minister may declare a specified area an aquatic reserve to enhance the protection of fish and fish habitat in the area concerned but must obtain the consent of the land owner before declaring an area to be an aquatic reserve. The Minister may also revoke or vary the declaration of an aquatic reserve after tabling the notice of revocation or variation in both Houses of Parliament. Both Houses may disallow the proposed revocation or variation. The protection afforded to aquatic reserves are regulated in accordance with s. 197:

197 The regulations may:

- (a) prohibit or regulate the taking of fish or marine vegetation from aquatic reserves; and
- (b) provide for the management, protection and development of aquatic reserves; and
- (c) classify areas within an aquatic reserve for different uses (such as recreational uses or as a sanctuary).

Division 3 applies to dredging and reclamation other than for the purposes of mining, restoration or maintenance of a navigation channel, or for the removal of accumulated silt from a stormwater channel. S. 199 requires public authorities to

give notice to the Minister of any proposed dredging or reclamation work in any waters and consider any matters raised by the Minister in relation to such notice. If a dispute arises between the Minister and the public authority in relation to such work, and the dispute cannot be resolved at Ministerial level, the dispute is to be referred to the Premier for resolution. S. 201 prohibits the carrying out of dredging or reclamation work, other than that authorised by the *Crown Lands Act 1989* or authorised by a public authority, except under the authority of a permit issued by the Minister. The Minister also has the power to order remedial work necessary to rectify the damage caused by illegal dredging or reclamation work to fisheries or fish habitats.

Division 4 relates to the protection of mangroves, seagrasses and any other marine vegetation prescribed by the regulations, and requires persons who wish to cut, remove or destroy such vegetation on public water land or an aquaculture lease to obtain a permit from the Minister.

Division 5 relates to the protection of spawning salmon, trout and certain other fish. The Division prohibits the taking or disturbing of salmon, trout and any other fish prescribed by the regulations while spawning and the damaging of gravel beds used by salmon or trout for spawning unless authorised to do so by an environmental planning instrument under the *Environmental Planning and Assessment Act 1979*.

Division 6 deals with fish declared to be noxious by regulation, and prohibits the live possession or sale of such fish. The Division also authorises the seizure and destruction of live noxious fish.

Division 7 relates to the release or importation of fish and is aimed at the prevention of the spread of fish diseases and the unauthorised introduction of fish species. S. 216 prohibits the release of live fish into any waters except under the authority of a permit issued by the Minister. S. 217 prohibits the importation into New South Wales of live fish except under the authority of a permit issued by the Minister, and also makes it an offence to purchase or be in possession of such fish.

Division 8 relates to miscellaneous provisions including those relating to fish passage. S. 218 allows the Minister to order persons or public authorities constructing, altering or modifying a dam, weir, or reservoir on a waterway to provide for fish passage by constructing or repairing a fishway. S. 219 makes it an offence to obstruct fish passage in a bay, inlet, river or creek through the use of nets or other material.

3.2.8 Part 8 - Administration

Part 8 of the Act relates to the administration of the Act. Division 1 allows the Minister to acquire land by agreement or compulsory process in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991*, carry out or assist research, and delegate any functions of the Minister under the Act to the Director of Fisheries.

Division 2 (as amended) enables the Minister to establish Ministerial advisory bodies and the Director of Fisheries to establish Management Advisory Committees for specific fisheries.

3.2.9 Part 9 - Enforcement

Part 9 relates to the enforcement of the Act. Division 1 provides definitions. Division 2 provides for the appointment of fisheries officers by the Minister, extends the powers of a fisheries officer to police officers, and renders obstructing, assaulting, or impersonating a fisheries officer an offence.

Division 3 provides fisheries officers with the power to, subject to certain conditions:

- arrest a person found to be committing, or suspected of having committed, a fisheries offence;
- stop, board and search boats;
- examine fishing gear or other equipment;
- require gear to be removed from the water;
- enter and search non-residential premises;
- detain and search vehicles;
- enter waters and pass along the banks or borders of any waters;
- enter and examine aquaculture farms;
- require the production of records relating to commercial fishing activities and fish receivers;

- require the production of appropriate fishing authorities (licenses etc);
- seize fishing authorities; and
- require the provision of information, including names and addresses, from the master of a licensed fishing boat, other persons on board such a boat, or persons the officer has reason to believe is engaged in commercial fishing activities or fishing offences.

The Division also provides for the application by a fisheries officer to an authorised justice for a search warrant, and the pursuit of a person or boat outside the coastal waters of New South Wales subject to certain conditions.

Division 4 provides a fisheries officer with the power to seize anything that the officer has reason to believe is connected with a fisheries offence, including boats, fishing gear and fish, under certain conditions.

Division 5 relates to criminal proceedings, including the serving of penalty notices. S. 278 imposes a time limit of two years for the commencement of such proceedings. Division 6 relates to civil enforcement of the Act and enables persons to bring proceedings in the Land and Environment Court for an order to remedy or restrain a breach of the Act, whether or not any right of that person has been or may be infringed.

3.2.10 Part 10 - Miscellaneous

Part 10 of the Act requires the Director of Fisheries to include in the NSW Fisheries annual report information indicating how the objects of the Act have been, and are proposed to be, achieved. The Part also outlines the procedure to be followed in relation to public consultation where it is required by the Act, and requires a review of the Act's policy objectives to be conducted by the Minister as soon as possible following the passing of five years since the Act commenced. With respect to native title rights and interests, s. 287 states:

287 This Act does not affect the operation of the *Native Title Act 1993* of the Commonwealth or the *Native Title (New South Wales) Act 1994* in respect of the recognition of native title rights and interests within the meaning of the Commonwealth Act or in any other respect.

3.3 Associated Regulations and Amendments

A number of regulations have so far been made under the *Fisheries Management Act 1994*. These are:

- The Fisheries Management (General) Regulation (1995);
- The Fisheries Management (Aquaculture) Regulation (1995);
- The Fisheries Management (Aquatic Reserves) Regulation (1995);
- The Fisheries Management (General) Amendment (Management Advisory Committees) Regulation (1997);
- The Fisheries Management (General) Amendment (Purse Seine and Lampara Fishing) Regulation (1997);
- The Fisheries Management (General) Amendment (Restricted Fisheries Termination) Regulation (1997); and
- The Fisheries Management Amendment Bill (1997).

The advisory body provisions of the *Fisheries Management Act 1994* have subsequently been amended by the *Fisheries Management Amendment (Advisory Bodies) Act (1996)*. The Standing Committee's Report Number 16 deals with these amendments in detail.

2 THE NATURE OF AUSTRALIAN FISHERIES

2.1 Introduction

Australia is an island nation with a vast coastline and much oceanic territory and, although recreational fishing is Australia's most popular sporting pastime, Australia is not a major commercial fishing nation by world standards.

There are two major reasons for this apparent contradiction. Firstly, 86 per cent of the Australian population lives in coastal regions¹ and has easy access to estuaries, beaches and the ocean for recreational purposes. Secondly, the relatively warm seas surrounding Australia contain fewer nutrients than the colder seas found in other parts of the world and are, as a result, not as fertile.²

A national survey of participation in recreational fishing completed in 1984 reported that an estimated 4.5 million people had fished recreationally at least once during the previous year³, making recreational fishing Australia's most popular pastime. Despite the significance of the recreational fishing effort, little is known about the size or composition of the recreational catch.

In contrast, much is known in relation to the commercial catch. According to Shelley and Gary Underwood:

Australia's annual catch is ranked 55th in the world. This represents just over 200,000 tonnes of fish. This is small compared to New Zealand's catch of 500,000 tonnes and Japan's 10 to 12 million tonnes.⁴

¹ Readers Digest (1994). *Atlas of Australia*, Readers Digest (Australia), Surry Hills, p 49

² T C Roughley (1951). *Fish and Fisheries of Australia*, Angus and Robertson, Sydney, pp 163-164

³ P A Management Consultants (1984). *National Survey of Participation in Recreational Fishing*, Report No 1, Melbourne, p 6

⁴ Shelley and Gary Underwood (1995). *Fishing*, Cardigan Street Publishers, Melbourne, p 28

Commercial fishing differs from most primary industries due to its heavy reliance on wild stocks and the difficulties associated with their harvest and management. Commercial fishing takes place throughout the Australian Fishing Zone (AFZ), an area of about nine million square kilometres that extends 200 nautical miles from the shore.

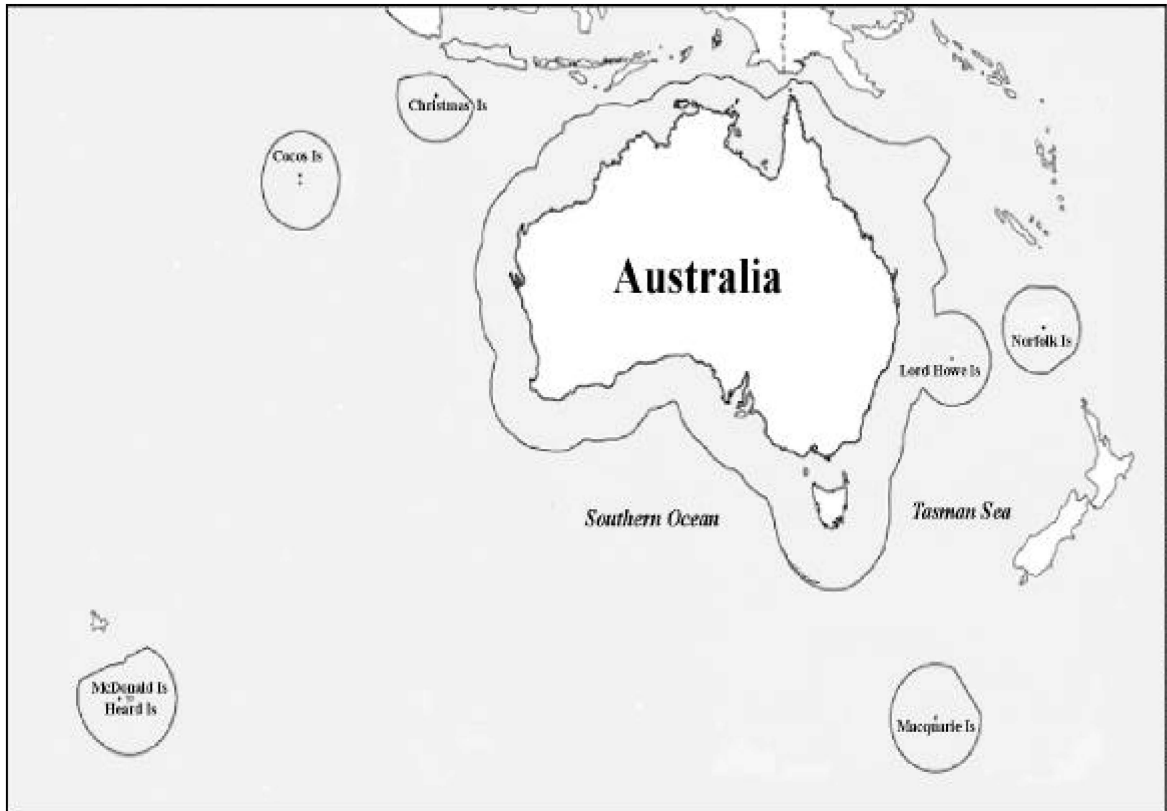
The States are responsible for the management of inland, estuarine and coastal fisheries out to three nautical miles from shore. The Commonwealth is responsible for fisheries management in waters between three nautical miles from shore and the edge of the AFZ.

Australia's fisheries are defined by a combination of the species caught, the fishing methods used and the geographical area of operation. About 70 separate fisheries were defined in Commonwealth and State Government legislation in Australia in 1991.

Currently the States manage wild fisheries worth about 58 per cent of the total value of fisheries production in Australia and aquaculture industries worth a further 18 per cent. ⁵

⁵ P J Kailola, M J Williams, P C Stewart, R E Reichelt, A McNee and C Grieve (1993). *Australian Fisheries Resources*, Bureau of Resource Sciences and the Fisheries Research and Development Corporation, Canberra, p 6

Figure 2.1 - Limits of the Australian Fishing Zone ⁶

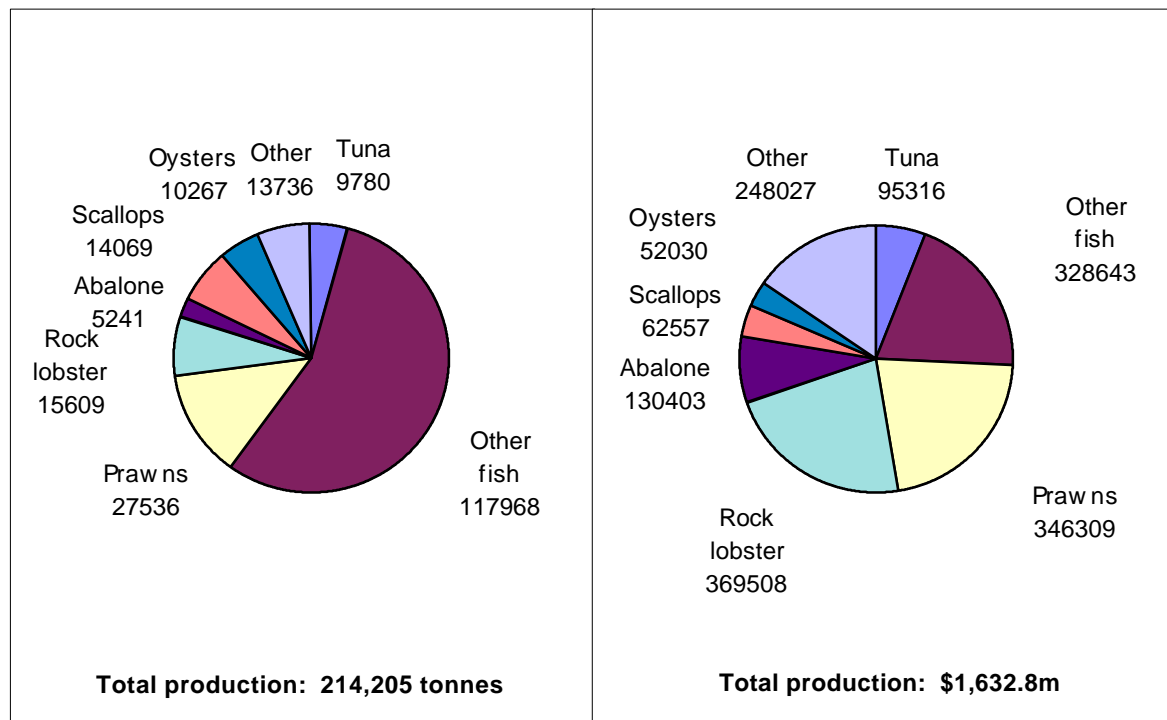


Although the volume of fisheries production in Australia is relatively low, the commercial fishing industry is ranked fifth in value amongst Australia's primary food and fibre industries after wool, beef, wheat and dairy products. The value of Australian commercial wild fishery and aquacultural production has exceeded \$1 billion each year since 1988 and was estimated at \$1.8 billion in 1995-96. This high value is largely the result of the high proportion of highly priced shellfish species such as abalone, scallops, penaeid prawns and rock lobsters.

Figure 2.2 shows that in 1995-96 these shellfish species provided over 60 per cent of the total value of production.

⁶ P J Kailola et al (1993). *Australian Fisheries Resources*, p 6

**Figure 2.2 - Australian Fisheries Production by Species
1995-96 ⁷**

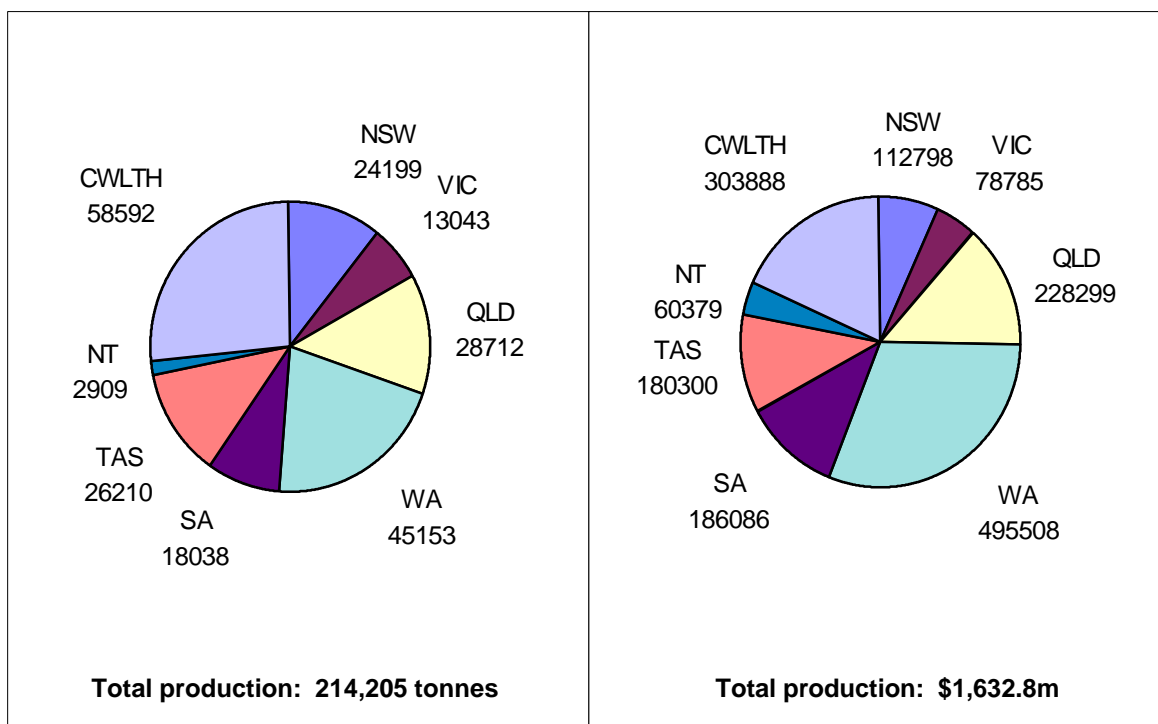


Fisheries production varies markedly between states. Figure 2.3 below illustrates the dominance of the Western Australian and Commonwealth fisheries in total Australian fisheries production.

Figure 2.3 - Australian Fisheries Production by State

⁷ Australian Bureau of Agricultural and Resource Economics (1996), *Australian Fisheries Statistics 1996*, Commonwealth of Australia, Canberra, p 10

1995-96⁸



2.2 The Commonwealth Fishery

Commonwealth fisheries are administered under the *Fisheries Management Act 1991*. The Australian Fisheries Management Authority (AFMA) has responsibility for managing Commonwealth fisheries.

Of the Commonwealth's 13 fisheries, the largest in terms of value of production in 1995-96 are the northern prawn (\$114 million), south east trawl (\$50 million), southern bluefin tuna (\$47 million), Torres Strait (\$27 million), southern shark (\$17 million) and east coast longline and minor line (\$17 million) fisheries.

⁸ Australian Bureau of Agricultural and Resource Economics (1996), *Australian Fisheries Statistics 1996*, p 10

The value of other Commonwealth fisheries in 1995-96 was approximately \$30 million.⁹

Figure 2.4 - Commonwealth Fisheries Production by Tonnage and Value 1995-96¹⁰

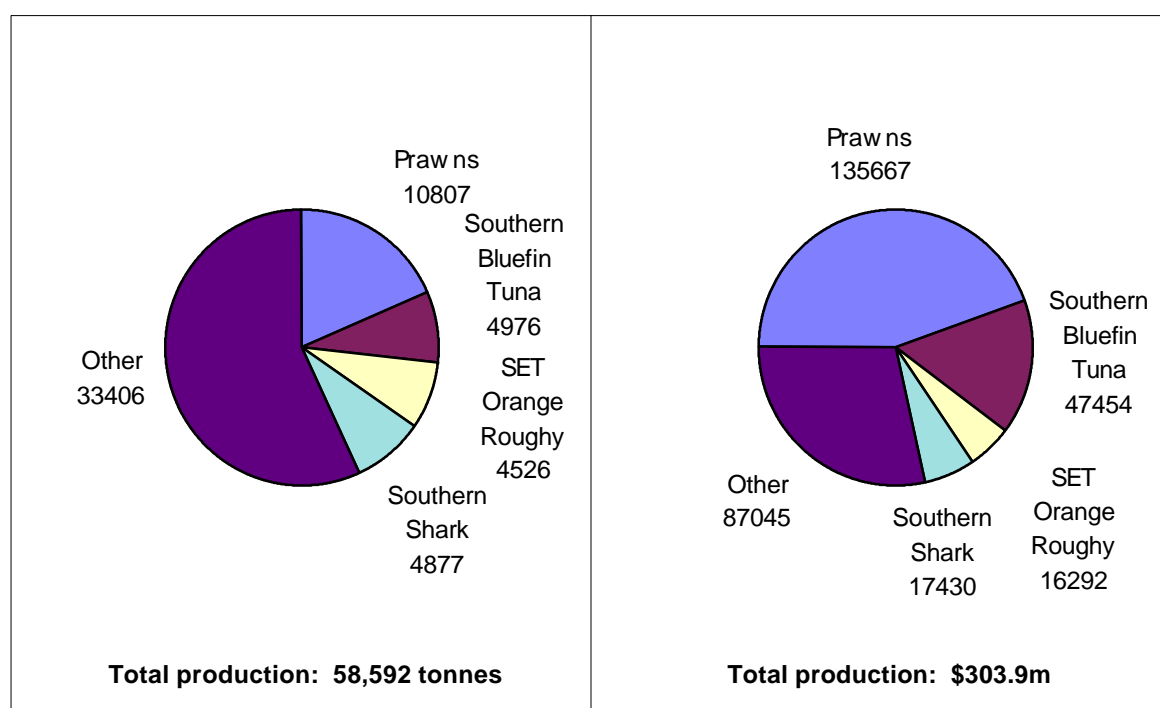
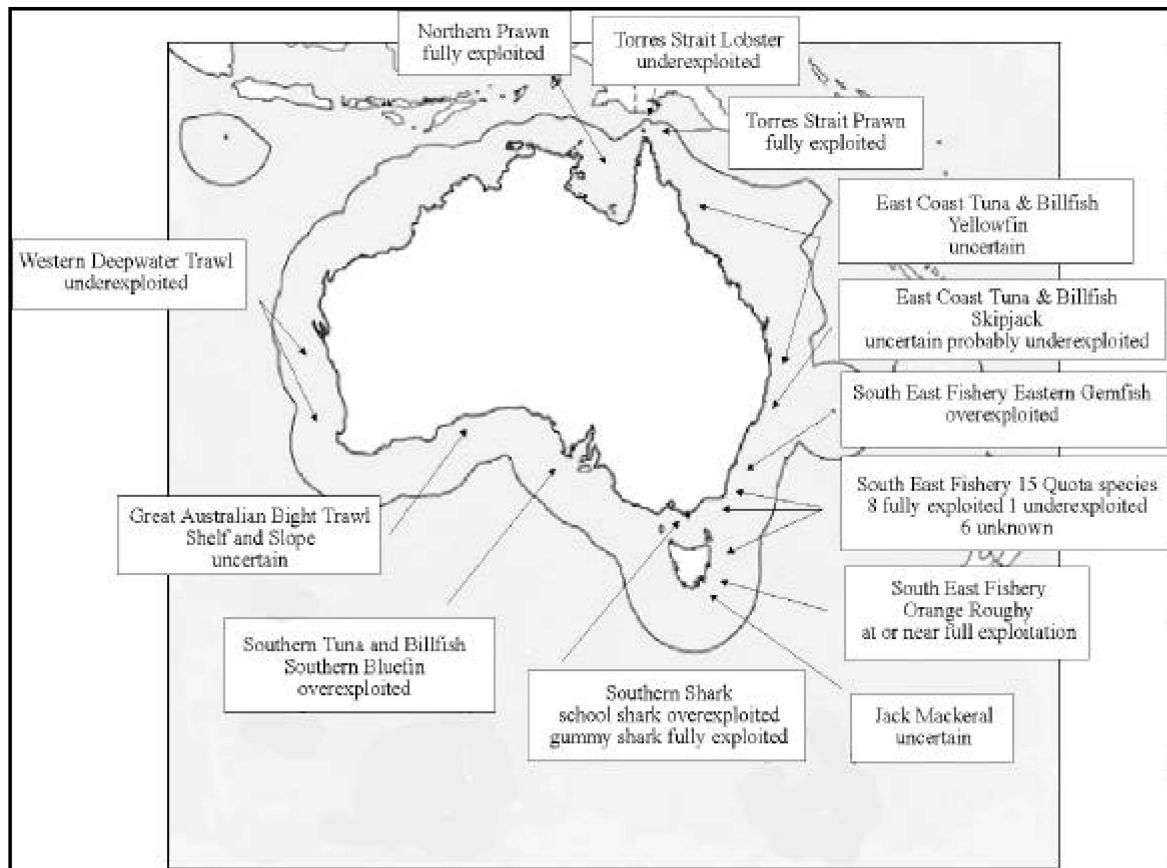


Figure 2.5 summarises the status of species or species groups which are taken commercially in Commonwealth-managed fisheries and indicates that four species (or species groups) are overfished, eleven are fully fished, six are underfished and ten are uncertain or unknown.

⁹ Australian Bureau of Agricultural and Resource Economics (1996), *Australian Fisheries Statistics 1996*, pp 18-19

¹⁰ Australian Bureau of Agricultural and Resource Economics (1996), *Australian Fisheries Statistics 1996*, pp 18-19

**Figure 2.5 - The Status of Commonwealth Fisheries in 1993
(including jointly managed commercial fisheries) ¹¹**



2.3 The New South Wales Fishery

New South Wales' fisheries are administered under the *Fisheries Management Act 1994*. Chapter Three examines this Act in detail. NSW Fisheries is the responsible authority for fisheries management in the State.

¹¹ Adapted from, K McLoughlin, D Stapes, and M Maliel, (1994). *Fishery Status Reports 1993 - Resource Assessments of Australian Commonwealth Fisheries*, Bureau of Resource Sciences, Canberra

A recent survey of angling suggests that approximately 30 per cent of the NSW goes fishing at least once a year.¹² n

13

th of the State's coastline.

Freshwater salmonid angling o

New England areas, while native freshwater fishing occurs throughout the

Although the licensing of freshwater angling ceased in 1988, some inland he re-introduction of such licences, prov that the proceeds are used to fund restocking and inland fisherie management.

There are curr

licensed fishing vessels. Approximately 200 species of fish and invertebrates

The three species with the highest production are:

-
- the eastern king prawn and
- the school prawn.

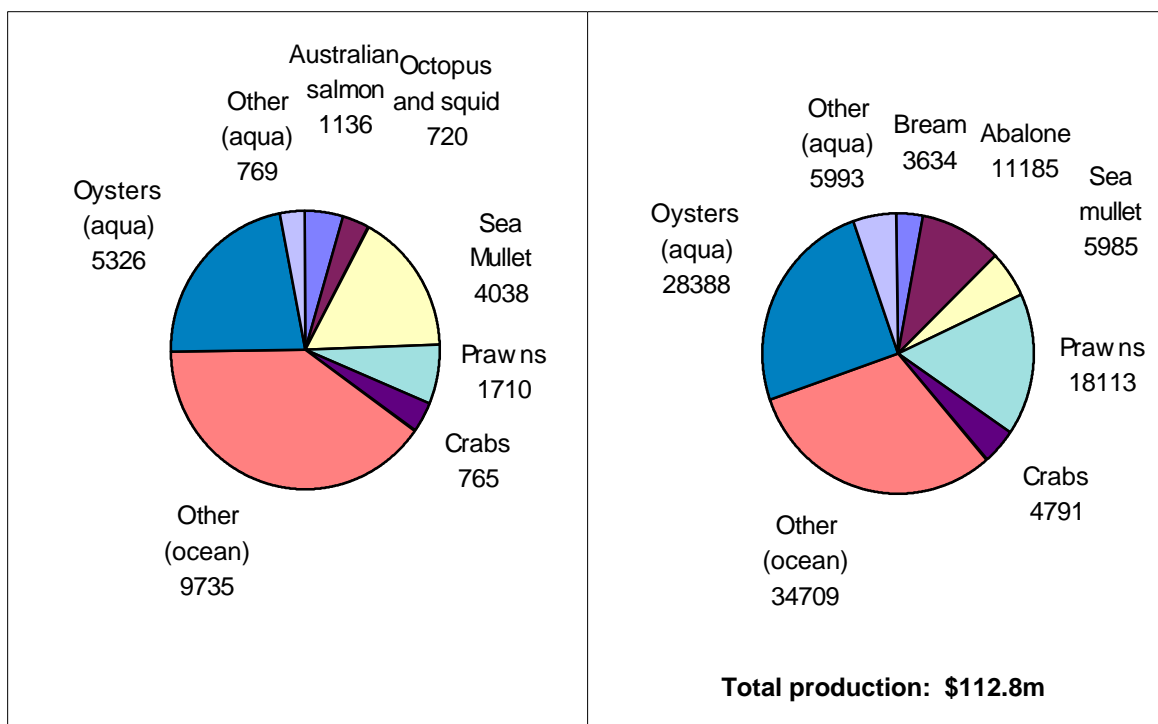
The Sydney rock oyster is the most important aquaculture species in NSW in of production and value, with 5326 tonnes, worth

Figure 2.6 shows NSW commercial fisheries production during 1995-96.

¹² J Pepperell (1996). *Recreational F*

¹³ Submission 42, NSW Fisheries, p 9

Figure 2.6 - NSW Fisheries Production Tonnage and Value 1995-96 ¹⁴



The majority of the commercial catch is taken from marine waters (79 per cent), followed by estuarine waters (20 per cent) and inland waters (1 per cent).¹⁵ The main fishing methods employed throughout the State are net, trap and line.

¹⁴ Australian Bureau of Agricultural and Resource Economics (1996), *Australian Fisheries Statistics 1996*, Commonwealth of Australia, Canberra, p 11

¹⁵ Submission 42, NSW Fisheries, p 7

2.4 The Nature and Management of Other Australian Fisheries

2.4.1 Western Australia

The Fisheries Department of Western Australia is responsible for the administration of the State's fisheries under three state Acts of Parliament:

- the *Fish Resources Management Act 1994*,
- the *Fisheries Adjustment Schemes Act 1987* and
- the *Pearling Act 1990*.

Most of Western Australia's population is distributed close to the coastline, with over 70 per cent living within the Perth region. This has led to a traditionally high participation rate in aquatic-based recreation. According to a 1987 Australian Bureau of Statistics survey, over 345,000 Western Australians enjoyed fishing for recreation on a regular basis each year at that time.¹⁶

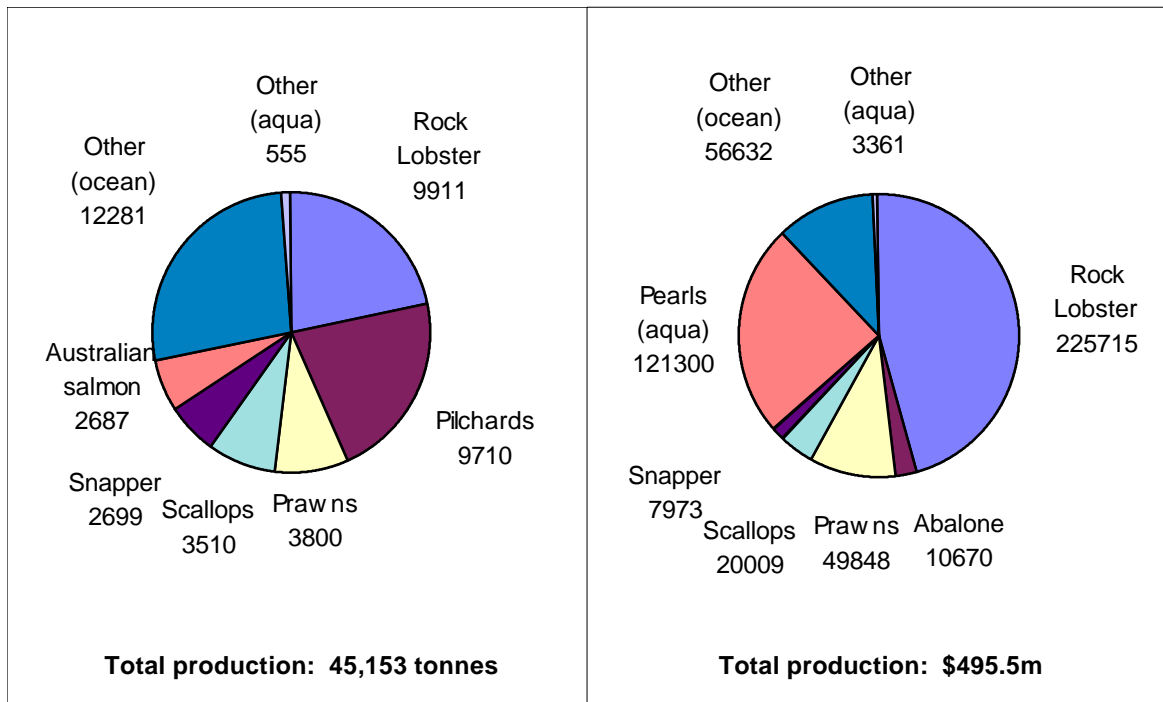
In recent years participation in recreational fishing has steadily increased, placing greater pressure on inshore aquatic resources. Annual recreational licences are required for a number of fisheries and raise a net revenue of \$1.1 million per annum. Revenue derived from recreational licences is administered by the Recreational Fishing Advisory Committee and is spent directly on fisheries management.

Recreational managers are assisted by Volunteer Fishing Liaison Officers (VFLOs). This programme has been found to be successful in providing a link between management and the recreational fishing community.

Western Australia has the greatest commercial fisheries production of any Australian state, in terms of both quantity and value. Figure 2.7 illustrates the great contribution to the value of the State's fisheries production made by rock lobster, most of which is exported.

¹⁶ Australian Bureau of Statistics Survey (1987), p 27

Figure 2.7 - Western Australian Fisheries Production Tonnage and Value 1995-96 ¹⁷



Other major Western Australian fisheries in terms of value include the cultured pearl fishery centred around Broome, which contributes 25 per cent of the total value of production, and prawns (10 per cent). The entire fish catch contributed less than 10 per cent to the total value of production in 1995-96.

2.4.2 Queensland

Queensland's fisheries are administered under the *Fisheries Act 1994*. The Act established a Policy Council and the Queensland Fisheries Management Authority (QFMA), with a management structure similar to the Commonwealth model.

¹⁷ Australian Bureau of Agricultural and Resource Economics (1996), *Australian Fisheries Statistics 1996*, p 14

The ultimate decision-making body within the QFMA is the Board of Directors, which includes an Executive Chairman and six other members chosen for their expertise in fishing, public administration, fisheries science, natural resource management, industrial affairs, commerce, economics or financial management.

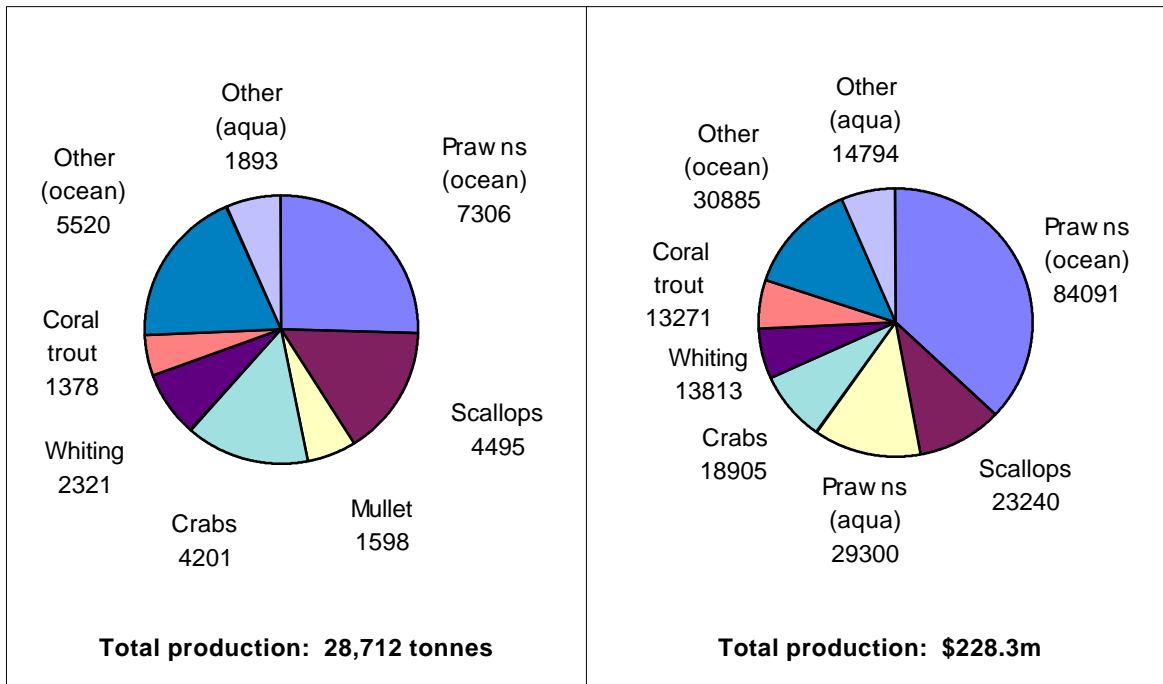
A wide variety of recreational angling is undertaken in Queensland with fisheries ranging across marine, estuarine, tropical freshwater and warm freshwater habitats.

The introduction of a general recreational licence has been rejected by the Government in favour of a boat levy of \$12 added to boat registration fees. This levy raises approximately \$1.4 million per annum and is used to fund marine and freshwater recreational fisheries management.

The Great Barrier Marine Park Authority works in conjunction with the QFMA to manage the growing number of recreational fishers that gain access to the reef in charter boats through a logbook programme.

Queensland's commercial fisheries production is ranked second in Australia, in terms of both quantity and value. The fishery is dominated by the ocean haul prawn trawl fishery which contributes 37 per cent of the total value of production.

Figure 2.8 - Queensland Fisheries Production Tonnage and Value 1995-96 ¹⁸



Total fish landings contributed 23 per cent of the value of fisheries production in 1995-96 and the growing aquaculture industry contributed a further 19 per cent.

2.4.3 South Australia

South Australian marine resources are administered under the *Fisheries Act 1982* and managed by Primary Industries South Australia (PISA). There are an estimated 400,000 recreational fishers in South Australia. The value of this activity has been estimated at approximately \$285 million per annum.¹⁹

¹⁸ Australian Bureau of Agricultural and Resource Economics (1996), *Australian Fisheries Statistics 1996*, p 13

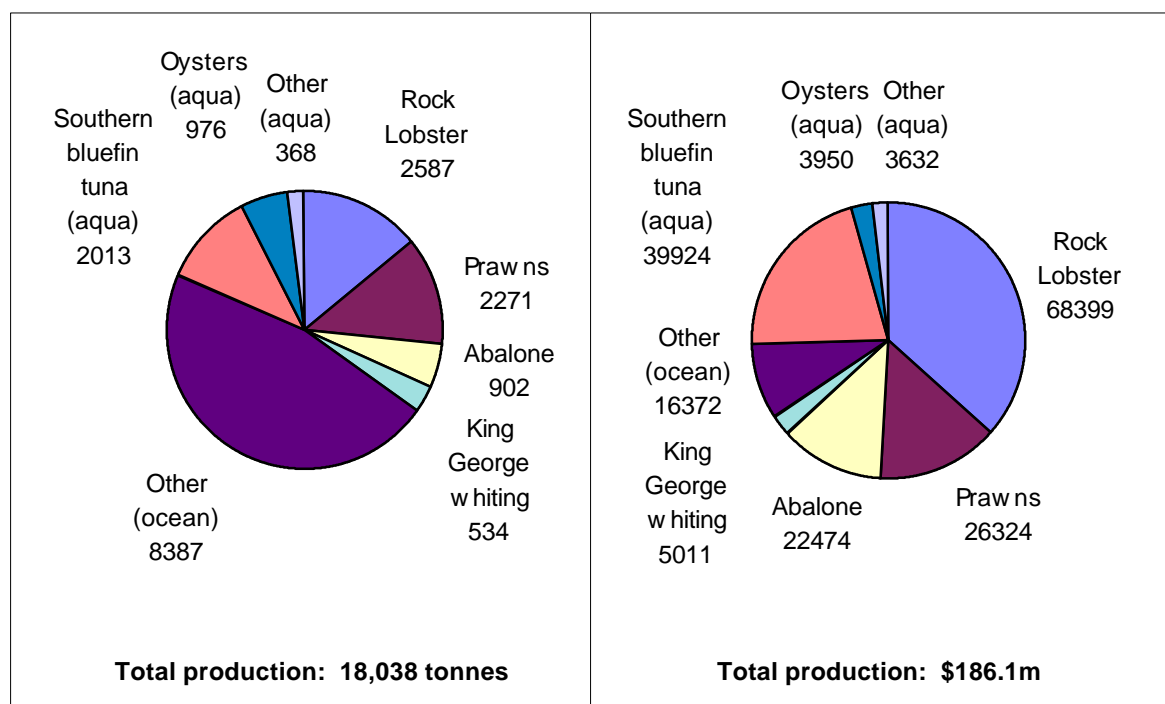
¹⁹ Primary Industries South Australia Home Page www.pi.sa.gov.au

With the bulk of the population concentrated in the south east of the State and freshwater angling generally limited to the Murray River, most recreational fishing activity occurs in the Gulf of St Vincent, the Spencer Gulf and adjacent waters.

The South Australian fishcare programme is considered to be successful in providing a link between recreational fishers, commercial fishers and management. The South Australian commercial fishing industry is characterised by high value species, with rock lobster, abalone and prawns making up 63 per cent of the total value of production.

Figure 2.9 shows the quantity and value of South Australian fisheries production in 1995-96.

Figure 2.9 - South Australian Fisheries Production Tonnage and Value 1995-96²⁰



²⁰ Australian Bureau of Agricultural and Resource Economics (1996), *Australian Fisheries Statistics 1996*, p 15

A major tuna farming industry based at Port Lincoln has recently been developed using aquacultural and traditional commercial fishing techniques. Wild-caught tuna are held in pens and fed so that they reach peak condition when market demand is greatest. Tuna farming has quickly become a lucrative industry and is currently netting a total of \$40 million per annum, representing 21 per cent of the total value of South Australian fisheries production.

South Australia is thought to have further aquaculture potential due to its low population density and long, sheltered coastline. To ensure the sustainable development of aquaculture, PISA and the South Australian Research and Development Institute (SARDI) have been developing management plans for all coastal waters in anticipation of a large offshore mussel and oyster culture industry, particularly in and around the Nepean Bay area.

2.4.4 Tasmania

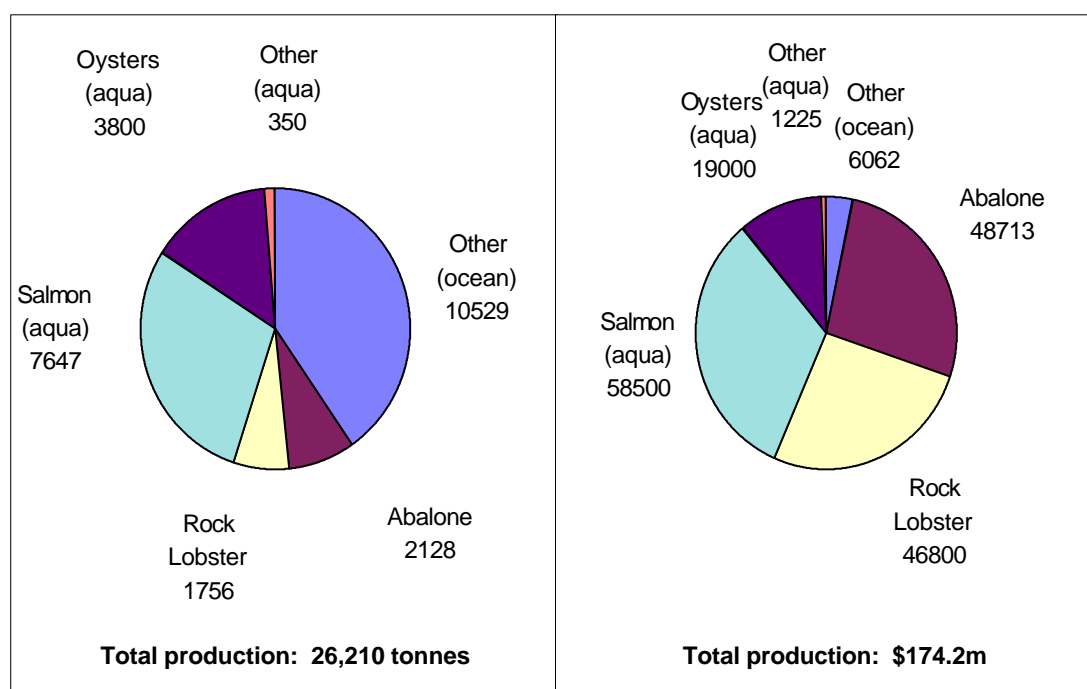
The *Living Marine Resources Management Act 1995* and the *Marine Farming Planning Act 1995* provide the framework for the sustainable management of Tasmania's marine resources. The authority charged with the management of the fishery is the Department of Primary Industry and Fisheries.

Tasmania has a licensing system for specified marine fishing methods and for all freshwater fishing. Proceeds from the licence are the major source of funds for the Inland Fisheries Commission.

The Department, in conjunction with the peak recreational organisations, has produced a code of practice to guide the estimated 100,000 Tasmanian recreational fishers in sustainable fishing practices.

Figure 2.10 illustrates the significance of rock lobster, abalone and aquaculture to fisheries production in Tasmania. Wild-caught fin fish contributed only 3 per cent to the total value of fisheries production in 1995-96.

Figure 2.10 - Tasmanian Fisheries Production Tonnage and Value 1995-96 ²¹



A unique feature of the Tasmanian commercial industry is the heavy reliance on salmonid aquaculture, comprising 30 per cent of total production value. Prior to 1995, marine farming activities in Tasmania were controlled by a 1982 amendment to the *Fisheries Act 1959*.

This legislation was perceived to be incapable of adequately managing the development of the aquaculture industry and accommodating other coastal zone users. As a result, the *Marine Farming Planning Act 1995* was enacted to regulate the expansion of the aquaculture sector. This Act sets out a regulatory framework, similar to town planning regulations, which divides areas of coastline into zones in which specific activities can be carried out. Under the Marine Farm Planning legislation, the determination of leases and the ongoing

²¹ Australian Bureau of Agricultural and Resource Economics (1996), *Australian Fisheries Statistics 1996*, p 16

assessment of the controls which govern marine farming activities have been modified to provide for greater communication and cooperation between the relevant regulatory authorities.

2.4.5 Victoria

Victorian fisheries are administered under the *Fisheries Act 1995* and managed by the Department of Natural Resources and Environment. The passing of the *Fisheries Act 1995* represented the first comprehensive revision of Victorian fisheries legislation in 27 years.

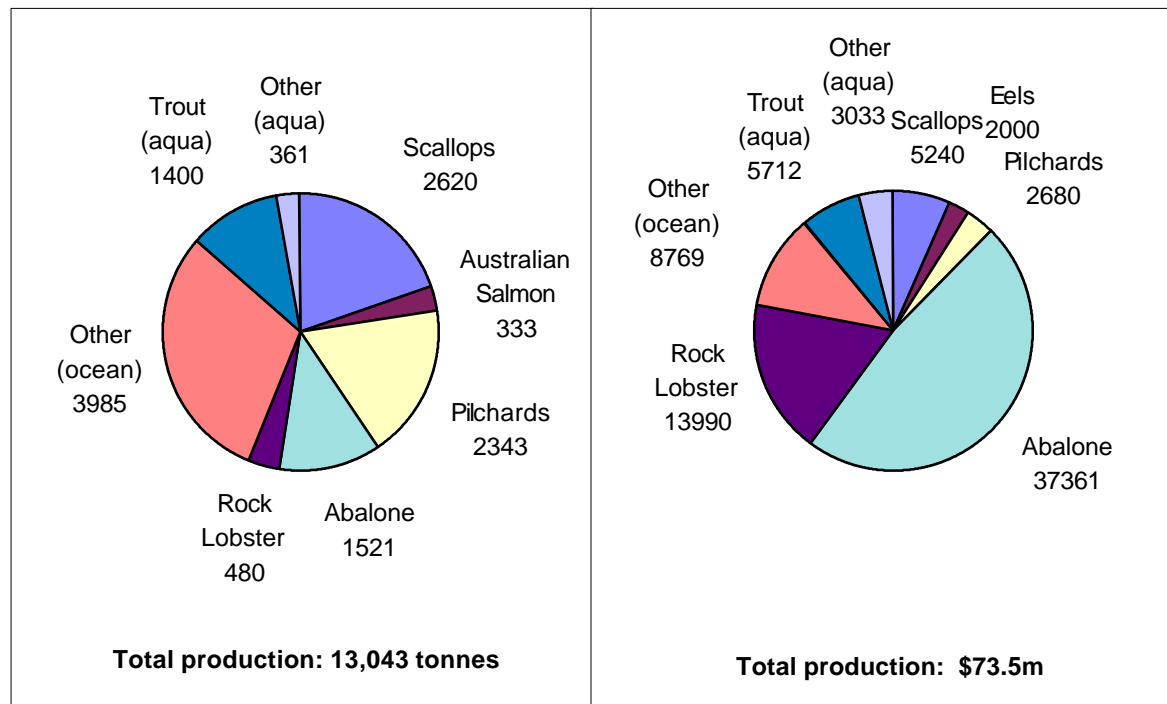
Victoria has the highest population density and population-to-coastline ratio of all states and territories.²² This has led to a high recreational fishing effort in the State. The Fisheries Division of the Victorian Department of Natural Resources and Environment has recently undertaken major recreational fishing surveys in key bays and inlets. Recreational catch rates have been estimated and these should provide a valuable database for the future management of the fishery.

There is currently an inland recreational licence fee of \$20 per year and a marine licence is about to be introduced.

Figure 2.11 shows Victorian commercial fisheries production in 1995-96 and illustrates the importance of the abalone fishery to the total value of production.

²² Victorian Department of Natural Resources and Environment, *Annual Report, 1995-96*, Melbourne, p 7

Figure 2.11 - Victorian Fisheries Production Tonnage and Value 1995-96 ²³



2.4.6 Northern Territory

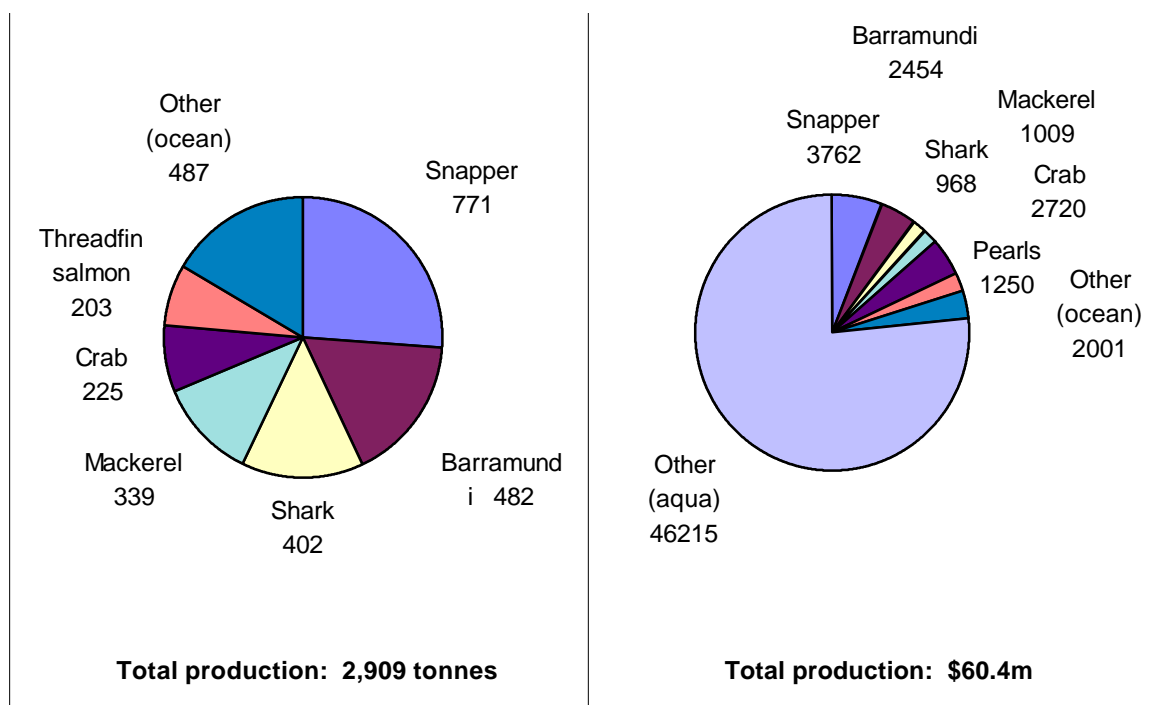
Aboriginals own 87 per cent of the Northern Territory coastline and are entitled to claim, under the *Aboriginal Lands Act*, two kilometres of sea adjacent to that land. Recently, native title property rights have been extended to involve sea claims, with the Northern Land Council claiming a 2300 square kilometre area off the north west Arnhem Land coast.

²³ Australian Bureau of Agricultural and Resource Economics (1996), *Australian Fisheries Statistics 1996*, p 12

The primary target species for both recreational and commercial fishers in the Northern Territory is barramundi. Tourism is one of the Territory's most important industries and the recreational barramundi fishery is an important component of that industry. The commercial exploitation of barramundi has been drastically reduced over the last 15 years to provide a sustainable share of the available resource for the recreational sector.

The Northern Territory is the smallest of Australia's commercial fisheries, valued at \$60.4 million in 1995-96. The major commercial fisheries include barramundi, mud crab, prawns, gold band snapper and mackerel. The Territory's aquaculture industry is growing and is currently based on barramundi, prawns and pearls.

Figure 2.12 - Northern Territory Fisheries Production Tonnage and Value 1995-96 ²⁴



²⁴ Australian Bureau of Agricultural and Resource Economics (1996), *Australian Fisheries Statistics 1996*, p 17

2.5 State and Commonwealth Jurisdictions and OCS Agreements

An Offshore Constitutional Settlement (OCS) is an arrangement whereby a commercial fishery which spans a number of Commonwealth and State jurisdictions is regulated under either Commonwealth or State law and, if necessary, management by a joint State/Commonwealth authority. Such agreements are structured on a fishery by fishery basis, with each fishery defined by species, method of catch and catch area. OCS agreements have the capacity to avoid fisheries being managed under a number of different State and Commonwealth laws. OCS agreements are intended to simplify the regulation of commercial fishermen by reducing the number of licences and removing compliance impediments.²⁵

In 1973 the Commonwealth Parliament enacted the *Seas and Submerged Lands Act 1973*. The Act had the effect of vesting in the Commonwealth territorial sovereignty over the strip of sea bed up to three nautical miles out to sea. To avoid State/Commonwealth jurisdictional conflicts it was agreed at the State Premiers Conference of 1978 that the States and Commonwealth would pass complementary legislation to achieve an OCS agreement in relation to both fisheries and petroleum mining. Accordingly, the Commonwealth introduced the *Coastal Waters State Powers Act 1980*, which vested a statutory title (but not sovereignty) in each State to the strip of sea bed within three nautical miles of the coast, measured from the low water mark.²⁶ This Act allowed state management of fishing activity within the three mile limit. The fisheries component of the arrangement came into effect in 1983, following an amendment to the *Commonwealth Fisheries Act 1952*. This amendment provided for the establishment of co-operative mechanisms for regulating fisheries, including OCS agreements.

²⁵ J C McCall and R A Stevens (1996). *Australian Fisheries Management Authority: Organisational Structure and Management Philosophy*, Developing and Sustaining World Fisheries Resources: The State of Science and Management 2nd World Fisheries Conference, D A Hancock et al (eds), p 659

²⁶ J Carter (1986). *Fisheries Law in New South Wales*, Department of Agriculture, New South Wales, pp 43-47

In recognition of the growing complexity of fisheries management and enforcement, the *Fisheries Act 1952* was replaced by the *Fisheries Administration Act 1991* and the *Fisheries Management Act 1991* in January 1991. The main provisions of the *Fisheries Administration Act 1991* were to establish a statutory management body, the Australian Fish Management Authority (AFMA). The *Fisheries Management Act 1991* required management plans to be drawn up for all Commonwealth fisheries and provided for the negotiation of OCS agreements between the States and the Commonwealth. The involvement of industry, the Commonwealth and States in this process is facilitated by Management Advisory Committees (MACs).

OCS negotiations between the States and the Commonwealth have been conducted since the late 1980s. The Commonwealth has been represented in these negotiations by AFMA from 1991. Although OCS arrangements have been finalised for the northern fisheries, final agreement has not been reached for the major southern fisheries.²⁷

Preliminary negotiations for a New South Wales/Commonwealth OCS agreement resulted in an interim agreement in 1994, which transferred the management of virtually all fishing activity off the New South Wales coast to New South Wales and redefined the state and Commonwealth jurisdiction boundaries. Under this agreement, New South Wales' jurisdiction was extended to the 4000 metre depth contour, which had the effect of extending the former three nautical mile limit to between 50 and 90 nautical miles.²⁸

Dr John Glaister, New South Wales Director of Fisheries, outlined the nature of the present dual fisheries administration of waters off New South Wales as follows:

Fish trawling off the coast of NSW comprises 2 geographic components that are managed separately. To the north of Barrenjoey Point [off the northern suburbs of Sydney] and less than 3nm [nautical miles] offshore south of Barrenjoey

²⁷ McCall and Stevens (1996), *Australian Fisheries Management Authority: Organisational Structure and Management Philosophy*, p 659

²⁸ G Hamer (1991). "The Offshore Constitutional Settlement: New South Wales Fisheries", *Fishnote DF/3*, NSW Agriculture and Fisheries, Sydney, p 5

Point, fish trawling is under the jurisdiction of New South Wales Fisheries. South of Barrenjoey Point, excluding state waters inside 3nm, fish trawling occurs within the South East Fishery (SEF) and is managed by the Commonwealth... The SEF extends... around Victoria and Tasmania and westward to Cape Jervis in South Australia (excluding state waters). Both the NSW-managed trawl fishery and the SEF catch multiple species across a range of habitats on the continental shelf and slope. In the SEF a regime of total allowable catches (TACs) and individual transferable quotas (ITQs) exists for 16 species (or species groupings)... In 1993 [there were] 67 fish trawlers operating in the NSW-managed fishery [that] reported a minimum of 50 days fished... Of these vessels, 39 were also endorsed to fish in the SEF and 28 were restricted to the NSW trawl fishery. Of the 28 vessels restricted to the NSW trawl fishery, 20 vessels fished mostly in waters to the north of Sydney.²⁹

Richard Stevens, Chairman of AFMA, when outlining the development of OCS agreements and the particular problems in their finalisation with respect to NSW, stated:

The first OCS arrangements for fisheries were developed in the late 1980s. Since that time, the States and the Commonwealth have held ongoing negotiations to further develop those OCS arrangements. Those negotiations have been a stop-start affair, with legal barriers, management plans, industry consultation and changes in Government policy all affecting progress.

In the case of New South Wales, the issues we have been trying to resolve are not necessarily straightforward, and include recreational fishing for tuna and billfish, trawling by Commonwealth licensed vessels in the south east fishery

²⁹ G Liggins (1996). *The Interaction between Fish Trawling (in NSW) and Other Commercial and Recreational Fisheries*, Report to the Fisheries Research and Development Corporation, NSW Fisheries Research Institute, Sydney, p 8

in waters which are traditionally State waters, line fishing by State licensed vessels for fish species under quota management in Commonwealth waters and so on.³⁰

Mr Steve Dunn, Executive Director, Policy Unit, NSW Fisheries, explained that the major impediments to finalising OCS agreements from the State's point of view are the inequities and management difficulties created by jurisdictional boundaries.

Mr Dunn stated:

New South Wales would like to take jurisdiction for rock lobsters throughout its range. At the moment we have jurisdiction for trap-and-line fishing but there is still a loophole whereby trawl fishermen can take rock lobsters. That is currently controlled by a condition on their Commonwealth permit which says that they cannot land rock lobsters. But that could be taken away, so we would prefer to have jurisdiction. Likewise, we have fishermen operating in fisheries in which the Commonwealth has the major part of the jurisdiction and the Commonwealth would like control over that but our fishermen rely on those species. The decisions that were made six or seven years ago now present what sometimes appear to be immovable barriers.³¹

In the face of ongoing complications and confrontation over the jurisdiction of fisheries management, NSW Fisheries has indicated that a joint authority may provide a management solution to State/Commonwealth conflicts. Dr Glaister stated:

We have had meetings with the Commonwealth and said, "Tell us what the problem is and we will try and work towards a solution". In each case there is an agreement that it is being managed as well as possible given the two

³⁰ Evidence of Mr Stevens, 5 May 1997, pp 5-6

³¹ Evidence of Mr Dunn, 7 July 1997, pp 31-32

jurisdictions. Short of going into a joint authority—I have suggested to Richard [Stevens] that if he has some concerns that are not being addressed by the current arrangements perhaps we need to look at a joint authority with as small a bureaucracy as possible—if there is some way of getting an answer to some of these questions, fine.³²

The Standing Committee considers that an Offshore Constitutional Settlement between New South Wales and the Commonwealth is essential to ensure the sustainable exploitation of joint-jurisdiction fisheries. Accordingly, the Standing Committee recommends:

Recommendation 1

That the Offshore Constitutional Settlement be resolved as a priority by NSW Fisheries to ensure a holistic (consistent) approach to fisheries management across the State/Commonwealth boundary (3 NM).

³² Evidence of Dr Glaister, 7 July 1997, p 31

4 IMPLEMENTATION OF THE ACT

The establishment of share management fisheries is a major component of the *Fisheries Management Act 1994*. The election of the Carr Labor Government in March 1995 led to a shift in emphasis from share management to restricted fisheries. This change in policy has been criticised by many stakeholders, including commercial fishers and conservationists, as being contrary to the intent of the Act and potentially damaging to the ecological status of the State's fisheries. This criticism was countered by NSW Fisheries, which argued that the change in policy ensures that the most suitable management structures are implemented.

4.1 Share Management Fisheries Review

Shortly before the March 1995 election, the Shadow Minister for Fisheries, Bob Martin MP, released an open letter to commercial fishers which stated:

I am still opposed to the new Act and regulations. I believe it is wrong in principle and that it is bad legislation because it has had no community consultation. Our priority after March 25, if we are elected to government, will be to immediately review the Act and regulations, and I will be seeking input from all sectors of the industry to try to get the Act right.¹

Following the election, the Hon Bob Martin MP, as Minister for Fisheries, established the Share Management Fisheries Review Committee as a result of his concerns, and those of the Department and the recreational sector, over the continued implementation of share management.

The Review Committee comprised:

- Mr Paul Crew, Director of Fisheries
- Mr David Evans, Managing Director, Hunter River Water Corporation, and resource economist

¹ Bob Martin MP (1 March 1995). *Open Letter to the Commercial Fishers of New South Wales*.

- Dr John Glaister, Manager Operations Support, Queensland Fisheries Management Authority, and fisheries scientist
- Mr Andrew Goulstone, Fisheries Manager, NSW Fisheries - Executive Officer
- Mrs Jenny Saminaden - secretarial support²

The terms of reference for the Review Committee were “To review the implementation of share management fisheries to ensure that the concept is effectively applied as part of an integrated approach to fisheries management in NSW”.

The Review Committee was specifically required to report on:

The preconditions for establishing share management fisheries including:

- the biological basis for determining total allowable catches;
- the method of allocation of shares, including problems associated with the equitable distribution of resources between recreational and commercial fishers;
- enforceability issues (capacity to define and enforce the property right - for example capacity to enforce total catch).

Acceptability of concept to the affected parties incorporating:

- compensation issues in the event of unforeseen changes to fisheries resources;
- time which may elapse leading up to the allocation of shares in a share fishery (delays in implementation);

² Share Management Fisheries Review Committee (1995). *Report to the Minister for Fisheries The Hon Bob Martin, MP, 20 August 1995*, Share Management Fisheries Review Committee, Sydney, p 1

- assessment of the general level of support for share management fisheries by commercial and recreational fishers and advice on how to achieve the necessary level of commitment;
- problems raised by issuing shares prior to the development of management plans.

Criteria for the choice between input and output controls for regulation and a preliminary assessment of which fisheries could reasonably be placed into the share management regime and over what time frame.³

The Review Committee reported to the Minister on 20 August 1995. The Review Committee wrote that, due to its terms of reference, it did not consider non-implementation of share management an option and added:

The Committee recognises that any delay in proceeding with implementation is likely to be a cause for frustration for some commercial fishers and their representatives who are committed to the previous government's legislation. In particular, they have expressed concern at opportunistic fishers exploiting resources, in the interim period before implementation, from which they know they will be eventually excluded. To this end, the Committee suggests that the Minister minimise the redirection of existing effort by restricting all commercial fisheries as provided in the Act. This could be on the basis of validated catch history and existing agreed criteria years to effectively cap commercial effort at present levels.⁴

The report provided the Minister with a comparison of the strengths and weaknesses of two "paths" to share management fisheries - *immediate* and *progressive implementation*⁵.

³ SMF Review Committee Report, p 1

⁴ SMF Review Committee Report, p 4

⁵ The term "progressive implementation" is used by the Share Management Fisheries Review Committee to describe the Committee's preferred management implementation option.

4.1.1 Path 1: Immediate Implementation

The Review Committee states that the previous government had chosen the immediate implementation path, and outlined the Minister's responsibilities under this path as follows:

- 1 To make recommendations to the Governor about the insertion or omission of SMFs in Schedule 1.
- 2 To give public notice about the fishery descriptions and the criteria for allocation of shares.
- 3 To appoint the Share Appeals Panel.
- 4 To appoint the TAC Committee.
- 5 To approve the commencement date for a limited access fishery.
- 6 To approve of the regulation enabling commencement of the management plan.
- 7 To sign a gazettal notice to publish the names of all shareholders and their respective number of shares.⁶

The strengths identified by the Review Committee of the immediate implementation path are summarised below:

- *Support for scheme* - backing of the peak industry bodies CFAC and, to a lesser extent, RFAC.
- *Legislative base* - the detailed statutory base illustrates each stage of implementation, making the scheme transparent and avoiding disputes about process.
- *Appeals* - the Minister is removed from determining administrative matters relating to share issue by the provision of a Share Appeals Panel.⁷

⁶ SMF Review Committee Report, pp 4-5

⁷ SMF Review Committee Report, pp 6-7

The weaknesses identified by the Review Committee of the immediate implementation path are summarised below:

- *Support for scheme* - while peak industry bodies support the scheme, there appears to be widespread misunderstanding of its implications among ordinary fishers. For instance, many commercial fishers perceive the scheme to mean catch quotas, when less than a third of the State's production was initially proposed for catch quota management, with the other two thirds to be regulated by input management. Similarly, quota management appears to be the basis of support from recreational fishers.
- *Limiting access* - limiting access is a major management tool for fisheries where there are sustainability concerns. Under this scheme, there is a risk that implementation will be significantly delayed through the fishery not becoming limited access until after all provisional shares have been issued.
- *Development of management plans* - under this scheme, no clear direction for management needs have been established until the Minister prepares the draft plan after the fishery becomes a limited access fishery.
- *Concentration of ownership* - as shares are individually transferable and may be owned by anyone, concentration of share ownership, including foreign ownership, will be difficult to police.⁸
- *Definitions of fisheries* - definitions proposed for share management fisheries include some problems in multi-method/multi-species aggregations, where it may be difficult to define what a "share" represented.⁹

4.1.2 Path 2: Progressive Implementation

The Review Committee considered *progressive implementation* of share management fisheries to be a more cautious approach, and described the path as follows:

⁸ SMF Review Committee Report, pp 6-7

⁹ SMF Review Committee Report, p 13

- 1 Examine each fishery to determine whether a share management scheme should be adopted immediately. In particular, restricted fisheries with management rules in place could be considered for an immediate move to share management.
- 2 Prepare a scoping paper, including a draft management plan, for fisheries with less formalised or no existing management arrangements in place. This paper would allow informed debate and outline criteria under which the Minister would decide to establish the fishery either as a restricted fishery or a share management fishery.
- 3 If it was decided that a share management was the most appropriate management method for a fishery, the process under the immediate implementation path would then apply.
- 4 If it was decided that a restricted fishery should be implemented, the Minister would be required to:
 - consult with CFAC and RFAC on the direction for management as a restricted fishery;
 - publish a proposal for public comment; and
 - make a regulation putting the restricted fishery into effect.¹⁰

The strengths identified by the Review Committee of the *progressive implementation* path are summarised below:

- *Limiting access* - this path provides for the regulation of a binding implementation date. This would address sustainability concerns by limiting further increase in access to commercial fisheries in line with the requirement that the Minister take a precautionary approach to managing fisheries resources.
- *Development of management plans* - the Act allows the development of management plans for restricted fisheries. While the Act does not provide for recreational or community involvement in the development of

¹⁰ SMF Review Committee Report, p 8

management plans for share management fisheries, under this path the Minister could regulate such involvement for restricted fishery plans.

- *Compensation* - no statutory compensation is payable if a restricted fishery is cancelled.
- *Catch quotas* - TACs may be set for a restricted fishery, and may be set by either the Minister or the TAC Committee.¹¹

The weaknesses identified by the Review Committee of the *progressive implementation* path are summarised below:

- *Support for scheme* - this option has not been publicly canvassed, but provides greater flexibility, allows all aspects of the proposed fishery to be managed through regulation, and gives the Government and community an opportunity to consider the consequences of share management prior to issuing shares.
- *Appeals* - the restricted fishery scheme does not directly provide any appeal mechanism, meaning that most appeals would be considered by administrative review. Clearly defined criteria will minimise appeals, a body similar to the Share Appeals Panel could be regulated for restricted fisheries, and any fisher has the right to appeal to a higher court.¹²

4.1.3 Review Committee Recommendations

The Review Committee also outlined a number of general issues for consideration. Referring to changes to the Act, the Review Committee wrote:

It is not uncommon for new legislation, especially when it is as complex as the Fisheries Management Act, to be amended within the first few years of its operation. For example, a provision to legislate recreational participation in appropriate MACs would enhance the operation of the Act.¹³

¹¹ SMF Review Committee Report, p 9

¹² SMF Review Committee Report, pp 9-10

¹³ SMF Review Committee Report, p 10

With respect to input controls (restrictions on gear, time, areas fished et cetera) versus output controls (catch quotas), the Review Committee considered that fisheries with the following attributes would be most suited for quota management:

- single jurisdiction;
- single target species;
- single gear type;
- high value/low volume fully exploited;
- fished by a limited number of participants from a single user group;
- limited fishing ports;
- and adequate scientific understanding of the resource;
- low management costs;
- adequate enforcement; and
- strong support from industry.¹⁴

The Review Committee considered sufficient data and expertise existed to derive sustainable TAC estimates for abalone, rock lobster and spanner crabs, but that the position for other species was unclear. It also considered that the magnitude of recreational catches needed to be determined urgently and that multi-method fisheries for the same species would be difficult to manage by TAC methods. The Review Committee also considered catch per effort data (log books) no longer useful for stock assessment purposes when determining a TAC because fishers subject to a catch quota will target their quota, resulting in catch rates which no longer approximate the abundance of the species sought. As a result, the Review Committee considered stock assessment methods that are independent of the fishery, such as research surveys, necessary for TAC estimation.¹⁵

The major Review Committee recommendations are reproduced in full below:

¹⁴ SMF Review Committee Report, p 11

¹⁵ SMF Review Committee Report, p 13

1. That the validation of commercial fishers catch records be completed within 12 months.
2. That all commercial fisheries be declared restricted fisheries (s111) to stem opportunistic behaviour of fishers. Note that such action requires consultation with CFAC and RFAC and public notification (s111(3)).
3.
 - (i) That the Minister proceed with implementation of share management fisheries for the abalone and rock lobster fisheries (subject to satisfactory resolution of the 2:1 issue in abalone and validation of catch histories for rock lobster participants).
 - (ii) That for both these fisheries, the Department produce comprehensive consultative programs for the Minister's approval.
 - (iii) That the Department produce comprehensive and complete management plans including strategies for addressing recreational catches, firm recommendations to the TAC Committee on appropriate TACC levels, and detailed compliance and research strategies.
4. That the Minister require the Department to prepare scoping papers for the remaining fisheries that define the preferred management options and the implications of converting these fisheries to share management fisheries.
5.
 - (i) That the Minister appoint the Share Appeals Panel.
 - (ii) That an appropriate SAP protocol be defined by the Department based on legal advice.
 - (iii) That the role of the SAP be emulated in the regulations to allow for the determination of all

- catch histories for restricted fisheries in anticipation of their possible transformation to share management fisheries.
6. (i) That the Minister appoint the TAC Committee.
 - (ii) That an appropriate TAC Committee protocol be defined by the Department, based on legal advice, and that TACs are based on the best available science and are in accordance with the objects of the Act.
 - (iii) That the TAC Committee be required to define Total Allowable Catches which account for all catches (of the species for which a TACC is set).
7. That the Department examine its capability to deliver sound advice on possible TAC estimates for nominated output control fisheries, and that research directions and funding be prioritised so as to meet this challenge.
 8. That the Department review the delivery of compliance services in the nominated share management fisheries, in particular for output control fisheries.
 9. That the Minister note that the Act provides for statutory limitations on the concentration of ownership, including foreign ownership, but these aspects will be difficult to enforce. It is noteworthy, however, that this concentration can already occur in those fisheries where input regulations are presently tradeable.
 10. That the Minister note that share management fisheries attract a Capital Gains taxation liability for the difference in value between the existing license entitlement and the value of the share disposal. Any leasing arrangements may also create a potential Fringe Benefits taxation liability.

11. That in order to determine the market value of a share for compensation purposes (s44(3)):
 - market value must be defined in the regulations; and
 - the Act must be amended to allow for compensation to be determined independently of other administrative process (for example that compensation be determined by a “panel” comprising the Valuer-General and experts in the relevant fisheries).

12. That all management plans and TACs address recreational fishing impacts and that consultative mechanisms include recreational representation. This will require legislative amendment.¹⁶

13.
 - (i) That the Minister note that implementation of the management regimes proposed in the report will require additional administrative resources and that the capacity of the Department to undertake this development will be dependent on the availability of funding.

 - (ii) That the Minister note that, should requested funding not be available, the rate of implementation of the management regime will be reduced and priority for implementation should be accorded to limiting access in unrestricted fisheries.

14. That the Minister note that proposed market deregulation may make it more difficult to ensure compliance with quotas.

¹⁶ SMF Review Committee Report, pp 14-15

4.2 Outcome of the Review: *Progressive Implementation*

The Share Management Fisheries Review resulted in a swift change in fisheries management policy. On 31 August 1995 the Minister released an open letter to fishermen outlining his response to the report. This letter is reproduced in part below:

As with other natural resources such as water, forests and land, the Government is committed to proper management on behalf of the community. The Government also recognises that all interests, including recreational and commercial fishers, must be considered in this process.

Acting on the review recommendations, the Government will implement the following strategy under which access will be restricted in all our fisheries, followed by the determination of the best management approach for each. Future access will be based on historic fishing activity. Since 1990, commercial fishers have been aware that they should not diversify into fisheries in which they do not have a fishing history. I will be reviewing all the proposed access criteria with that in mind.

This strategy involves the following actions:

1. The abalone and rock lobster fisheries are already well advanced with their management, so I will immediately start the process of implementing them as share management fisheries.
2. The validation of all commercial fishers catches will continue and will be completed in around 12 months.
3. The State's estuary, fish trawl, inshore prawn trawl and trap and line fisheries will each be made restricted fisheries.
4. To enable adequate consultation to take place, and to ensure that commercial and recreational fishers and the community are fully aware of the details of each individual management scheme, I will commission the preparation of scoping documents for each fishery.

The scoping document will consist of two parts. The first part will be a discussion paper which analyses the issues associated with management, the use of catch quotas and/or gear controls, and the preferred management options. The second part will be a draft management plan.

5. To ensure that all commercial and recreational fishers get adequate representation, I will be forming Advisory Committees for each fishery.

The Standing Committee received evidence from Mr Paul Crew, the Director of Fisheries at the time, who said that he had believed the shift in policy emphasis from share management to restricted fisheries would adversely affect the relationship between the Department and the fishing industry. Mr Crew stated:

The new Fisheries Act was a very good Act in that it provided options for government. It did not have to be a share-managed fishery option, it could be a restricted or unrestricted fishery option. The Act provided plenty of options for government to change its mind and do whatever it felt appropriate to manage fisheries. My major concern was that the industry had spent some time and quite some effort, professionally and responsibly, working with the Department to bring together an Act, and it was looking for a share-managed fisheries Act. The Minister [Bob Martin] made it quite clear—and I knew and had to accept the fact—that he was not going to go down that path and that we had to look at another way. The other way was the restricted fisheries path, but that still left an avenue open to progress to a share-managed fishery once a restricted fishery was up and running. It basically lengthens the period in which the management regime must be in place. I knew that would be frustrating to the industry, but I thought that once we got this together at least we could try to sell it to industry. We had to put something there to give industry confidence about the future.¹⁷

The abalone share management fishery commenced with the issue of provisional shares on 9 February 1996. Provisional shares for the rock lobster fishery were

¹⁷ Evidence of Mr Crew, 4 April 1997, p 4

issued on 1 July 1996. Management plans for these fisheries are presently being developed in consultation with the Management Advisory Committees (MACs), although the abalone share issue is the subject of a legal challenge. Fishery-based steering committee meetings began in November 1995 to develop entry criteria and produce scoping papers discussing management options for the remaining restricted fisheries.

The *New South Wales Fisherman* magazine reported in its March-April 1996 issue:

Once the participants in each fishery have been identified, the debate on whether the fishery should proceed to share management or remain restricted may then be pursued by the participating fishers. The fishers may then consider the implications of quota management should it be deemed necessary, and grapple with the very nature of the shares that might be issued in a mixed species, multi-gear type fishery such as the estuary general fishery if it was continued to be managed under input controls.¹⁸

On 1 May 1996 the Legislative Council referred the issue of fisheries management and resource allocation to the Standing Committee on State Development as a result of widespread concern with the change in fisheries management policy among commercial fishers and conservationists.

On 2 May 1997 the Minister gazetted the *Fisheries Management (General) Restricted Fisheries Termination Regulation*. This Regulation set the following deadlines for the implementation of share management:

1. Exhibit the rolls of those fishers eligible to vote in the election of each MAC by 30 June 1997.
2. MAC elections are to be completed by 30 September 1997.
3. MACs are to report to the Minister by 30 April 1998 to resolve:
 - whether the fishery should be subject to input or output controls; and

¹⁸ *The NSW Fisherman*, March-April 1996, p 18

- whether the fishery should be a share managed or restricted fishery.
4. The Minister is to publicly release the report of each MAC together with his response by 30 June 1998.

A motion to disallow the Restricted Fisheries Regulation was debated in the NSW Legislative Council on 22 April 1997 and again on 6 May 1997 when it was deferred until 24 September 1997. This debate lapsed due to the prorogation of Parliament.

4.3 Criticism of the Review Process and Outcome

The Standing Committee received considerable evidence that was critical of the way in which the review was conducted and the Minister's adoption of the *progressive implementation* path.

4.3.1 Review Consultation

The Standing Committee heard that the review was conducted without consultation with stakeholders. The Review Committee Report itself reveals that little consultation took place during the review, stating only that the Review Committee relied heavily on the Department for advice and information, that it had interviewed representatives of CFAC, and that "Recreational and commercial fishers were also extremely helpful in providing information and opinions to the Committee".¹⁹ Referring to its *progressive implementation* option, the report also states that "this option has not been canvassed publicly".²⁰

In evidence, Dr Glaister agreed that the Review Committee did not undertake public consultation, but relied on experts, published information, unpublished briefing notes, status reports and conversations with a few fishers.²¹

Most commercial fishers that participated in the inquiry considered the Review to be little more than an internal Departmental exercise under the influence of Dr Glaister.

¹⁹ SMF Review Committee Report, pp 2 and 6

²⁰ SMF Review Committee Report, p 9

²¹ Evidence of Dr Glaister, 19 May 1997, p 61

For example, the United Commercial Fisherman's Association of New South Wales submitted:

The review of Fisheries Consultation [SMF Review] by Dr Glaister recommended to the Minister that a move to restricted fisheries was Dr Glaister's preferred path as opposed to share managed fisheries....

... The change in direction to restricted fishing brought about by Dr Glaister's review has seen the NSW fishing industry's economic viability placed in jeopardy. ...

NSW Fisheries conducted road shows along the entire coast of NSW during September and October 1995 to advise fishermen of Dr Glaister's change of direction and [when] port meetings were conducted following these road shows, 90 per cent of industry opposed the move to restricted fisheries and supported share managed fisheries.²²

4.3.2 Dissatisfaction with *Progressive Implementation*

The decision to progressively implement the share management provisions of the Act was criticised by user groups and conservation groups who had contributed to the drafting of the share management provisions of the Act. The overwhelming weight of evidence from all stakeholders other than recreational interests and the Department was critical of the review Committee's recommendations. The Standing Committee heard that the *progressive implementation* path adopted by the Government will delay the establishment of most share management fisheries and may, for some fisheries, prevent share management being implemented altogether. A common claim was that *progressive implementation*, and the greater reliance on restricted fisheries that it entails, is contrary to the spirit of the Act. For example, Mr Ronald Snape, commercial fisher, stated:

All New South Wales fisheries were to be managed as share managed fisheries. We had to have a provision within the Act that allowed for any new developing fishery. If there was a new method came along, or if there was a new species found, or fishermen wanted to go outside what a share managed

²² Submission 18, United Commercial Fishermen's Association of NSW, p 6

fishery was defined as, we had to have a section within the Act where that officially could evolve. If it did fall within the principles and was to be a fishery of the future, then it could be issued as a share managed fishery - an exploratory, developmental fishery. That is what restricted fisheries were going to be.

To actually implement that section 111 of the Act is really outside the spirit of the Act, because the spirit of the Act was to have share managed fisheries.²³

The United Commercial Fishermans Association of NSW submitted:

The *Fisheries Management Act 1994* comprises 151 pages. The Department of Fisheries is attempting to manage 75 per cent of the fisheries within NSW, namely Ocean Trap and Line, Estuary General Ocean Prawn Trawl and Ocean Fish Trawl on one section consisting of one page of this Act, a section that was not designed or intended for the purpose for which it is now being used. Part 4, Division 3 of the *Fisheries Management Act 1994*, "Exploratory, developmental and other restricted fisheries", was created to allow restricted access to new fisheries whilst research was carried on with a view to determining the long term viability of the new fishery. The Department is attempting to squeeze 75 per cent of the recognised and long term established fishing methods into this category.²⁴

This disillusionment and uncertainty among stakeholders was highlighted by Dr Michael Young, Senior Principal Research Officer CSIRO and 'architect' of the Act. Dr Young recalled the reaction of stakeholders to the implementation of restricted fisheries:

At the start of implementation of the entire system, after it went through Parliament, the advice I was receiving and the contact I was having was from a group of environmental, recreational and commercial people who were all excited about the change

²³ Evidence of Mr Snape, 30 January 1997, p 111

²⁴ Submission 18, United Commercial Fishermans Association of NSW, p 5

that was about to happen. They were incredibly enthusiastic. People around the world were extremely excited that at last somebody had got it right. There was then a change in Government. When that change happened the Premier claimed that it was the right thing to do. Conferences were held in Sydney praising the way all the reforms were occurring and suddenly it all stopped. When the Minister came to power he changed the chief executive officer. After that I had a number of calls from people who were very concerned about the changes that were being made, that it was going back to the old system with an emphasis on shifting towards restricted fisheries.²⁵

Dr Young described the problems that he perceived existed with restricted fisheries as follows:

The State has already had restricted fisheries under a slightly different name and most of the problems are there today because that system does not work. It fails to emphasise stewardship, it makes it easy for people to get licences and it makes it hard for structural judgment to occur. ... The system that is in place does not enable people to trade parts of licences and to put, say, three boats into one boat or to change the size of nets and so on. It is a lobby system where the way to succeed is to get on with the right people.²⁶

Comparing restricted and share management fisheries, Mr John Connor, representing the Nature Conservation Council, stated:

I think the share management fishery, and certainly it is set out in the Act, is a far clearer articulation of where the rights and responsibilities lie and also provides the basis for the commercial effort to actually be interested in the sustainability of the resource. It provides some actual clear incentives in that regard.

²⁵ Evidence of Mr Young, 3 April 1997, p 5

²⁶ Evidence of Mr Young, 3 April 1997, pp 5-6

Restricted fisheries, it's a bit of a mystery I guess to us at the moment. Just how that is to be managed and what sort of performance indicators and criteria are to be set are unknown at this stage. That is part of the problem. There has been the focus of trying to get these things up without really understanding what they are trying to achieve, frankly. That is one of the major problems I see the Minister has had in trying to run the argument that these are just as effective in terms of sustainability as the share management fisheries.²⁷

Most commercial fishers that appeared before the Standing Committee believed that the use of restricted fisheries and the associated catch validation process were aimed at eliminating the Government's exposure to the payment of compensation.

Mr Hillyard stated:

We believe that under restricted fisheries the department would be able to place further restrictions on commercial operators and it could get to the point where it would no longer be viable to work that fishery, and fishermen will walk away, thus saving any payment of compensation.²⁸

Similarly, Mr Graeme Byrnes, Manager of Alan A Byrnes & Sons, has publicly stated:

Fishermen consider it hideous that restricted fishery regulations are being used as a "people sieve" to remove as many fishermen as possible from their industry before any supposed move to share managed fisheries...²⁹

The Standing Committee also heard that most commercial fishers were sceptical of the Minister's willingness to accept advice from Management Advisory Committees, particularly recommendations to implement share management. Mr Sturgess, professional policy advisor, stated:

²⁷ Evidence of Mr Connor, 5 May 1997, p 29

²⁸ Evidence of Mr Hillyard, 19 February 1997, p 30

²⁹ Graeme Byrnes quoted in *NSW Commercial Fishing*, May 1997, p 8

I think there is a concern among a significant number of people in the industry that the Minister is not fair dinkum about using the MACs. I think there is a widespread view that if one of the management advisory committees were to come up with a recommendation in favour of share management fisheries, they are not entirely convinced that the Minister would accept that recommendation.³⁰

4.4 Support for *Progressive Implementation*

Those in favour of *progressive implementation* of share management fisheries emphasised the complicated and expensive nature of share management. The Standing Committee heard that fisheries management strategy should be determined by considering the biological, economic and social requirements on a fishery by fishery basis. In evidence, Mr Anthony Harrison, Chairman of the New South Wales TAC Committee, highlighted the need for management structures to reflect fishery attributes, stating:

... the share management fishery and individual transferable quota is the current Rolls Royce of fisheries management and, frankly, many fisheries do not justify having such a sophisticated and therefore expensive form of management. ... you begin with open access fisheries like most of the recreational fisheries, then you proceed to restricted fisheries, then you may proceed to various versions of them, finally ending up with the Rolls Royce, and New South Wales has many small and not particularly valuable fisheries and many of them, I think, would be difficult to justify the very sophisticated share management regime.³¹

In determining the most appropriate management regime for any fishery, the Department is responsible for clearly explaining to participants the economic ramifications of the various management structures. Referring to the Department's responsibilities, Dr Glaister said:

³⁰ Evidence of Mr Sturgess, 12 May 1997, p 28

³¹ Evidence of Mr Harrison, 14 April 1997, pp 85-86

Let me explain that share management [fisheries] will have the option to be managed either through outputs or inputs. So a range of costs will be involved depending on which way it goes. The legislation spells out both cost recovery and the community charge. ... I have been trying to make clear to fishermen that when they are sitting around the table in the MAC deciding on whether a fishery should stay restricted or progress to share management, my intent is to be completely transparent about the implications. So everyone sitting around that table will be fully aware that the stronger property right is the good news but the bad news is they have to pay for it. I want to make sure that they understand that. In discussing this with colleagues interstate, the issue of cost recovery generates a lot of heat within industry. Before people leap into that system, all I want to do is be transparent. So we will give an estimate to each of the MACs of what we think both systems will cost and let them make the choice...³²

Dr Glaister rejected claims that the Minister would not accept the recommendations of MACs, and stated:

You have raised a concern that fishermen have about there being an agenda that the restricted fishery process will ... be the end of the line. In every meeting that I have attended in recent times I have said very clearly that it will really be up to the elected management advisory committee to make a recommendation to the Minister, which I believe he will accept, that if the fishermen in that particular fishery wish to proceed to share management then it will.³³

The Standing Committee notes that implementation of share management has commenced in the abalone and rock lobster fisheries.

Mr Steve Dunn, Policy Manager, NSW Fisheries, conceded that there was concern about the permanency of restricted fisheries within the commercial sector but claimed that the Department was trying to address these concerns. Mr Dunn stated:

³² Evidence of Dr Glaister, 7 July 1997, p 13

³³ Evidence of Dr Glaister, 12 May 1997, p 42

I am not going to deny that there is a degree of concern amongst the industry. We all know that we have held meetings with the industry and that those meetings, even recently, have resulted in whole rooms full of fishermen saying they would prefer to move directly to share management. I appreciate their concern that restricted fisheries may be the never-never in fisheries management - or that is what they perceive. They think we are moving to that, and we are not moving any further.

That concern I do not believe is justified. I believe that this Government is intent on introducing reform in the fishing industry which will see that the commercial sector, the commercial fishing industry has a long-term and viable future. And nothing that I can do, or nothing that I have been able to say has been able to convince the industry that is the case. Despite the reassurance of the Minister, despite the fact that the review of share management fisheries was signed off by the Premier, nothing that I have been able to say has been able to reassure the industry of that fact.³⁴

With respect to the initial procedures associated with the move to restricted fisheries, Dr Glaister indicated that catch validation was a necessary but inherently difficult process which was designed to protect the interests of legitimate commercial operators, not exclude them from a fishery. Dr Glaister did concede:

....The idea of drawing a line and saying that the fisheries of New South Wales have now grown to this extent and will not grow any further, was always going to be a difficult process. Wherever you set up criteria, criteria of any kind, there will be people who make the hurdle and people who do not. The difficulty is that you are talking about human beings, about people's livelihoods and about families. Those kinds of decisions are not ones that you take lightly.

That is why the Minister and I have both said that this process is not about trying to throw people on the scrap-heap; it is about trying to identify who the participants are, based on criteria that have been agreed to by the industry. But,

³⁴ Evidence of Mr Dunn, 19 May 1997, p 10

irrespective, even if there is one fishermen who does not do something that he has done for some time, then there is going to be pain involved.³⁵

4.5 Comment

The Standing Committee is concerned that the Share Management Fisheries Review Committee undertook only very limited, and possibly selective, consultation before reporting to the Minister. The Standing Committee views this as a serious shortcoming and considers that it accounts for much of the stakeholder suspicion surrounding the Review Committee's report and recommendations. The Standing Committee also considers that the "progressive implementation path" will not necessarily lead to the implementation of share management in all fisheries, despite the Review Committee writing that it "did not consider not implementing SMF as an option".³⁶

The *Fisheries Management (General) Amendment (Management Advisory Committees) Regulation 1997* stipulates that the majority of Management Advisory Committee (MAC) members must be commercial fishers elected by their peers. The Act envisages that this group of people will be responsible for drawing up management plans. Accordingly, the Standing Committee considers that MACs are an appropriate body to recommend whether a fishery is administered under the share management or restricted fishery provisions of the *Fisheries Management Act 1994*. Additionally, the Standing Committee recognises that the fisheries of New South Wales vary greatly in terms of method, number of species targeted, catch size and value, and the relative significance of different user groups. Stakeholders must consider these aspects, as well as the financial implications of the various management regimes, before determining the most appropriate form of fisheries management. The Standing Committee understands that it is for this purpose that MACs have been given until 30 April 1998 to choose to move to share management.

After considering the voluminous evidence before it, the Standing Committee believes share management to be the appropriate fisheries management outcome for New South Wales. The Standing Committee notes that, under the present "*progressive implementation path*", MACs are due to make their recommendations to the Minister by 30 April 1998. Accordingly, the Standing Committee recommends:

³⁵ Evidence of Dr Glaister, 19 May 1997, p 68

³⁶ SMF Review Committee Report, p 4

Recommendation 2

That the Minister implement share management immediately after 30 April 1998 in fisheries whose MACs request it.

5 FISHERIES MANAGEMENT AND RESOURCE ALLOCATION IN NSW

5.1 Resource Allocation

The mission statement of NSW Fisheries is to “conserve, develop and share the fisheries resource of the State for the benefit of present and future generations”. To achieve ecologically sustainable development it is essential that fisheries managers arrive at an appropriate allocation of the resource between the competing user and interest groups. Achieving these aims is becoming increasingly difficult in the face of growing demands from all user groups to play a greater role in the management of the resource.

Fisheries managers around the world are grappling with these allocation issues. Western Australia’s Department of Fisheries has observed:

The area of access to, and allocation of, fish resources is a complex and potentially controversial one. It deals with a mix of legal, economic, biological and social issues. It also cuts across some important philosophical issues relating to the rights of the individual and the community in respect of natural resources and their management.¹

The common property nature of fisheries resources are fundamental to an understanding of the difficulties associated with the allocation of the resource in an equitable and sustainable manner. According to the Australian Bureau of Agricultural and Resource Economics:

The central problem behind over exploitation and inefficient use of fisheries resources stems from an underlying problem of open access. That is, in the absence of private property or user rights, no individual has the incentive to constrain his or her fishing activity, or invest in

¹ Western Australian Fisheries (1997). *Report of the Security of Access and Resource Sharing Working Group*, Western Australian Fisheries Portfolio Review, p 4

conservation, because the benefits would also be captured by others.²

Determining an equitable distribution of the common property resource on a sustainable basis that has the endorsement of all user groups is a major challenge for fisheries managers.

5.2 Conflicts Between User Groups

While the commercial sector has traditionally enjoyed security of access to the resource, governments have come to recognise the rights of a wider variety of user and interest groups. As a result, the allocation of the resource between these groups has become a central issue to management and supporting fisheries legislation.

In New South Wales the resource allocation debate has been centred on the division of access rights between the commercial and recreational sectors. Allocation conflicts are typically disagreements between the commercial and recreational sectors or internal conflicts within either of these sectors. The obstacles associated with achieving resource allocation solutions that are amenable to both the commercial and recreational sectors are:

- inherent resource competition between the commercial and recreational sectors;
- perceptions of Departmental bias;
- the lack of comprehensive research on which to base allocation decisions(see Chapter 9).
- the lack of statutory involvement in fisheries management for the recreational angling and commercial post harvest sectors, including inequities in fisheries management contributions; and

² P Lal, P Holland, and P Power (April 1992). "Competition Between Recreational and Commercial Fishers: Fisheries Management Options", *Maritime Studies March Fisheries Economics Section*, ABARE, Canberra, p 2

- the impact of black market activity.
- The role of indigenous fishers in allocation and management decisions (see Chapter 10).

5.3 Perception of Departmental Bias

NSW Fisheries has had difficulties in eliciting representative opinions from the large recreational fishing sector. Consultation has largely been restricted to representatives of fishing clubs and associations, whose members constitute only a minority of recreational fishers. Dr John Glaister, Director of Fisheries, told the Standing Committee:

The recreational sector is different in that most of them are not in organised clubs. That is the difficulty. We can pick clearly where the organised recreational fishermen, the vocal ones, are coming from on most issues because they will tell you in no uncertain terms.³

Recreational organisations have indicated that the share management approach to fisheries management is biased in favour of commercial fishers and was developed without significant input from the recreational community. The Australian Fishing Tackle Association submitted:

Recreational anglers have not been invited to public meetings where their views can be aired. These are restricted to licenced fishermen. The recreational anglers only recourse is to write submissions and letters, whereas the commercial sector has access to the bureaucrats at a series of port meetings, where they may air their grievances. Recreational fishermen demand a series of similar public meetings to openly discuss this far reaching issue.⁴

There is a perception among some commercial fishers that the growing number of recreational fishermen will apply political pressure on the present

³ Evidence of Dr Glaister, 7 July 1997, p 35

⁴ Submission 38, the Australian Fishing Tackle Association (AFTA), p 3

administration to achieve favourable resource allocation outcomes, resulting in the marginalisation of commercial operators and the abandonment of the fish consuming public. Mr Duncan Leadbitter, Executive Director of Oceanwatch, commented on the politicisation of the allocation debate:

The resource allocation debate is basically the nub of the management problems we have. The dispute between the recreational and commercial sectors over fish has become so extreme as to cloud the real debate. It is run along the lines: there are two and a half million of them and 2,000 of you [commercial fishers] so you work out the numbers yourself. I cannot count how many times that statement has been made by fisheries officers and others to the industry, that we need to recognise that commercial fishermen are there as licensed harvesters of fish for the seven million people in New South Wales, 96 per cent of whom eat fish. The allocation debate needs to be depoliticised. At the moment it has got out of hand.⁵

This opinion was supported by Mr Gary Sturgess, professional policy advisor, who stated:

I am happy to state as a matter of fact that the commercial sector does feel under pressure from the Department. They believe that the Department and the Minister are not prepared to apply an equal amount of pressure on the recreational sector as on the commercial sector. There are some who consider it a plot to get rid of commercial fishing. That is an overreaction. It is simply beyond dispute that the commercial sector at this time feels under siege and feels that there is an inequitable treatment of themselves vis-a-vis the recreational sector.⁶

The fears of the commercial sector have been fuelled by government initiatives to phase out inland commercial fishing in NSW by instituting a sunset clause on

⁵ Evidence of Mr Leadbitter, 3 April 1997, p 65

⁶ Evidence of Mr Sturgess, 12 May 1997, p 41

commercial fishing and recreational lobby groups indicating their intention to “stop beach netting and to ensure all rivers and bays are net free”.⁷

5.4 The Need to Quantify Total Catch

Fish stocks in NSW are currently exploited by commercial fishers, recreational fishers and black market fishers (“shamateurs”). There are currently 1835 licensed commercial fishers in New South Wales. Recreational fishery users include game fishers, sport fishers, estuarine and freshwater anglers, spearfishes, and SCUBA divers. Surveys indicate that the State’s recreational fishing community is rapidly expanding and at present may number as many as 2 million. The number of black market fishers is unknown.

Resource allocation within a sustainable management framework is dependant on an accurate assessment of fishery stocks and the catch of those exploiting the fishery. While the State’s fisheries managers have accurate estimates of the commercial catch, data on the recreational catch is limited. Little is known about the level of black market activity, although it is thought to be significant in certain fisheries such as abalone.

5.4.1 Recreational Catch

In the past it was assumed that the recreational catch was small in comparison to the commercial landings. Recent research has shown that the recreational catch is significant and that attempts to measure recreational effort should be afforded the same priority as those for the commercial sector. Professor Martin Tsamenyi wrote in the NSW Fisherman magazine:

It is true that historically, fisheries administrators have ignored any attempts to manage recreational fishing activities for logistic, political and economic reasons. However, in the present era of eco management of our fisheries resources, it is imperative that fisheries managers

⁷ AFTA News, February March 1994, p 1

begin to grapple with the increasing pressure from the recreational sector.⁸

Gary Henry, Supervisor - Recreational Fisheries Research, described to the Standing Committee the Department's efforts to estimate the recreational catch and its conclusions:

We have conducted nearly 20 surveys in particular estuaries such as Sydney Harbour, Botany Bay, the Hawkesbury River, Tuggerah Lakes and Lake Macquarie. In each of those places it appears to be a characteristic of the size of the surrounding population. In Sydney Harbour, which has a big surrounding population, anglers are taking more fish than the commercial groups. In a far-flung population, such as around Coffs Harbour, the commercial industry is taking more than the recreational sector. It is a function of the size of the population and how much effort can be brought to bear on the resource. A recently completed survey, funded by the commercial group, shows that in general terms the commercial industry takes more fish than the recreational groups, but that position fluctuates with species. Both groups compete for the main, overlapping species such as kingfish, tailor, bream, snapper. Our evidence is that the commercial sector is taking more than the recreational sector but the recreational sector is growing in importance and is significant.⁹

State and Federal Governments recognise that the majority of fisheries are either over exploited or under threat of over exploitation. Determining the size of the recreational catch and controlling the increase in recreational effort is proving to be one of the main priorities in fisheries management. Dr Glaister commented on the expansion of the recreational sector.

⁸ Prof Martin Tsamenyi (1995). "What is in a good fisheries Act? An examination of the Fisheries Management Act 1994", *The NSW Fisherman Sept - Oct 1995*, p 37

⁹ Evidence of Mr Henry, 2 April 1997, p 41

The point you made about the uncontrolled expansion of recreational fisheries, I agree, is probably the biggest challenge to me as Director of Fisheries. We have, by various surveys, estimated that a large number of people go recreational fishing, and that this number will probably increase with demographic increases in New South Wales. So, you are right, the Minister has asked me to review the recreational marine fishing regulations, which include things like bag limits and size limits and other constraints on recreational fishers. So that is in train now.¹⁰

These changes in resource allocation dynamics have led to commercial sector concerns that current methods of controlling the recreational catch, such as fish size and bag limits, will be ineffective, leading to the unsustainable exploitation of the resource. Oceanwatch submitted:

The management of the recreational fishery in NSW can be compared to the deregulated state of the commercial fisheries prior to the implementation of restricted fisheries as there is no biological basis for the implementation of bag limits and no way of constraining the fishing effort then the current management strategy can lead to stock collapses even if the rules are adhered to.¹¹

The need for research based management decisions is examined further in Chapter 9.

5.4.2 Black Market Activity

While some research has been carried out into the size of the recreational catch, the level of black market activity is unknown. Mr John Roach, President of the Fish Merchants Association, described the consequences of black market activity on resource management and its potential effect on the marketing of fish:

¹⁰ Evidence of Dr Glaister, 19 May 1997, p 53

¹¹ Submission 68, CFAC, p 33

... Anecdotal evidence coming from the Fisheries Department ... indicates that black marketing could be as high as thirty percent. That is in fish. There are a few major problems there. First of all, it undermines all management of the resource, that is the underlying effect and that is probably what needs to be taken into consideration when management processes are put in place in the future for the resource.

From the health aspect, it basically leaves it open to another Wallis Lake scare if there is some contaminated fish or poisonous fish and it goes out to the general public. The strength of the black market actually impinges on the merchants to quite a large degree. We often get merchants coming to us and saying, "I can't sell snappers at the moment for \$10 a kilo". They actually might be buying it on the auction floor for \$8 a kilo. We say, "Why not? That's a very good price". They say, "Well, at the restaurants I supply, someone has come around and sold it to them at \$5 a kilo".¹²

Amateur fishers taking commercial quantities of fish for sale (shamamateurs) are a major source of black market product. Dr Glaister outlined the Department's strategy to provide a more effective means of limiting the activities of shamateurs, particularly in the higher value species fisheries, as follows:

.... we are aware that black marketing occurs in specific fisheries. For example, a large number of Victorians come up to Bermagui when the yellowfin season is on, and the fish are transported to Victoria, and that is of concern. We had a meeting of the subcommittee of the Advisory Committee on Recreational Fishing last week. The Minister has asked me to review the marine regulations. I took some pains to explain to the members of that subcommittee my views on restrictions on recreational fishing. Things like size limits and bag limits need to be

¹² Evidence of Mr Roach, 14 April 1997, p 72

based on definite criteria. A separate issue is the need to explain to recreational fishermen that what they do is for recreation; it is not to go out and catch commercial quantities of fish. My suggestion to that group is to look at possession limits as well as bag and size limits for the reason that you have mentioned. It is not appropriate to use bag limits to somehow get around the black market issue.¹³

Mr Sam Gordon, Executive Officer of the Fish Merchants Association, told the Standing Committee that one of the problems in controlling the illegal capture and sale of fish is that has become accepted practice:

Anyone who has asked questions about the black market trade has been told that black marketing is as old as the fishing industry itself, an industry within an industry that has been accepted¹⁴

To control the level of black market activity the Fish Merchants Association suggested: more fisheries inspectors, an education campaign aimed at changing the industry's present acceptance of the black market trade, and an increase in the penalties for black marketeering.¹⁵

5.5 Shortcomings of the *Fisheries Management Act 1994*

5.5.1 Inadequate Recognition of Recreational Fishers

The specific objects of the Act under section 3(2) include:

- (c) to provide quality recreational fishing opportunities;
- (d) to appropriately share the fisheries resources between the users of those resources.

¹³ Evidence of Dr Glaister, 7 July 1997, p 24

¹⁴ *The NSW Fisherman*, November -December 1995, p 35

¹⁵ Submission 80, Master Fish Merchants Association, p 12

The property rights approach embodied in the *Fisheries Management Act 1994* was designed to secure access for commercial fishers and provide an economic incentive for the commercial sector to use the resource sustainably. Recreational fishers have argued that the Act favours the commercial sector and does not provide an adequate legislative framework to incorporate the needs of a wider variety of user groups. Industry observers have also criticised the Act for inadequately addressing the role of the recreational sector. Professor Tsamenyi wrote:

Despite the increasing significance of recreational fishing in the state and despite the statement in the objectives of the Act to the effect that one of the aims of the legislation is “to provide quality recreational fishing opportunities”, surprisingly the Act fails to integrate recreational fishing within the overall fisheries management framework.¹⁶

The Share Management Review Committee reported:

The Committee was concerned at how any of the schemes will accommodate increasing recreational catches. At present the Act relies on bag limits as the major means of addressing the recreational take of fish. Simple projections of Statistics data indicate current NSW population at 6.1 million. Accepted proportional survey data thus put the angling population at 1.8 million. By 2000 this will have increased to 1.9 million an additional 100, 000 anglers. The Committee believes that the fisheries management Act in New South Wales must address the recreational component of fishing effort.¹⁷

Environmental groups have also expressed concern regarding the Act's shortcomings in relation to managing recreational fishing effort. For example, Mr Connor, Executive Officer of the Nature Conservation Council, commented:

¹⁶ Tsamenyi (1995). *What is in a good fisheries Act? An examination of the Fisheries Management Act 1994*, p 37

¹⁷ Share Management Review Committee Report, p 13

Clearly, the share management system is all about allocating property rights of a proportion of the commercial fishery to individual fishermen by way of shares. I guess one of the fundamental questions you would have to ask, if you were to apply it to recreational fishermen, is how you would do that allocation. Do you just allocate shares to recreational fishermen as a group? I mean, you cannot then allocate it to individuals. There are a whole series of questions there which have not been answered.¹⁸

Many recreational fishers perceive property rights as a ownership of the resource. This perception has fuelled concern among recreational sector that the resource, now publicly owned, would become private property under share management. A lack of understanding of the share management concept among recreational fishers is contributing to this mistrust. Mr Stafford Dixon, former Region 7 representative of the Recreational Fishing Advisory Council, described his difficulty determining how the share management system will affect the recreational community:

It is hard to work out what they mean by share management because they have not given us enough information on how they intend to run share management. We have heard talk about a monetary sum and we have heard talk about a quota sum. We do not know what they actually mean. You can read into it what you think they mean, but they have not come out and said how the share management will work. So how can you be in favour of something when you do not understand it.¹⁹

5.5.2 Equity in Management Contributions

Prior to the introduction of the *Fisheries Management Act 1994*, the cost of fisheries management was met through the tax base. The introduction of the user pays philosophy in the form of management and community contribution charges has led to fishermen replacing taxpayers as the primary purchasers of

¹⁸ Evidence of Mr Connor, 26 May 1997, p 60

¹⁹ Evidence of Mr Dixon, 30 January 30 1997, p 96

fisheries management services. As a result, fishers are now more concerned with the quality of management and the equity among contributors.

The Act provides for the collection of a resource rent on behalf of the community and the recovery of management costs from commercial fishers. In the case of share management fisheries, these charges are levied on commercial fishers in proportion to their shareholding, whereas for restricted fisheries, these charges are raised through a flat fee. The Act does not provide a mechanism to collect similar contributions from the recreational sector.

Referring to this apparent inequity, Dr Glaister stated:

.... some people would consider that recreational fishers do make a contribution now through taxation and other forms of payment. I can certainly see some inequity in a fishery such as abalone or rock lobster, which are highly valued, in that the commercial sector pay significant fees for the right to carry out their activity and that recreational fishermen do not.²⁰

One way of increasing the contribution of the recreational sector suggested to the Standing Committee was to levy businesses that have a vested interest in the growth of the recreational fishing industry and which lobby Government and fisheries managers for a greater role in policy formulation. Mr Connor commented:

... the suppliers of fishing equipment could play a much larger role than they do. We could look at some sort of environmental resource tax on their equipment as a way of funding research and enforcement, rather than necessarily focusing on the end users, the recreational fishers.

Clearly those suppliers are heavily involved in the debate and consider themselves major players and want to be involved in the policy making and public decisions. I think this is an area that could be explored a bit further in terms

²⁰ Evidence of Dr Glaister, 26 May 1997, p 55

of ensuring that the recreational fishing effort does not hinder ecological sustainability.²¹

Specific examples of a recreational contribution that have been proposed include:

- a recreational licence fee;
- a portion of Federal sales tax on recreational fishing equipment; or
- a levy on recreational boat registrations (QLD model).

5.6 Case Studies

A number of recent resource allocation conflicts illustrate the aforementioned problems associated with resource allocation and the difficulty in providing outcomes that are acceptable to all user groups.

5.6.1 Kingfish Trapping

5.6.1.1 Background

Kingfish are a popular angling species and a significant commercial species. Traditionally both sectors targeted the species using lines. During the 1970's, traps began to be employed as a means of commercially harvesting the species. No restrictions were imposed on the number of traps that could be used.

Total commercial landings of kingfish in New South Wales increased during the early 1980's, reflecting a change in consumer tastes and higher market prices, followed by a decline from 595 tonnes in 1985/1986 to 346 tonnes in 1993/1994. This decline must be viewed in the context of the input restrictions imposed over the period in response to concerns in relation to the danger the traps posed to navigation, the potential of traps to break loose and "ghost fish" indefinitely, and the capture of juvenile fish.

²¹ Evidence of Mr Connor, 5 May 1997, p 26

In 1988 the Minister for Agriculture and Rural Affairs, Ian Armstrong, imposed a limit of 5 traps per boat, a restriction on trap size, and a minimum depth that the traps could be set. He also required that the traps be fitted with timed release catches. Mr Armstrong stated at the time:

I am prepared to test the use of floating fish traps under the new safety regulations, but unless commercial fishermen ensure that their traps do not create an offshore safety hazard, I will have no other option but to ban their use.²²

In November 1990 the use of kingfish traps was restricted to 76 fishers with 3 traps per endorsement. A further size restriction of 600mm was also imposed. The notification expired in 1993 and was renewed for a further year to allow for a review of the method. Continued concerns over the trapping of kingfish resulted in the convening of the Kingfish Trap Review Committee. The Committee identified the perceived decline in recreational and commercial catches as being the most pressing issue to be addressed. With uncertainty over the status over the stock and the lack of research results, the Kingfish Committee considered that its primary responsibility was to ensure the protection of the resource and determined:

The only option considered to address all the problems was to discontinue the use of floating traps. The Committee noted that a number fishers rely on these traps for a considerable part of their income, and a summary halt to this activity would cause considerable hardship. It was therefore recommended that the use of traps be permitted for one further year beyond the expiry date of the present notice in October 1994 to moderate the impact of this decision. This would allow operators to continue to use kingfish traps until October 1995 while restructuring their fishing operations.²³

²² The Hon Ian Armstrong (3 June 1988). "Floating Kingfish Traps on Trial", Press Release

²³ Kingfish Trap Review Committee Report, p 4

The present Minister for Fisheries, Bob Martin, gazetted an amendment to the Fisheries Management (General) Regulation 1995 on 6 October 1995 which banned the use of kingfish traps from 1 April 1996. A motion to disallow the Regulation was moved in the Legislative Council but lapsed due to prorogation. The ban on kingfish traps created a great deal of concern among fishers and the post harvest sector, culminating in the temporary closure of the Sydney Fish Markets in protest.

5.6.1.2 Criticisms of the Ban

Those opposed to the ban perceived the decision to be politically motivated. Mr Ronald Snape, commercial fisher, submitted:

The kingfish trappers feel strongly that when a management system is being implemented, political expediency should not enter the equation. Indeed management should be based on the sustainability of a stock. This has not been the case with the banning of kingfish traps for the Minister, with extremely obsolete biological data (1993's data) banned our fishery at the behest of the Australian Fishing Tackle Association (AFTA) and thus the entire debate was centred around allocation and not conservation.²⁴

Industry accepted that problems had existed but maintained that modifications to equipment and fishing practices had addressed these problems.²⁵ In evidence, Mr Snape stated:

That is another thing that the kingfish trappers have actually put up as part of their management plan. They want to be quota-ed. This is the ultimate in responsibility - not wanting to rape, pillage and plunder, as we have been accused of doing. We want a discrete amount of fish, a quota amount. Also within their management plan they

²⁴ Submission 3, Ronald Snape for Commercial Fishing Advisory Council, p 4

²⁵ Submission 3, Ronald Snape for Commercial Fishing Advisory Council, p 8

want to look at escape gaps. This industry should be applauded, not vilified. In 1988 they set the parameters on which the rest of fisheries management should be based. In 1988 they wanted to pay \$2,000 per year per endorsement holder to research. Fisheries found it too difficult to collect. Now, here is an industry which in 1988 offering \$200,000 a year for research. There was no research done on kingfish up until just very recently.²⁶

The perception of industry was that kingfish traps had been banned without the scientific evidence to support it. Mr Leadbitter stated:

There was an expectation amongst the industry that kingfish would go to share management and that share management would be via a total allowable catch which was then split up with individually transferable quotas. There needed to be some work done on stock assessments. The data showed that the commercial kingfish catch had been stable basically since kingfish traps were established. There had been an increase in the commercial catch after the kingfish traps were established. It seemed to me that there had been basically a reallocation of the catch from a more even-stevens to a greater commercial share but there was no evidence at all that the kingfish were under threat. That is where Fisheries should have stepped in and done a proper independent stock assessment rather than responding to the sorts of pressure which they did.²⁷

Kingfish trappers also claimed a right to compensation for the loss of earnings arising from the ban and the fact that they had not been able to accumulate a catch history in other fisheries. Mr Snape submitted:

The kingfish trap fishermen are not only disadvantaged in their loss of income but also in entry criteria that has been set up to manage NSW commercial fishing. The entry

²⁶ Evidence of Mr Snape, 28 January 1997, p 44

²⁷ Evidence of Mr Leadbitter, 3 April 1997, p 78

dates for qualification to various fisheries are between 1986 and 1990. This is coincident with the time that kingfish trappers were trapping kingfish extensively throughout NSW. Hence if these fishers knew that kingfish trapping were to be banned, naturally enough they would have fished in fisheries for which they could have made an entry criteria. Most of these fishers, being trap fishers would have fished for lobsters, which has now shown itself to be one of the most lucrative fisheries in NSW now that it is under a quota regime.²⁸

5.6.1.3 Departmental Defence of the Ban

The Departmental countered this criticism by arguing that there were sufficient indicators to warrant the banning of the traps. Mr Steve Dunn, Policy Manager, NSW Fisheries, told the Standing Committee:

The evidence that was provided to back up that statement is falling trends in total catch, and an increase in the number of people who were actually targeting the species. So there was a fall in catch and an increase in effort. There were records - quite good records - from some of our Departmental officers who tagged and released kingfish that the numbers were different and also that the size frequency of the fish was changing. So there were less large fish and the catch was becoming predominantly of a smaller average size.

That all adds up to a situation where you have a fishery that is being over-exploited. I accept that there is no hard, scientific evidence. Any researcher will tell you that by the time we had put in place a research program which would have been designed to and capable of giving that hard, scientific evidence, it could well have been too late..²⁹

²⁸ Submission 3, Ronald Snape for the Commercial Fishing Advisory Council, p 11

²⁹ Evidence of Mr Dunn, 19 May 1997, p 35

The Department also indicated that the kingfish fishery was not economically large enough to warrant the expenditure required to conduct the necessary research.

When questioned as to why a more comprehensive stock assessment was not carried out, Mr Dunn responded:

..... the fishery is, by any standard, of relatively low value. Last week I said somewhere under \$1 million. I have checked that out since, and the fishery's 10-year average value is \$1.5 million a year. It is a relatively high profile fishery now because of the current debate, but by any standard that is a very small value. Yes, we have a need to have scientific information on all of our fisheries, but the kingfish is one that has consistently prioritised off the bottom of the list, even by the industry itself. When the kingfish research proposal was first put to the Fishing Industry Research Advisory Committee it did not receive a high enough priority to successfully get their support.³⁰

With respect to compensation, Mr Dunn argued that the Department had approved trapping only as an experimental technique with no assurances that the method would continue. Furthermore, Mr Dunn claimed that the Department had encouraged those fishers involved in trapping to return to traditional line methods.³¹ Dr Glaister also indicated that he would not support compensation as kingfish trappers still had line methods available to them, adding:

You asked me for my opinion. The way I would answer that would be, if I was asked, I would say to the Minister that kingfish are still able to be taken by line methods, that the trap method was always experimental, and that it was put in there for a trial, that the decision was taken by my predecessor or whoever that it was not a successful outcome and so it should be stopped. Now, in that case, I would not be supporting a push for compensation

³⁰ Evidence of Mr Dunn, 26 May 1997, p 35

³¹ Evidence of Mr Dunn, 26 May 1997, p 40

because you do not know where that line would end. I mean, do you then look at compensating people for imposing a closure to protect small prawns, for example?³²

5.6.1.4 Conclusion

While the Standing Committee recognises that the use of kingfish traps has only ever been on a trial basis, it is concerned that the traps were banned with little scientific basis. The Standing Committee believes that kingfish traps have a number of advantages over the line method, particularly the ability to release juvenile fish with relatively little harm, and that the trap's major disadvantages, such as 'ghost fishing' and being a hazard to navigation, have been addressed. However, the Standing Committee considers that it would be unwise to allow the trap's reintroduction without having implemented a method of limiting the total kingfish catch. Accordingly, the Standing Committee recommends:

Recommendation 3

That kingfish trapping be recommenced on an experimental basis. NSW Fisheries and ex commercial kingfish trappers should operate this pilot scheme for 1 year. Independent assessment of the recreational take, the black market take and the charter boat take should be carried out along with a detailed stock assessment.

Kingfish traps as a method should be assessed for their efficiency, bycatch, state of the fish as landed and value at point of sale in comparison with line fishing for kingfish.

The Total Allowable Catch Committee should be furnished with the results of the assessment and take into account the commercial data for the years 1990-1995. A TAC for kingfish should be set within 3 months of receiving the detailed stock assessment and take data, and no longer than 18 months from the tabling of this report.

5.6.2 Beach Hauling

³² Evidence of Dr Glaister, 26 May 1997, p 37

5.6.2.1 Background

Beach hauling involves the use of a net to encircle fish moving along the shore. The net is towed from the shore using a boat and once encircled the fish are pulled into the shallows and harvested. Several species are taken by beach hauling in NSW, with sea mullet constituting the bulk of the catch by weight.

NSW Fisheries conducted a review of ocean hauling in June of 1994. The review identified the following problems in the NSW beach haul industry:

Despite a freeze on the issue of net hauling registrations and fishing licences, conflicts relating to ocean beach hauling have become more frequent in recent years. This is due to a number of reasons, some which may be related to the expanding NSW population. The majority of the population of NSW is concentrated in coastal regions and both tourist and residential development is expanding into coastal areas of previously low population density. Additionally recreational fishing is increasing in popularity and there is a greater community awareness of, and involvement in resource management, including concerns about the use of community owned resources such as fish.³³

The beach haul fishery has provided fisheries managers with complex problems arising from dissatisfaction with Departmental management strategies, rivalry between beach hauling crews, conflict between commercial fishermen and the recreational sector, inequities in the regulation of other commercial fishing methods, and the specialised management requirements of Aboriginals involved in the fishery.

5.6.2.2 Departmental versus Industry Conflicts

Beach hauling crews have been confined to geographic zones as part of the move to restricted fisheries. The restrictions have had social and economic

³³ Summary of Submissions to Ocean Hauling Review 1994, p 1

impacts on beach haul fishers who traditionally ranged up and down the coast in search of fish. Mr Russel Massey, a beach haul fisher, identified the inequities resulting from zoning:

I have grave concern about the zoning going on in the State at the moment. The State is dividing us into seven or eight regions, inland as well. Well, we as commercial fishermen are not allowed inland. Anyway, the shore fishermen are being divided up. To me, it is not being divided up equally amongst the commercial fishermen. There are some areas that have high production and other areas that really have not got production. It is in our submission as far as the beach fishing is concerned on the production in each region as we see it from the figures.

As a full-time commercial fisherman I was allowed to roam, which I did, to maximise my income. Now, just because my local residence is in RAC region six, I have been told to go home. I have always considered myself as a New South Wales fisherman, and my family has always been the same. You can go right back through the history of the Massey family. My grandfather and great-grandfather all roamed up and down the coast. It has been traditional to be full-time commercial fishermen and to roam.³⁴

Catch histories were used to identify the participants in each fishery. Some participants in the beach haul fishery believe that the limits set by the Department are too low and constitute a threat to the sustainability of the resource. Mr Massey outlined the deficiencies of the entry criteria:

What happened was that the historical right has been so low, virtually to be a beach fisherman it was 1 kilo and owned a boat and net prior to 1990. One kilo! The result was that the fisheries records are that bad that they really cannot tell whether you caught in the estuary or on the

³⁴ Evidence of Mr Massey, 30 January 1997, p 28

beach. So the result is that every Tom, Dick and Harry got in.³⁵

Mr Massey also complained of the inequities arising from the Department's inability to stop the use of unlicensed crew in the industry, stating:

I have always worked six to eight commercial fishermen with me. As the wife stated, some of these other beach crews have got three blokes and they have been using dole bludgers to catch exactly the same as I am, and when it comes to catch history I am splitting mine up eight ways and they are only splitting theirs up three ways. We are talking about going into a share fishery, but these guys who have cheated in the industry are getting a golden handshake and the full-time blokes are getting the gurgler.³⁶

5.6.2.3 Recreational versus Commercial Conflicts

The beach haul fishery has also experienced allocation conflicts between the recreational and commercial sector. In an attempt to resolve these issues, commercial fishermen in the South Coast region are now subject to weekend and public holiday closures. Mr Sonny Butler, an Aboriginal beach haul fisherman, argued that the restrictions were insensitive to the specialised fishing practices of local Aboriginal communities:

The Aboriginal people who are still in this beach haul fishery have not done anything else. They have got no experience in anything else. In some cases they have got a little bit of experience doing other jobs, but, as for making a living and providing for our families, we have had no other interests.

³⁵ Evidence of Mr Massey, 30 January 1997, p 30

³⁶ Evidence of Mr Massey, 30 January 1997, p 30

We come to the point now where, not knowing anything else other than the beach haul fishery, we are squeezed right out of existence. We have a situation at the moment with the closure of weekend and public holiday fishing. We cannot handle this as other people in the beach haul fishery may do because, of the New South Wales beach haulers, the only people who work all year round and almost totally dependent on the beach haul fishery are on the south coast.³⁷

5.6.2.4 Commercial versus Commercial Conflicts

Inequities in the regulation of different fishing methods is the basis for conflict within the commercial industry. While the beach hauling method is restricted to zones, other commercial fishing methods that compete for the same species remain geographically unrestricted. Mr Massey stated:

I would be able to accept zoning if everybody got the axe the same as I have. Unfortunately, that has not happened. When you read the gazettal for the beach fishery there is garfishing to a boat, multiple zones, there are purse seining in this also. It has got no zones. You can roam all New South Wales. Then you have got provisions made for beach haulers like myself who work half of one zone and half another. As I have stated before, we have got guys even from Tweed Heads coming down and working around Newcastle.³⁸

Referring to the sustainability of the fishery, Mr Massey added:

What has happened with this zoning is that there has been a vast increase in effort as far as the mullet fishery is concerned nowadays, because you have got to catch those fish before they get across the boundaries. So there is a vast lift in effort. Everybody has lifted their effort really

³⁷ Evidence of Mr Butler, 30 January 1997, p 48

³⁸ Evidence of Mr Massey, 30 January 1997, p 43

considerably. It is no different to me. I think I work twice as hard on the beach to try to catch my mullet nowadays than I did, say, in 1986, because all these other little guys have come in and scraped into the industry and they are all lifting their effort. So I have had to lift my effort. All I can see in the long run is that the fish stocks will really suffer.³⁹

Mr Butler also commented on the inequities between different methods and questioned the sustainability of the stocks and beach hauling as a method under the current management regime:

... On the one hand we have the Director of Fisheries initially stating that it was to protect the dwindling stocks in this particular fishery. That was about November 1995. Since that time purse seine vessels, which are big boats normally used out in the ocean to catch tuna, et cetera, have been given licence to come right into the beach and to take the species which the beach haul fishery once survived on. With purse seiners, by the way, one vessel last year caught in about three weeks more salmon than the entire beach crews caught in about two or three years.

They are able to work on the weekends. They have no restrictions at all. They can work from the Victorian border to the Queensland border, whereas we are zoned. The New South Wales coast is zoned into seven regions, and we who are shore based with row boats and hand-haul nets are allowed to work in one of those regions and we are not allowed to work on weekends and public holidays. The purse seining vessels have no restrictions like that at all.⁴⁰

Recommendation 4

³⁹ Evidence of Mr Massey, 30 January 1997, p 38

⁴⁰ Evidence of Mr Butler, 30 January 1997, p 48

The Standing Committee recommends that to protect the beach haul fishery, other boat-based fishing methods (including purse seine operators) should not be able to operate within 500m of the shore. (Shore being defined as the limit of the high water mark).

5.6.3 Charter Boat Fishing

The resource allocation debate is further complicated by charter boat operations, which blur the activities of the recreational and commercial sectors. In evidence to the Standing Committee, Dr Glaister supported greater regulation of charter activities:

The question of charter boats is a vexing one. I have tried to start negotiations with the charter boat operators, and in fact there is some legislation that we have been given the okay to go ahead with in order to try to get some idea what their catches are through a log book program. But the issue of charter boats is one that stretches right across the country. I know that Western Australia and Queensland have had the same concerns about the unregulated increase in charter operations.

In fact, my officers last week finished a trip along the coast where they had port meetings - and I think there are about 200 charter boat operators in New South Wales - looking at their reaction to the idea of regulation and licensing and that kind of thing. Most of them seem supportive, but they want to see the fine print of course.

I do believe that, unchecked, it could be a long-term problem. It certainly happened like that in the United States, and it had some huge problems there. My own view is that charter boats are about providing a platform for recreational fishermen to go recreation fishing. We have got some difficulties where charter boat operators are also licensed commercial fishermen and can change hats

when they are at sea, depending on how the catches are going. I do not think that is appropriate at all.⁴¹

The Standing Committee considers that charter boats represent a unique crossover between the commercial and recreational sectors. The unregulated nature of the charter boat industry has the potential to impact on the resource by providing recreational fishers with a more effective fishing platform and may contribute to the sale of fish caught by recreational anglers. The Standing Committee believes that tighter management arrangements are required to provide fisheries managers with a more accurate estimate of the impact of charter boat operators on the resource. Accordingly the Standing Committee recommends:

Recommendation 5

That the activities of charter boats be clearly defined and regulated by a system of registration and licencing. The lodgement of catch returns should be a condition of this licence.

5.6.4 Abalone 2 for 1 Issue

Until recently, abalone divers in NSW were classified as either unconsolidated or consolidated. Unconsolidated divers obtained their licences under the previous open access scheme, where fishers could buy a licence for \$2. In 1984 the '2 for 1' law was introduced to reduce the number of participants in the fishery from 57 to 29. This law required new entrants to buy out 2 unconsolidated licence holders to become a 'consolidated' diver. Consolidated licences could then be traded at market value.

In the early years of the scheme the number of participants fell by an average of five per year. In 1989 a Total Allowable Catch was introduced to ensure the sustainability of the industry. Consolidated and unconsolidated divers were allocated the same quota, but the 2 for 1 law remained in force. In 1993 free consolidation of the remaining unconsolidated licences was promoted. Sales of unconsolidated licences ceased while divers awaited the outcome. In 1995

⁴¹ Evidence of Dr Glaister, 26 May 1997, p 69

the 2 for 1 law was repealed as part of the introduction of share management. All licences were rendered consolidated as a result.

There are currently around 36 licenced abalone divers in New South Wales. The free consolidation of the remaining unconsolidated licences angered consolidated divers who maintained that the 2 for 1 system should be followed until its endpoint to ensure the financial viability of their investments and the sustainability of the fishery. The matter is now the subject of a Supreme Court action between the Consolidated Divers' Group (plaintiffs) and NSW Fisheries, the Minister for Fisheries, and the State of New South Wales (defendants).

Due to the pending legal proceedings, the Standing Committee does not wish to comment on the 2 for 1 issue.

5.7 Proposed Solutions

5.7.1 Greater Statutory Recognition of the Recreational Sector

Some witnesses expressed concern to the Standing Committee regarding the adequacy of recreational sector provisions within the *Fisheries Management Act 1994*. They claimed that the Act has an unbalanced focus on the commercial fishing sector, with inadequate provision for the management of recreational fishing activity. For example, Mr Jeff Angel, Director of the Total Environment Centre, stated

The Total Environment Centre in association with other groups such as the Australian Conservation Foundation was engaged in quite intensive negotiations for the Fisheries Management Act 1994. During those negotiations we also developed a very constructive relationship with commercial fishermen. We were particularly pleased with a number of the outcomes with the legislation, the total allowable catch provisions, particularly the factors to be considered under section 30 such as the precautionary principle; the provision for management plans; and habitat protection measures. Certainly the relationship between environmentalists and commercial fishermen reached a new level. However, as

is perhaps apparent in the legislation, the recreational fishing sector was not a particular part of those negotiations and despite our efforts to improve the legislation in regard to controls on recreational fishing we failed to do that. To that extent the provisions of the Fisheries Management Act have a bias towards commercial fishing controls and a lack of attention to recreational fishing controls. To that extent the legislation is imperfect.⁴²

The Department was also critical of the lack of adequate legislative provisions for the recreational sector. Dr Glaister stated:

I understand that the original draft legislation had provision for a recreational total allowable catch as well as a commercial TAC and that was subsequently removed. In the case of resources that are jointly shared inevitably there will be need to include some provision for recreational fishing. Even the two existing share-managed fisheries of rock lobster and abalone have got potentially significant recreational and indigenous interests that are not currently being addressed. The legislation could be improved by explicitly recognising that needs to be done. At the moment we are saying there is a total resource of X. In the case of an output controlled fishery we are saying, all right, the total allowable commercial catch should be this part of it and we will keep an eye on that, and the indicators that we will look at in a stock assessment since will let us know how things are ticking along. It is the same as the Commonwealth-State concern with input and output controls, and if there is an uncontrolled increase in the other sector there will be problems. I agree that the legislation could be usefully amended.⁴³

⁴² Evidence of Mr Angel, 2 April 1997, p 55

⁴³ Evidence of Dr Glaister, 7 July 1997, p 30

5.7.2 Postharvest Sector Involvement

The current form of the *Fisheries Management Act 1994* does not provide for post harvest sector input into fisheries management. Both NSW Fisheries and the post harvest sector have indicated that legislative amendment could increase consultation between the Department, the post harvest sector, and commercial fishers. Mr Sam Gordon, Executive Officer of the Fish Merchants Association, stated:

I see part of the present problem at the moment, and it really is a bit unfair on either Mr Martin or the Fisheries Department, in that the actual Act only gives them responsibility up to once the fish has got to the first receiver. It is like the loop is not complete, so to speak. In the Agricultural Department it is very much the case where their responsibility goes from growing the product down to marketing the product, following the whole chain.

At the moment there is a problem because the product is caught and then when we want to talk to government about it we really have no government department to go to and it has been made quite clear by Dr Glaister that his responsibility does not extend to the post-harvest sector in any area really apart from compliance. I would see the concerns would be with the current legislation.

I would like to see a completion of the loop, bring the consumers involvement and the post-harvest sector involvement in because you cannot manage one without the other.⁴⁴

The involvement of the post harvest sector can provide financial incentives to industry to harvest the resource in a more efficient and cost effective manner. Mr Gordon commented:

... from our experience of Duncan Leadbitter having been to America and looking at how the fisheries are managed

⁴⁴ Evidence of Mr Gordon, 14 April 1997, p 68

over there, one thing he was quite surprised by is that the post-harvest sector plays an important role in really controlling what happens in the industry. I can give an example back home that when we see a lot of under-sized tuna being caught and the market price drops to 80 cents, we would see that the post-harvest sector if it were better organised could really say to the fishermen, enough is enough, there is really no point in catching this smaller fish.

Not only that, as the market sector we are the ultimate controllers because if we start getting worried with what is happening with a particular species or the way it is caught, we can put ultimate pressure on by saying we will not buy that product.⁴⁵

The Standing Committee considers that the post harvest sector has a significant role to play in the commercial fishing industry, particularly with respect to the encouragement of sustainable fishing practices. Specifically, the Standing Committee believes that greater feedback from fish marketers to fishers regarding saleable fish size and species could have benefits for the State's fisheries. Accordingly, the Standing Committee recommends:

Recommendation 6

That the Government amend the *Fisheries Management Act 1994* and/or associated regulations to broaden the Department's awareness of, and contact with, the post harvest sector, and to provide fish marketing organisations with a more formal role in liaising with fishers. These amendments should establish a more comprehensive framework to combat the black market trade in fisheries product and provide a means of informing fishers of ways to maximise the value of their catch.

5.7.3 Post Harvest Levy

⁴⁵ Evidence of Mr Gordon, 14 April 1997, p 68

Consumption patterns within NSW indicate that seafood requires product development and marketing effort similar to that undertaken by other primary industries to promote the image and competitiveness of NSW seafood. The Master Fish Merchants Associations has written:

Indications suggest that our out-of-home seafood consumption continues to increase but that in-home consumption is static and may be declining. The domestic seafood industry has, in the past, been a fractured industry, product driven rather than market driven and until now never had the need or common cause required to create a united approach to issues of common interest.⁴⁶

The Association supports the creation of a post market levy to assist it in product development, market research, quality assurance, and service improvement to raise the profile of the seafood industry with consumers and government. Mr Gordon, Executive Officer of the Master Fish Merchants Association, lists the benefits to all sectors of the seafood industry and the environment that can be derived from a post harvest levy as follows:

... One would be assisting generic seafood promotion and that would be to prevent situations of market collapse such as we have seen recently [Wallis Lake incident]. The second one, staying on generic seafood promotion, is that at the moment, for example, there is a huge glut of seafood. The industry has not got the resources to go out and market that seafood, so it really is not obtaining a value which we feel it deserves and could achieve.

Another one is food safety. It is really coming down to a situation now where the public is demanding that all food industries do something. We have a choice here whether the government pays for it and there are negatives there because if the government is the one who develops it the chances are that it will not really be something that suits industry and will be taken up and used by industry. We are

⁴⁶ Master Fish Merchants Association (1995). *Seafood Promotion Fund for New South Wales*, Master Fish Merchants Association, Sydney, p 1

basically saying: We are willing to pay for it if you give it to us to run it.

Then we have product development. A quick example would be baby octopus, which is a by-catch. Ten years ago or so it used to be thrown over the edge of the boat's deck because it had no market value. Now, as we all know, baby octopus is seen in most trendy cafes around Sydney and around New South Wales. It has been given a value. There is no reason why we cannot do that with other forms of product, therefore giving it a value and also meaning that the fisher does not have to go out and catch quite as much as he did before to generate an income.

Then we go to the environment sustainability side. Obviously that is a crucial side for all of us and, as the post-harvest sector, we feel that we have a responsibility to play in the environment's sustainability. It is educating the public. We have just done a promotional paper at the moment on tuna, educating the public about tuna, where it comes from, how it is caught, what safeguards are being introduced and what some of the problems are in the industry, but in relation to educating the consumer of what is happening and where their seafood comes from and why it is so important to look after the environment, I think we play a very big role there.

The next area would be market research and statistical data. There is absolutely no market research and statistical data done in this industry whatsoever. I think everyone here would agree that it is very hard to manage an industry well if you do not know what it is doing at all, how many players are in the game, how much is being sold, what the trends are in the consumer, what marketing works.

The next point would be research contribution. At the moment there is the Fisheries Research and Development Corporation that is there for development as well as research and I have been told by the Executive Director of

that organisation that, sadly, because the post-harvest sector does not contribute financially, a lot of the development projects do not get up, so we feel that if we can contribute financially to that organisation we have more chance.⁴⁷

The Standing Committee believes that there would be considerable benefit for all sectors of the seafood industry and the resource to be gained from the introduction of a post harvest levy. Accordingly the Standing Committee Recommends:

Recommendation 7

That a compulsory levy (to be determined through consultation with industry) be collected from the first receiver, levied on each kilo of product caught or imported into NSW. Funds raised from this levy should be used to improve quality assurance, product development, seafood promotion, and environmental sustainability.

5.7.4 Restructuring Resource Allocation Mechanisms

It is apparent from the preceding review of recent resource allocation disputes and evidence received by the Standing Committee that the present administrative structure is generally not viewed as fair and objective. For example, Mr John Connor, Executive Officer of the Nature Conservation Council, commented:

The way in which the administration of this legislation is heading, the Minister is involved at a number of key points and there is quite an extraordinary politicisation of the processes going on. That is not even necessarily a reflection on the particular Minister but that is something we were always concerned with. That the short term interests would prevail over more long term reasoning analysis.⁴⁸

⁴⁷ Evidence of Mr Gordon 14 April 1997 p 67

⁴⁸ Evidence of Mr Connor, 5 May 1997, p 29

Adjustment of the current resource allocation structure could improve consultation and remove perceptions of political interference from the decision making process. Referring to consultation, the Security of Access and Resource Sharing Working Group wrote in its final report:

A centralised approach denies the involvement of participants in the allocation process. It is inconsistent with contemporary management practices, which revolve around consultation and public participation in decision making. A management system without these elements inevitably causes competing user groups to be dissatisfied with outcomes of policy decisions⁴⁹

An alternative to the Departmental fisheries management structure is a statutory authority similar to those of the Commonwealth and Queensland. This type of management model received support from a number of different organisations as a means of avoiding the current perceived politicisation of the management process.

Mr Leadbitter stated:

..... the establishment of a fisheries management authority would help remove a lot of the politicisation which we have observed in the last couple of years. The legislation setting up the authority should recognise the various interest group categories that provide advice, whether they be from commercial, recreational or environmental groups or expert groups.⁵⁰

Mr Harasymiw, representative of the Four Ports Management Committee, also saw the implementation of a statutory authority as a means of overcoming much of the politicisation now involved in the resource allocation debate. Mr Harasymiw said:

⁴⁹ Security of Access and Resource Sharing Working Group, p 12

⁵⁰ Evidence of Mr Leadbitter, 3 April 1997, pp 65-66

My feeling is that at the moment the present departmental structure, which is still based on the 1935 Act, is very much out of date. It should move forward into something that is much more up-to-date with the world as it is now. I believe it should become a statutory authority, with spelt-out legal objectives catering for all sectors of the fishing industry, that is, both the recreational and commercial side, with environmental objectives, and so on. If we do not, I am afraid that the politicisation of the fishing industry will go on forever.⁵¹

Dr Glaister, in response to a question on notice concerning the value of an authority to oversee the present operations of NSW Fisheries, stated:

There is little, if any, value in a board being appointed by the Minister to oversee the operation of NSW Fisheries. The present arrangement provides for the closest liaison between the Department and Government, and is the most appropriate model providing direct communication and responsiveness.

... The experience in other places would suggest that the board structure may give rise to significant conflicts of interest, and exposure to capture by client interest groups. This appears evident where the legislative focus is narrow, as in the Commonwealth arena.

The Australian Fisheries Management Authority (AFMA) and the Queensland Fisheries Management Authority (QFMA) provide the Australian experience with broad controlled management. While ostensibly intended to operate at arms length from the Minister, the need for all plans of management, the AFMA Corporate Plan and the Annual AFMA operational Plan to be approved by the Minister substantially impacts on that independence. Under these authorities the development of appropriate legislative review and amendment has been slow and unresponsive.

⁵¹ Evidence of Mr Harasymiw, 30 January 1997, p 53

The alleged client capture of the AFMA board has led to a focus on large scale commercial interests, and the neglect of other significant client groups such as recreational fishers.

... A board structure would lead to increased costs, with the necessity to retain a chairman, to remunerate additional members and to fund meetings. All of this would have to be met by increased imposts on fishers. With dedicated councils (the ACCF, AcORF, ACA, ACFR and ACFC) and management advisory committees (MAC's) with broad industry and community interest group representation liaising with the Department and providing advice directly to the Minister, no useful purpose would be served by providing yet another layer of bureaucracy in the form of a board.⁵²

While a move to a statutory authority may partly address perceptions of politicisation of the allocation process, the present centralised approach to fisheries resource allocation and management would remain. Management needs to recognise that resource allocation is a specialised field, with management solutions varying on a case by case basis. A review of the Department-based allocation of fisheries resources in Western Australia found that:

... there is no structured mechanism by which competing user groups can acquire access to a fishery or gain access to a larger portion of the resource . Instead shares tend to be determined by the political system which often results in fishery resources being allocated on an ad hoc, incremental and reactive basis.⁵³

As a result of the Western Australian review, the Department is currently consulting with all sectors of the fishing community to reformulate that State's resource allocation framework. This process involves moving through clearly

⁵² Glaister J. Response to questions on notice, p 4

⁵³ Security of Access and Resource Sharing Working Group p 5

defined steps within set time limits, is reliant upon a high degree of consultation and transparency, and has been described thus:

This process is intended to provide the public (including commercial, recreational, and passive users of WA's aquatic resources), the Minister and the Fisheries Department of WA with a vehicle for achieving defensible voluntary resource sharing arrangements among potentially competing users of fisheries resources.⁵⁴

The Standing Committee considers that the present system where the fishery manager (NSW Fisheries) also plays a major role in the allocation of the resource, exposes it to the criticism that there is an opportunity, perceived or real, for interest groups to 'capture' the Department and receive a more favourable allocation. This perception has been the major impediment to the equitable distribution of fisheries resources between competing user groups and the acceptance of allocation decisions. While the Standing Committee believes that a move to a fisheries management authority structure would be unnecessarily expensive and disruptive, it recognises the need to separate the allocator from the manager. The Standing Committee considers that there are existing mechanisms within the Government that are capable of separating resource allocation from management. The Resource and Conservation Assessment Council (RACAC), using techniques developed during the ongoing forestry resource allocation debate, has proven successful in this regard. The Standing Committee considers that RACAC has a role to play in fisheries resource allocation and expands on this proposition in Chapter 11, General Conclusions and Recommendations.

5.7.5 Research Based Allocation Decisions

The lack of research on which to base allocation decisions has been cited as a factor which renders allocation disputes intractable. In the absence of some objective body of evidence, allocation decisions remain open to perceptions of politicisation and bias.

⁵⁴ Guidelines for Voluntary Resource Sharing (Draft), Fisheries Department of Western Australia, p 1

For example, the Australian Fishing Tackle Association (AFTA) submitted:

The recreational sector has expanded rapidly. There is ever increasing competition for the declining numbers of fish . But where is the sound proof for these dire statements, upon which such far reaching management decisions could be made? Where is the scientifically collected data showing the dramatic increase in recreational angling through time...

The simple fact is: The Department does not have the data, and is basing their argument on biased opinion and speculation.⁵⁵

Professor Robert Kearney, former NSW Director of Fisheries Research and presently Head of the Department of Resource, Environmental and Heritage Sciences, University of Canberra, indicated that this has been an ongoing problem in fisheries management that has only recently been addressed, adding:

... let us put it in perspective. When I took over the research division 10 years ago now there was only one report on the nature and size of the recreational catch in New South Wales and it had never been published - it was an internal report - and that was in Sydney harbour alone. At that time I believe our research efforts were disproportionately focused on game fishing activities and not on the things that a majority of people in New South Wales were involved in, which was inshore fisheries.

Again being mindful of the need for data on both sets, recreational and commercial, to put the matter in complete perspective, I should also point out that at the time I took over the commercial fisheries data base had been officially abandoned by the department. They were not even compiling the commercial catch and effort returns. That was in 1986. That had been abandoned in late 1984 and it took me some time - I could document it for you - about 18 months to get the then Department of Agriculture to

⁵⁵

Submission 38, The Australian Fishing Tackle Association (AFTA), p 3

agree to re-establish the commercial catch and effort data base. I pointed out that if you are going to do any form of management in the future you have no other data set to use, be it property rights management or otherwise.⁵⁶

The need for research is particularly evident to determine the recreational catch and resolve resource allocation disputes between the recreational and commercial sectors. Mr Gary Henry, Supervisor of Recreational Fish Research, stated:

From my point of view the major problem is a lack of a long-term database on recreational fish catches. I have found in the past that when some science is conducted and the figures are on the table the conflict tends to go away. We have a very good commercial catch database, which goes back almost 100 years. There is no such comparable database for angling. I believe that if we had some good, long-term databases on the annual recreational catch and how it changed, a lot of the heat in the debate between the two groups would go away. I see that as my major problem with Fisheries.⁵⁷

Dr Glaister conceded that recreational catch assessment had been neglected but that the Department is currently addressing this deficiency to meet its statutory obligations, stating:

... It was incredible to me, when I took on the job as Director, that here, in the most populous State, with the largest recreational activity going on, that there was not any recreational research of any note.

... Since I became Director I have established the recreational research group, and I have increased significantly the resources in recreational management. So

⁵⁶ Evidence of Professor Kearney, 12 May 1997, p 67

⁵⁷ Evidence of Gary Henry, 2 April 1997, p 38

I do recognise that there is a need for basic information in that area.⁵⁸

5.7.6 More Effective Enforcement

Fisheries Officers are instrumental in ensuring that management measures are being adhered to. New South Wales presently has 95 Fisheries Officers to cover the NSW coast and inland areas.

The duties of Fisheries Officers include:

- Public education, advisory and law enforcement activities to raise community awareness and ensure compliance with State and Commonwealth legislation.
- Managing external relationships with individuals and organisations from the community, government, industry and recreational fishing sectors.
- Assistance and support for the Fisheries Management Division in the development and implementation of policies and management plans for recreational and commercial fisheries and aquaculture, habitat protection and conservation programs.
- Assistance to the Research Division to undertake research into various protection and conservation issues.

There is an increasing awareness within the Department that, given the available resources, public education has a major role to play in achieving the desired levels of compliance. As a result enforcement officers have moved away from compliance and placed greater emphasis on education. In evidence, Dr Glaister stated:

It has been my experience that most people want to do the right thing. In the case of recreational fishermen, a big proportion of their catches are illegal in terms of things like

⁵⁸ Evidence of Dr Glaister, 26 May 1997, p 28

snapper, at Tuggerah Lakes or in Sydney Harbour for example. Quite a lot of the fish that those people catch are under legal size. If the need for having size regulations are explained to them, generally most people are cooperative. It really is more of an educational need than a need to have a fisheries inspector behind every tree. So I am confident that, with the information extension activities that we are putting in place now, that will be increasingly important and that it will alleviate some of the problems.⁵⁹

Dr Glaister argued that the new activities undertaken by the Department's fisheries officers constituted better value for money than the former, enforcement focus, stating:

So we have taken the view that just putting more compliance people in is not the answer. We have looked at trying to broaden the range of activities that our compliance people are engaged in. They are a very important resource, fisheries officers. They are really the front line troops, if you like. They are the people who most often the public comes in contact with first. That being the case, they have got more to do than really sell the message of fisheries law. They are also really, as I say, selling the image and culture of the department and how we manage fisheries in New South Wales.

So we are trying at the moment to broaden the skills base of fisheries officers. We are looking at bringing in some specialist areas into the fisheries officers area - things like monitoring of habitat issues, participating in education through schools, and a whole range of things like that. I agree with you that the perception may be that there are not enough fisheries officers out there, but I think we are trying to do better with what we have got.⁶⁰

⁵⁹ Evidence of Dr Glaister, 26 May 1997, p 66

⁶⁰ Evidence of Dr Glaister, 26 May 1997, p 17

Despite the Departmental view, many recreational fishers are not satisfied with the present level of enforcement and, while acknowledging the importance of education, perceive that the current diversification of fisheries officer duties may negatively impact the resource. For example, Mr Peter Parker, recreational fisher and former RFAC member, stated:

... New South Wales Fisheries, for many years - and they may say differently - has exhibited a trend in education rather than an administration by Fisheries inspectors. Members of the fishing community in northern New South Wales see a significant lack of inspectors on the ground or policing of the provisions of the Act in relation to harvesting of fish. It is very rare that members of this committee or their colleagues even see a fishing inspector on the beach. We generally have the view that we would like to see more active policing of the Act. Certainly, education is very important. We do see signs around that Fisheries are making significant efforts in relation to the publication of fish sizes and bag limits, but the number of inspectors is significantly too small.⁶¹

The South-West Anglers' Association expressed a similar view in relation to inland areas, submitting:

The monitoring of the inland sector in NSW is to say the least a joke. With the limited number of compliance officers and the huge area to police making a totally unworkable situation. We make every attempt to assist and work with our fisheries officers, and we are finding their morale declining and their workload totally unrealistic. The promise by the Minister to return the five inspectors to the inland (removed by the previous Government) has not materialised. With the numbers of recreational fishers probably at an all time high level in the state of NSW and

⁶¹ Evidence of Mr Parker, 21 February 1997, p 4

increase in the number of compliance officers is long overdue.⁶²

In evidence, Mr John Naughton, Senior Fisheries Officer - Northern Metropolitan Zone, indicated that there was a need to properly determine what duties could be undertaken by the enforcement branch with the existing level of resources, stating:

... We have always been told that we have to do this, this and this extra on top of what we already had to do. But no-one ever told us what we dropped off in place of doing something else. There was never much in the way of prioritising exactly what needed to be done.⁶³

The Standing Committee considers that diversification of the role of fisheries officers and an expanding recreational sector have overextended the enforcement branch and affected its ability carry out habitat protection and enforcement. For fisheries enforcement to be carried out effectively, the duties of fisheries officers need to be clearly defined and the resources needed to achieve the desired goals estimated. Once the level of resources required have been determined for a given set of duties, the appropriate funding should be allocated. If funding is not available, the duties of fisheries officers should be reassessed. Accordingly, the Standing Committee recommends:

Recommendation 8

That a benchmarking process which identifies the duties of the enforcement branch and the associated level of resources required be undertaken, followed by an assessment of the ability of the enforcement branch, as currently resourced, to comply with these expectations.

5.7.7 Recreational Licensing

⁶² Submission 38, South-West Anglers' Association, p 5

⁶³ Evidence of Mr Naughton, 2 April 1997, p 52

A major problem in managing the recreational fishery is that it is extremely difficult to accurately determine the number of anglers and their fishing effort. The Standing Committee received many submissions from freshwater recreational fishers in support of the re-introduction of an inland recreational fishing licence. For example, the Institute of Freshwater Anglers NSW submitted:

The IFA has always supported “The Inland Fishing Licence” and has continually lobbied for its reintroduction since it was deleted by the Greiner Government.

The licence provided an income of \$1.2 million in 1988 dollars and this funded the inland fishery. It was also an effective tool for management of the inland fishery in terms of protection of the species through law enforcement and self regulation by the anglers...

Australia and more importantly NSW, is the only freshwater fishing destination in the world that does not require a Angling Licence. It is well documented that in destinations where a licence is required, that the related laws are complied with and this is to the benefit of the health of that fishery and consequently to the State through revenue gained through tourism.⁶⁴

The North and North west Amateur Fishermen’s Association submitted:

NETAS has on several occasions asked for and supported the reintroduction of an Inland Angling Licence, with the funds generated from it to be used in the areas of:

1. Policing: several inland areas are understaffed or not staffed at all, therefore allowing illegal practices to run riot.
2. Restocking: the popularity of freshwater angling is overwhelming and on the increase, the need to

⁶⁴ Submission 28, Institute of Freshwater Anglers NSW, p 5

stock rivers with native fish and trout is paramount to relieve pressure on impoundments.

3. Research: it has become apparent that funding for research, particularly stream research is on the decline, this is obvious from correspondence received from the Department after requests have been made.
4. Education of the public: many individuals of English and non-English speaking backgrounds would be unaware of the effects overfishing has on the fish stocks in our State.⁶⁵

The South-West Anglers' Association submitted:

We believe that licensing would be an effective tool in the management of recreational fishing and believe that it is vital that licences be re-introduced. Licences do provide a guide to the numbers and distribution of recreational fishers, as well as providing a significant source of revenue that could be used to better administer the fishery. Monies gained from a licence must be returned in total to the fishery and then used in vital areas such as research and compliance. Licences on the inland should be returned immediately, with serious consideration given to imposing a licence on salt water fishers as well.⁶⁶

While freshwater recreational fishers strongly supported the re-introduction of the inland angling licence, coastal anglers were much less enthusiastic about licensing saltwater recreational fishing. The Concerned Anglers Group (Lake Macquarie District) submitted:

Licensing could possibly be used as an effective tool in the management of recreational fisheries provided that there

⁶⁵ Submission 25, North and North West Amateur Fishermen's Association, pp 1-2

⁶⁶ Submission 38, South-West Anglers' Association, p 5

was a sound proposal for the distribution of funds laid out. The greater majority of recreational anglers see a licence as an extra tax and will strongly oppose such a move unless they are convinced that the funds derived from the licence scheme are to be used in protecting and enhancing their recreational fishing opportunities.⁶⁷

While supporting an inland licence, the Australian Fishing Tackle Association submitted:

The question of a saltwater fishing licence is more vexed. To begin with, there is very little commercial fishing in the inland, and therefore, any benefits can be seen to flow primarily to recreational fishing. Secondly stocking of fingerlings into public impoundments and river systems has obvious benefits to recreational fishing, and funds generated from a licence may be used for such purposes. In saltwater however, commercial and recreational fishers compete for the same resources, and stocking of wild populations of marine fishes is not seen as a viable option at present. Therefore benefits accruing to saltwater anglers through a licence or levy would need to be clearly outlined in order to be generally accepted by the angling community at large, and not seen as just another form of taxation.⁶⁸

The Anglers Action Group (Sydney Northside) submitted:

AAG is totally opposed to a General fishing licence (that is, a licence applying to all forms of recreational fishing in NSW, both saltwater and freshwater) ... It has also expressed opposition to the proposal for a freshwater licence which was raised in the recent NSW Fisheries Review of Freshwater Fishing.⁶⁹

⁶⁷ Submission 39, Concerned Anglers Group Inc (Lake Macquarie District), p 2

⁶⁸ Submission 29, AFTA, p 14

⁶⁹ Submission 17, Anglers Action group (Sydney Northside) Inc, p 36

The Anglers Action Group (Sydney Northside) cites a number of reasons for its opposition to licensing, including the cost of administration, the deterrent effect on participation in recreational fishing, and a perception that licensing is just another tax.

In response to the support of angling groups for an inland recreational fishing licence, NSW Fisheries recently distributed a discussion paper and draft *Fisheries Management Amendment (Recreational Freshwater Fishing Access Fee) Bill 1997* to gauge wider community support for such a licence.

The discussion paper states:

All peak angling associations are now calling for the reintroduction of a freshwater angling fee . These groups argue that such a fee is widely accepted "user pays" mechanism that helps fund recreational fisheries management in many Australian states and in many other countries, and are an appropriate cost for access to freshwater fish stocks.⁷⁰

The discussion paper also suggests that an inland fee could be used to fund additional Fish Habitat Managers, fish stocking, research and fisheries officers, and outlines the fees applicable in other states.

This information is summarised in table 5.1.

TABLE 5.1 ⁷¹

⁷⁰ A Freshwater Recreational Fishing Fee Discussion Paper, p 1

⁷¹ NSW Fisheries (1997). *A Freshwater Recreational Fishing Fee?* Discussion Paper, p 2

STATE	LICENCE	FEE
New South Wales	no licence	n/a
Northern Territory	no licence	n/a
South Australia	no licence	n/a
Tasmania	inland	\$38 per year, \$20 per 2 weeks, \$12 for 3 days.
Western Australia	licence for specified fisheries	abalone \$20, marron \$15, net fishing \$15, freshwater \$10.
Victoria	inland	\$20 per year, \$10 for 28 days.
Queensland	no licence	levy of \$12 placed on boat registration.

The draft Bill provides for an inland recreational fishing fee payable by fishers over the age of 18. The fees that would apply under the Bill are:

- \$10 for 28 days; or
- \$25 for 12 months; or
- \$70 for three years.

The draft Bill also requires the establishment of a Recreational Fishing (Freshwater) Trust Fund and a Recreational Fishing (Estuarine and Marine) Trust Fund. The Recreational Fishing (Freshwater) Trust Fund would receive all access fees paid under the Bill, the proceeds of the sale of tags, or other identification, to be used on fish taken by recreational freshwater fishers and any gift or bequest of money. Purposes for which money could be paid out of the fund include meeting the costs of:

- freshwater fish stocking;
- freshwater research;
- management and administration of recreational freshwater fishing;
- ensuring compliance with freshwater regulatory controls;

- third-party insurance coverage for landowners where recreational fishers use private land; and/or
- consultative arrangements with freshwater recreational fishers.

The Recreational Fishing (Estuarine and Marine) Trust Fund would receive all fees paid for the registration of fishing gear used for recreational estuarine and marine fishing, the proceeds of the sale of tags, or other identification, to be used on fish taken by recreational freshwater fishers and any gift or bequest of money. Purposes for which money could be paid out of the fund are similar to those listed above for the freshwater fund except that they apply to estuarine and marine recreational fishing.

Dr Glaister indicated that the widespread support for an inland recreational licence is due to the fact that there is a clear link between the monies provided for by a licence and the services offered by the Department, stating:

I can only say that because government does things like stock fish and provide amenities, education facilities and things like that, the inland fishing people feel comfortable with the idea of a licence because they can see a direct benefit and a direct return. In the case of marine fishing, unless there is good evidence to support a stocking of marine embayments then there is no nexus.⁷²

While the major angling groups have indicated their support for a marine licence, the difficulty is convincing anglers that are not associated with clubs of the benefits they will receive from paying an angling fee. Dr Glaister stated:

... the difficulty for Governments has been that, whilst it is strongly supported by organised fishermen, in other words, those who are in fishing clubs or whatever, because they can see the benefits of a licence from which the funds revert to supporting the recreational fishery in terms of education, compliance, stocking and whatever they are

⁷² Evidence of Dr Glaister, 7 July 1997, p 32

interested in, that sector unfortunately is only some 5 or 6 per cent of all anglers.

There is a strong perception among the remaining anglers that "Oh, this is just another tax that is going to disappear into the black hole and we will never see any benefit for it."⁷³

Despite this perception, Dr Glaister did not reject the eventual introduction of a general recreational fishing licence, stating:

..... to be successful, a marine recreational licence would need to demonstrate that recreational fishermen were getting something for it.

.... We have put in place the provision to allow the setting up of trust funds to enable the allocation of funds into an area so that it can be transparent. People can see what they are getting by paying this or that licence. I am keen to pursue the idea of the recreational sector becoming more accountable. In fact, the review about the regulations that the Minister has asked me to do will go a long way towards doing something about the unknown and increasing recreational fishery and will be very timely. Again, the issue of a general licence is one that governments will have to address. It is not something that I have consciously avoided. It is not something that I have consciously said we will not do.⁷⁴

Licensing of the recreational sector, as well as redressing inequities in cost of management, has also been identified as a means of providing fisheries managers with a means of limiting the effort of the recreational sector:

... restrictions on the use of certain fishing gear, are unlikely to be effective in preventing biological over

⁷³ Evidence of Dr Glaister, 26 May 1997, p 56

⁷⁴ Evidence of Dr Glaister, 7 July 1997, p 34

exploitation unless they are accompanied by simultaneous controls over the number of participants. This because the size of the total recreational catch is not limited and is likely to grow with increasing popularity of recreational fishing. Therefore restrictions on the number of recreational fishers, together with explicit limits on their fish catches, may be necessary if fish stocks are to be conserved.⁷⁵

5.7.8 Volunteer Recreational Fishing Officer Programme

While the need for greater contact between the Department and recreational fishers has been widely acknowledged, an alternative means of obtaining this contact is through the establishment of a volunteer recreational fishing officer programme such as that run in Western Australia.

To facilitate a link between fisheries managers and the recreational community, the Western Australian Fisheries Department initiated the Volunteer Fishing Liaison Officer (VLFO) programme. This programme has proven to be highly successful in providing a link between the Department and recreational fishers. G M Kailis, a former Director of the Australian Fisheries Research and Development Corporation, commented on the value of the Western Australian programme:

A good example of incorporation of a user group within the system can be found in Western Australia. There has been considerable success with the recruitment of Voluntary Fisheries Liaison Officers (VFLOs). The VFLO programme recruits recreational fishers to assist in education and maintenance of the recreational fisheries management system. VFLO's have no statutory powers but have special identifying clothing and patrol important centres of

⁷⁵ "Competition Between Recreational and Commercial Fishers: Fisheries Management Options", *Maritime Studies*, March-April, 1992, p 3

recreational activity advising recreational fishers of management rules and monitoring compliance.⁷⁶

Entry to the programme is by carried out by interview. The objectives of the programme are clearly defined as education and not compliance. The program has proved to be a success in Western Australia with 200 volunteers contacting an estimated 25,000 fishers per year. For the Department, the volunteer concept is an effective and efficient method of delivering educational messages, receiving feedback on recreational fishing regulations, and supplementing Departmental recreational fishing research.

Both the recreational community and the Department have indicated support for a similar program in NSW provided the role of volunteers was clearly defined as educational and not compliance. Dr Glaister indicated that such a programme would provide a means of communicating with those recreational anglers that are not associated with clubs:

The recreational sector is different in that most of them are not in organised clubs. That is the difficulty. We can pick clearly where the organised recreational fishermen, the vocal ones, are coming from on most issues because they will tell you in no uncertain terms. It is difficult though because we are really only providing the grease to the wheels. For the vast majority of recreational fishermen other techniques are needed to gauge their opinions. I agree that the volunteer system has a lot to recommend it. As I say, at the moment we are actively looking at it.⁷⁷

The Standing Committee considers that the Western Australian VFLO programme has merit. Specifically, a similar programme in New South Wales could be used to establish an effective two way link with the majority of the recreational fishing community rather than the minority of anglers who are

⁷⁶ G M Kailis (1996). *Sustainability Managing Sustainable Management. Developing and Sustaining World Fisheries Resources. The State of Science and Management* 2nd World Fisheries Conference. D A Hancock, D C Smith, A Grant, J P Beumer (Eds), p 261

⁷⁷ Evidence of Dr Glaister, 7 July 1997, p 35

members of clubs and associations. Accordingly, the Standing Committee recommends:

Recommendation 9

That a Volunteer Fishing Liaison programme be established in New South Wales. The role of Volunteer Fishing Liaison Officers should be limited to education and offence reporting, with no enforcement duties.

5.8 Conclusions and Recommendations

The Standing Committee considers the attention paid to recreational fishing activity in the present resource allocation framework to be insufficient and a significant shortcoming of the fisheries management structure. Under both the restricted and share management systems, the size of the recreational catch is largely unknown or ignored while commercial fishers bear the brunt of allocation changes through TACs or input controls. Commercial fishers are also the only user group expected to contribute towards the cost of fisheries management. Present recreational fish size and bag limits appear inefficient and lack scientific basis. The absence of any effective mechanism for recreational fishers to contribute to fisheries management, both financially and in terms of catch control, is viewed by the Standing Committee as particularly inequitable and detrimental to the ecological health of the State's fisheries.

The Standing Committee believes that the introduction of an inland recreational licence without a parallel marine licence would be unfair, confusing and ineffective. Despite having the support of many freshwater angling clubs and associations, an inland licence alone would probably attract only a low rate of compliance, partly due to confusion among the angling public as to what they require a licence to do, and partly due to resentment among unaligned freshwater fishers based on the notion that they are being discriminated against.

Despite these concerns regarding an inland recreational licence, the Standing Committee strongly supports the introduction of a general recreational fishing licence. A general recreational fishing licence would prevent feelings of discrimination from arising and avoid confusion regarding jurisdiction. As a result, it would lead to greater compliance than an inland licence, provided

licence fees were affordable. Such licences could be efficiently sold through tackle shops and would:

- provide an avenue for two-way communication between fishery managers and recreational fishers by enabling the establishment and maintenance of a comprehensive angler database. Anglers could be kept informed by a newsletter and asked for their opinions through questionnaires;
- raise significant revenue which could be used to fund restocking, enforcement, education programs and research, as well as contribute to the cost of fisheries management; and
- provide information on recreational fishing effort by incorporating questions in the application form.

The Standing Committee views a general recreational fishing licence as an integral part of a broader strategy to address the aforementioned inequities and inefficiencies in resource allocation and cost contribution. Accordingly, the Standing Committee makes the following inter-related recommendations:

Recommendation 10

That the NSW Government introduce a general recreational fishing licence. Licence fees should be set between \$20 and \$30 per annum, with special arrangements for short and long term licences, children and families. The revenue raised through these licences must be held in trust under the control of a Board of Trustees to engender trust in the system by, and ensure accountability to, recreational fishers.

Recommendation 11

That:

- **the application form for a general recreational fishing licence ask the applicant to estimate (1) how many hours per month they spend fishing and (2) what percentage of this time is spent fishing warm**

freshwater, alpine freshwater, estuarine, ocean beach and deep sea environments. The form should make it clear that this information will be used to allocate funds to these fishery types;

- the information from (1) be used, in conjunction with research funded through the licence fee trust, to determine average recreational catches per unit of effort with a view to estimating the recreational catch in each defined fishery; and
- the information derived from (2) be used to allocate licence fee revenue to research and management programs relating to fisheries with the greatest recreational effort.

Recommendation 12

That the recreational fishing licence trust fund research into the effectiveness of present recreational fish size and bag limits, new methods to control recreational catches and the size and extent of black market fishing activity with a view to refining mechanisms to manage non-commercial fishing effort.

The revenue raised through a general recreational fishing licence would also provide recreational fishers with the opportunity to play a more active role in fisheries in which they had a significant interest. The existing problem of there being insufficient consideration made of the recreational catch in determining TACs could be addressed by providing for collective recreational share holdings based on the recreational catch research outlined in Recommendations 11 and 12. The Standing Committee recommends:

Recommendation 13

That the Government amend Part 3 of the *Fisheries Management Act 1994* to provide for a recreational share holding in share management fisheries, based on the recreational component of the catch for each fishery, with management and community contributions for such share holdings to be drawn from the recreational fishing licence trust.

Recommendation 14

That the Government amend the restricted fishery regulations to provide for a recreational allocation of TAC for restricted fisheries based on the recreational component of the catch for each fishery, with any consequential financial contributions to be drawn from the recreational fishing licence trust.

The Standing Committee considers that in fisheries where recreational and commercial fishers compete for stocks, the sector that attributes the highest value to those stocks should be given the opportunity to increase its allocation. Where the allocation to the recreational sector changes, recreational catch adjustment mechanisms (such as fish size and bag limits, exclusions et cetera) would also need to be made. While this may be difficult to achieve in restricted fisheries, the Standing Committee recommends:

Recommendation 15

That the Government, when setting up the recreational fishing licence trust, empower the board of trustees to buy the shares of commercial fishers in share management fisheries on behalf of recreational fishers.

Recommendation 16

That the Government, when amending the Fisheries Management Act and associated regulations in accordance with Recommendation 13, provide for the purchase of part of any recreational share holding by commercial fishers.

7 INLAND HABITAT MANAGEMENT

7.1 The Inland Waters of New South Wales

There are four main catchments within New South Wales. These are the eastern drainage, the Murray Darling Basin, the Bulloo River Basin, and the Lake Eyre Basin. The latter two are located in the north-west of the State and consist entirely of seasonal creeks flowing into salt lakes and swamps, known as the western drainage.

The eastern drainage consists of high gradient, separate river valleys on the eastern side of the Great Dividing Range flowing through estuary systems to the Pacific Ocean. The main recreational and commercial native freshwater fish species are Australian bass, short and long finned eels, mullet, and the Australian grayling. All of these have some link to the sea during their lifecycle¹. The rare eastern freshwater cod is found in sections of the Richmond and Clarence rivers, while translocated Murray cod, silver perch and eel-tailed catfish also occur in some eastern rivers. Introduced species, such as carp and trout, are also found in parts of the eastern drainage.

The Murray-Darling Basin consists of a vast system of connected, low gradient river valleys, with the largest having their headwaters on the western slopes of the Great Dividing Range. The entire drainage eventually flows out of the mouth of the Murray River in South Australia. The Basin covers 75 per cent of New South Wales, with this area equating to 56 per cent of the entire Basin². There are 29 indigenous fish species within the Basin³. The main recreational and commercial native freshwater fish species of the western drainage are the Murray cod, silver and golden perch, and eel-tailed catfish. Other species include the trout cod, Macquarie perch and river blackfish. Many of these

¹ A Law (1980). "Fish and fisheries of New South Wales", *Fish and Fisheries*, State Fisheries NSW, Sydney, p 137

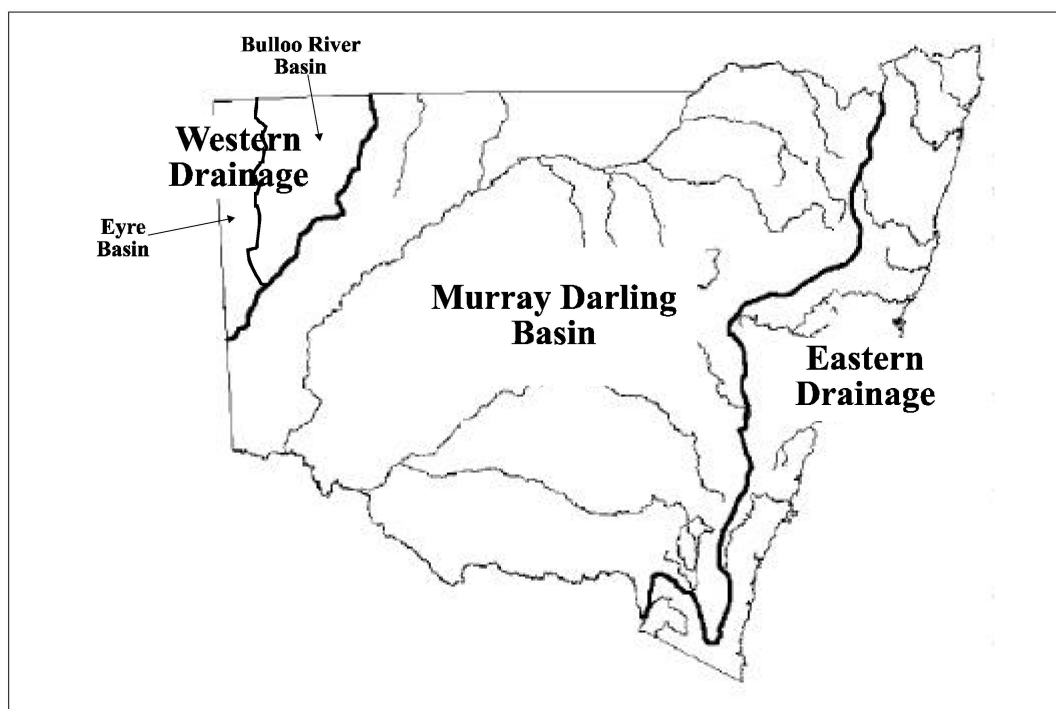
² Murray-Darling Basin Commission (1993). *The Murray-Darling Basin*, promotional material, Murray-Darling Basin Commission

³ Australian Conservation Foundation (1996) *Fish Out of Water*, Special Habitat Supplement, Australian Conservation Foundation, p 2

species are highly migratory and require an increase in water level and or temperature to spawn. Introduced species include trout, carp, and redfin. ⁴

Alpine and sub-alpine waters exist on both sides of the Great Dividing Range. River blackfish exist in some of the less regulated alpine waters. Introduced salmonids, most notably rainbow and brown trout, are widespread throughout the State's alpine and sub-alpine waters and are actively stocked by individuals, angling clubs, and NSW Fisheries. Trout cod and Macquarie perch are found in a number of major river systems in western sub-alpine areas and are the subject of conservation programs including restocking.

Figure 7.1 - NSW Catchments ⁵



⁴ Law (1980). "Fish and fisheries of New South Wales", *Fish and Fisheries*, p 137

⁵ Adapted from Environment Protection Authority Internet Site <http://www.epa.nsw.gov.au>

The inland regions of the State face very different habitat management problems to the marine and estuarine issues described in the preceding chapter. During the course of the inquiry the Standing Committee heard much evidence from experts in the fields of native freshwater fish biology, water and land resource management, and freshwater recreational and commercial fishing.

Dr John Harris, Principal Fisheries Scientist with NSW Fisheries specialising in freshwater fish ecology, described the state of the inland fishery thus:

There is strong evidence that many species are being extremely badly affected by a range of impacts. For example, silver perch used to be one of the most common species of our inland waterways and was found all over the lower, warmer parts of the inland drainage system. The institute has just completed the biggest-ever survey of freshwater fish throughout New South Wales, and Australia generally for that matter. The survey involved exceedingly extensive work on the part of all of my team for two years and in that time a total of nine individual silver perch were found. There were major problems in the 1950s and the Murray cod species was badly impacted by overfishing and environmental change. At the moment the commercial catch of Murray cod is at only 10 per cent of its level in the 1950s. Other data from the lower Murray shows that in a 50-year period there has been a 50 per cent decline in the abundance of golden perch and a 93 per cent decline in the abundance of silver perch. The [Fisheries Research] Institute has all sorts of evidence.⁶

Although commercial fishers have over-exploited the inland fishery in the past and there is now considerable recreational fishing pressure in some areas, the major factors contributing to the decline in native freshwater fish stocks appear to be directly related to their physical environment. This chapter outlines the evidence received in relation to four interrelated areas of concern: water flows and temperature; the riparian and riverine environment; discharges; and introduced species.

⁶ Evidence of Dr Harris, 2 April 1997, pp 20-21

7.2 Water Flow and Quality

The widespread storage and use of inland water resources for irrigation and electricity generation since the late 1940s, particularly within the Murray-Darling Basin, has greatly altered the natural flow regimes that operated over thousands of years. The inter-related problems of altered water flow volumes, decreased water temperature, and artificial waterway barriers have introduced new difficulties for native fish species and compounded those posed by riparian degradation.

7.2.1 Environmental Flows

The inland waterways of New South Wales, and particularly the western drainages, are naturally ephemeral, with generally modest flows interspersed over time with periods of low flow due to drought and short term flooding. The Murray Darling system is also influenced by seasonal rainfall patterns, with reliable winter rains in the south-east of the Basin and summer monsoon rainfall in the north⁷. The predominantly dry nature of Australia's inland waterways has resulted in the evolution of unique freshwater fish fauna, many of which rely on seasonal fluctuations in water flows as a trigger for spawning. In addition, the volume of water flowing through inland waterways at any one time also determines the relative level of nutrients and pollutants within the system, thereby influencing water quality.

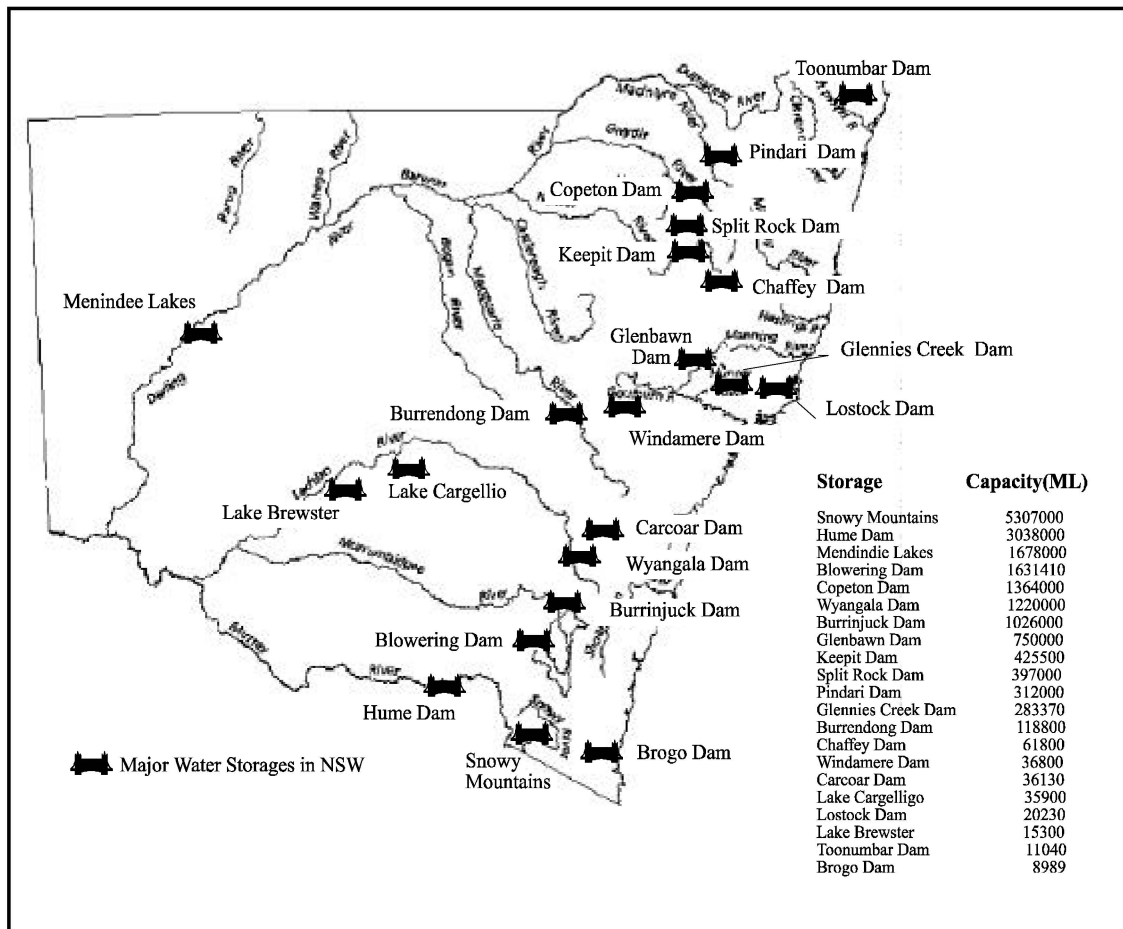
Despite receiving only 25 per cent of the State's total rainfall, inland areas use 80 per cent of all water used in New South Wales. 90 per cent of the water used in inland areas is for irrigation⁸. There are presently 21 major water storages in New South Wales or on its borders (see Figure 7.2). Many of these are located in areas with naturally high winter flows and low summer flows. As a result of agricultural demands, these flows have been made more constant

⁷ Source: Murray-Darling Basin Commission (1993). *The Murray-Darling Basin*, promotional material

⁸ NSW Department of Land and Water Conservation (January 1997). *Water Reform - the Need for Change: A Guide for Water Users*, NSW Department of Land and Water Conservation, Sydney, p 2

or reversed so that high flows now occur in summer, thereby upsetting the natural migratory and breeding cycles of many native fish species.⁹

Figure 7.2 - Major Water Storages in NSW¹⁰



⁹ Kailola et al (1993). *Australian Fisheries Resources*, Commonwealth of Australia, Canberra, pp 39-40

¹⁰ Adapted from *Storage Resources Weekly Report*, Department of Land and Water Conservation State Water Management, Week ending 22/9/97, p 9. "Snowy Mountains" includes the dams comprising the Snowy Mountains Hydroelectric Scheme.

Many witnesses claimed that water extraction was too great in many areas to sustain healthy fish populations and called for greater environmental flows.

For example, Mr Maloney said:

Our members have a great many concerns with habitat protection and river management. We feel that not enough is being done to manage our rivers in an environmentally friendly way. To us it appears that most of the water is being allocated for irrigation purposes and perhaps not for the environment.¹¹

Mr Jonassen was critical of government agencies charged with finding a balance between agriculture and the environment, stating:

I believe there is too much water extraction. So often the streams are pumped almost dry. ...

I believe that ... [the Department of] Conservation and Land Management have little interest in other than extracting the water for commercial purposes. They appear to have no interest in having a minimal flow to sustain fish life. The water drops to the stage where fish cannot possibly survive. I believe there is just so much to be done.¹²

Members of both the inland commercial and recreational fishing sectors emphasised the importance of environmental flows, claiming a correlation between good flows and catch levels. For example, Mr Davison stated:

On some of the early records, and there is one that South Australia put out, you can see that when the catches are high that coincides with the flow of water. We have got a lot of problems with too many dams and cold water, and we need more fish ladders. But those problems are slowly getting addressed.¹³

¹¹ Evidence of Mr Maloney, 2 April 1997, p 82

¹² Evidence of Mr Jonassen, 24 March 1997, p 6

¹³ Evidence of Mr Davison, 25 March 1997, p 8

Mr Maloney stated:

I think it is extremely important that flows at periods of the year are maintained to whatever levels are required. We are hearing not just about fish but about red gums in the Barmah Forest dying because they are not getting regular flooding. Some of my friends at Fisheries monitor fish numbers. After the floods that came through the north east of Victoria three years ago there has been a marked increase in small Murray cod below Lake Mulwala, which coincides with that flooding. We are now waiting anxiously to see what results from the floods that devastated a lot of farmers between Albury and Corowa a few months ago. It will be very interesting to see what affect that has in the next two or three years on native fish numbers in that area.¹⁴

... The fish are probably only a barometer of how healthy the river is. When you get fish numbers declining, one must start to look at the reasons. ... I think stream flows and water quality are probably two of the major factors for the decline in native fish in the last few years.¹⁵

The Snowy River is the State's most dramatically regulated river system in terms of its flow regime, with 99 per cent of its original flow being diverted to the Murrumbidgee River for irrigation use via Jindabyne dam and the hydroelectric scheme¹⁶. The specific issue of increased environmental flows for the Snowy river received some attention during the inquiry. Mr Hood described the present condition of the Snowy River thus:

Out of Jindabyne we get only 1 per cent of the original flow of the Snowy. To all intents and purposes, the Snowy River begins

¹⁴ Evidence of Mr Maloney, 2 April 1997, p 84

¹⁵ Evidence of Mr Maloney, 2 April 1997, pp 85-86

¹⁶ Snowy Genoa Catchment Management Committee (February 1996). *Expert Panel Environmental Flow Assessment of the Snowy River Below Jindabyne Dam*, Jindabyne, p 1

at Jindabyne. There is some good fishing above Jindabyne in the Thredbo and up above Eucumbene. The river between Eucumbene and Jindabyne, which used to be quite good, is now degraded to such an extent that it is no longer fishable.¹⁷

Referring to historical photographs of the River, Mr Leete added:

You will see that the Snowy River was a very wide and powerful river. That is why it has been written up in literature and so on. As was pointed out earlier, now it is just a weed-choked, overgrown river bed, and in places you can actually straddle it. I mean, there should not be any argument about that. If you take 99.25 per cent of the water out of a river it is fairly obvious that the habitat or the resource for that habitat is completely depleted.¹⁸

Mr Leete claimed that the method used for setting the present allocation of water to the Snowy River was based solely on the domestic and agricultural requirements of the communities downstream, with no allowance made for the ecological needs of the River. He also pointed out that a single pipe built into the Jindabyne dam wall with a diameter of 50cm was now the source of the River¹⁹, adding:

Part of the deal under the existing Act for the Snowy Mountains hydro-electric scheme is that they measure certain target points along the river and, if those target points drop, they have to open up the valve of that 50-centimetre siphon pipe and let more out. So, even the 50-centimetre pipe is not opened to full flow. That is a regulated pipe. They only have the requirement to get 25 megalitres to Dalgety, which is roughly 25 to 30 kilometres downstream. So about half the capacity of that pipe is all they need to get downstream.²⁰

¹⁷ Evidence of Mr Hood, 24 March 1997, p 38

¹⁸ Evidence of Mr Leete, 24 March 1997, p 21

¹⁹ Evidence of Mr Leete, 24 March 1997, p 21

²⁰ Evidence of Mr Leete, 24 March 1997, p 26

Mr Hood expressed concern about the proposed corporatisation of the Snowy Mountains Authority before water additional water was allocated to the Snowy, seeing this as the last opportunity to increase the allocation for several decades. Mr Hood also described the practical difficulties faced by his committee due to uncertainty regarding the Snowy's final allocation:

... we as a committee are finding it very difficult to set any plan for the river, to draw up any strategic plan for the restoration of the river, because we do not know what amount of water we are going to be dealing with. That is holding up the whole process. There is work that we can go on with in the meantime, but getting the whole plan up and running is very difficult unless you know what you are dealing with.²¹

Mr Leete expressed concern that the New South Wales and Federal governments were intent on corporatising the Snowy Scheme before deciding on environmental flows for the Snowy River, stating:

Victoria's position is to address flows for the Snowy River prior to corporatisation. ... However, New South Wales and the Federal Government are sticking with their line that they want to corporatise, and once they have corporatised they want to do a water inquiry, and it is from that water inquiry that they will make recommendations, if any, on the provision of water for the Snowy River.²²

Unnatural flow regimes have also had an adverse impact on the physical aspects of riverine environments. Persistent low flows or changes to relative water velocities at the junction of streams can cause the undercutting of river banks and result in increased sedimentation.

The Department of Land and Water Conservation supported further research into the effects of river flow on both the geomorphology and ecology of riverine environments. Mr Wright stated:

²¹ Evidence of Mr Hood, 24 March 1997, p 39

²² Evidence of Mr Leete, 24 March 1997, pp 26-27

I think that one of the key areas area that we need to address is research into ... the relationship between river flows and the flow regime in rivers, which ... has been greatly changed since we have been building dams around the State and regulating rivers and now there is talk about what we call river flow objectives, that is, making some component of that flow available to restore some of the natural variability of the flow in order to restore natural habitats and ecosystems within those.

... we need to know what is the best way to change the operations of our rivers to meet those sorts of objectives and at the moment there is some research which our department is doing, a small amount of research, but I do not think that is nearly enough.²³

7.2.2 Barriers to Fish Migration

Many Australian native freshwater fish instinctively migrate upstream to spawn. For example, golden and silver perch have been found to travel up to 1,000 and 500 kilometres respectively during spring and summer²⁴. This maximises the geographical spread of fertilised eggs and fry, some of which are carried downstream great distances, and to ensure that juveniles are not swept out to sea.²⁵

There are around 1,850 significant artificial barriers to fish passage on New South Wales waterways²⁶. The nature of these barriers range from small weirs less than a metre in height, which can restrict upstream fish movement to periods of high water flow, to large dam walls over 20 metres high, which can completely stop fish passage in both directions.

²³ Evidence of Mr Wright, 5 May 1997, p 57

²⁴ Mallen-Cooper (16 April 1994). "How High Can A Fish Jump?", *New Scientist*, p 34

²⁵ Kailola et al (1993). *Australian Fisheries Resources*, p 264

²⁶ NSW Fisheries (December 1992). *Policy on Fish Passage*, NSW Fisheries, Sydney, Section 1

Over 50 fishways have been constructed in New South Wales²⁷. Unfortunately, most of these structures are based on North American and European designs suitable for the salmonid family of fishes, such as trout and Atlantic salmon, which are generally larger and stronger swimmers than the native migratory species. As a result, native species have been unable to effectively use most of the existing fishways²⁸.

The Standing Committee heard evidence to the effect that declining fish numbers and shrinking species ranges can be partly attributed to the existence of barriers to fish migration. For example, Mr Maloney stated:

The problems with our native fish started about 50 years ago or whenever dams like that at Lake Hume were constructed. There was no provision whatsoever for the travel of native fish. ... Some of the more successful releases of trout cod are in the upper reaches of the Murray and the Murrumbidgee above Burrinjuck and Lake Hume. They were there; they just cannot get there any more. That is where breeding and releasing of our native fish could re-establish those native populations. It is important to allow our native fish to travel up and down those river systems.²⁹

NSW Fisheries has undertaken considerable research in relation to barriers to fish migration and possible remediation works. Dr Harris stated:

Fish passage issues, the question of getting migratory fish through the river system that is filled with barriers, is an area in which our research effort is now being declined because we have been successful in developing work to a stage at which it is being used on a practical, day-to-day basis. The institute is still dealing with some areas of the fish passage issue that go to the question of reducing cost and the matter of high-level

²⁷ NSW Fisheries (December 1992). *Policy on Fish Passage*, Section 3.

²⁸ Mallen-Cooper (16 April 1994). "How High Can A Fish Jump?", *New Scientist*, pp 32-33.

²⁹ Evidence of Mr Maloney, 2 April 1997, pp 83-84

barriers. Work is continuing in those areas and good progress is being made.³⁰

The New South Wales Weirs Policy, under the administration of the Department of Land and Water Conservation, was released in August 1997 as part of the State Rivers and Estuaries Policy. The goal of the policy is to “halt and, where possible, reduce and remediate the environmental impact of weirs”.³¹ The policy has three components. The first is based on the following statement:

A proposal to build a new weir or enlarge an existing weir should not be approved unless it can be demonstrated that the primary component of the proposal is necessary to maintaining the essential social and economic needs of the affected community.³²

Secondly, a weir review programme is to be conducted, starting with the identification of all weirs in the State, followed by a review of weirs which:

- come up for licence renewal;
- are considered for modification under the Algal Management Program;
- are considered for the inclusion of a fishway;
- have been identified as having a serious environmental impact;
- are considered to be redundant; or
- are DLWC operational structures.³³

³⁰ Evidence of Dr Harris, 2 April 1997, p 22

³¹ Department of Land and Water Conservation (August 1997). *NSW Weirs Policy*, Department of Land and Water Conservation, Sydney, p 3

³² Department of Land and Water Conservation (August 1997). *NSW Weirs Policy*, p 4

³³ Department of Land and Water Conservation (August 1997). *NSW Weirs Policy*, p 6

Each review will identify likely options including no action, operational change, structural change, or removal.

Thirdly, weirs considered to have a significant impact on the movement of fish shall be formally considered for inclusion of a fishway under the Fishways Program, jointly coordinated by DLWC and NSW Fisheries.³⁴

The Standing Committee was briefed by NSW Fisheries on fish barrier issues while at Narrandera including the three fishway types preferred by the Department: rock-ramp, for small barriers to one metre in height³⁵; vertical slot fishway, for intermediate barriers between one and six metres in height; and fish elevators for higher barriers. The Standing Committee also inspected a number of barriers in the Dubbo / Wellington area, including a weir with a prototype rock ramp on the Bell River near Wellington and Burrendong Dam.

The Standing Committee considers the existence of such a large number of barriers to fish migration to be a major problem throughout the inland fishery, a serious threat to the survival of a number of species such as the trout cod and Macquarie perch and, in many cases, unnecessary. It recommends:

Recommendation 21

That the Government ensure that the Fishways Program is adequately funded to enable the removal of unnecessary barriers to fish migration and the installation of suitable fishways where necessary. The programme should set targets for the removal of barriers within one year of the tabling date, and report to Parliament within five years.

³⁴ Department of Land and Water Conservation (August 1997). *NSW Weirs Policy*, p 7

³⁵ G A Thorncraft and J H Harris (May 1996). *Assessment of Rock-ramp Fishways*, NSW Fisheries Research Institute and the Cooperative Research Centre for Freshwater Ecology, NSW Fisheries, p 36

As a number of native fish such as golden perch and Murray cod require rising water temperatures to spawn³⁸, cold water pollution may seriously reduce the ability of these fish to reproduce. The health of aquatic plants and invertebrates, the major food sources for many native fish, also depend on water temperature³⁹. The combined effect of these consequences of cold water pollution are therefore likely to have significantly contributed to the decline in freshwater native fish populations throughout New South Wales and the relative increase in species introduced from colder climates, such as carp.

Speaking in relation to the Snowy River, Mr Miners described a possible solution to the adverse thermal effects of large dams:

Normally you get around that by having a multi-level offtake, which is just an offtake tower in the dam. You measure the water quality parameters and actually take from a number of levels, so that you get a cocktail and the right temperature and the right level of dissolved oxygen, and probably turbidity as well.⁴⁰

Outlining the efforts of NSW Fisheries in this area, Dr Harris stated:

... cold water pollution below large dams... is a crucial area in which investigation has only just begun. The institution [Fisheries Research Institute] is, I believe, about to receive extensive funding through the water management fund for experimental work at Burrendong dam. The institute will examine the matter in association with other departments which will undertake different components of work in the matter of cold water pollution. The issue is certainly manageable.

³⁸ Kailola et al (1993). *Australian Fisheries Resources*, pp 263, 266

³⁹ J H Harris and W D Erskine (1996). "Thermal Pollution: River-chilling Releases Below Large Dams", *The New South Wales Fisherman*, Vol 2 No 6, p 28

⁴⁰ Evidence of Mr Miners, 24 March 1997, p 50

Technical solutions to the problem are available right now, but they are quite expensive.⁴¹

The Standing Committee considers cold water pollution to be a major contributor to the decline of native freshwater fish in New South Wales, but recognises the considerable expense involved in converting large dams to utilise multi-level water offtakes. Accordingly, it recommends:

Recommendation 22

That the Government make available the funds necessary to expedite the work of NSW Fisheries and the Department of Land and Water Conservation into methods of ameliorating the thermal effects of large impoundments. The aim of this work should be the prioritisation of the capital works necessary to alleviate the cold water pollution throughout the State with a view to implementing a staged conversion program.

7.2.4 Discharges

The Murray-Darling Basin contains 10 major urban centres with more than 30,000 inhabitants, including Canberra with a population of over 300,000⁴². A similar number of centres are located on the freshwater reaches of the eastern drainage. All of these centres can potentially contribute to nutrient and pollutant discharge into these drainages through their sewerage or stormwater systems and manufacturing industries.

The State's innumerable agricultural enterprises are also a major source of effluent through agricultural runoff and septic systems. Agricultural runoff discharges herbicides, pesticides and fertiliser into waterways. The discharge of nutrients from agricultural and urban areas can promote algal blooms, particularly in times of low flow, which seriously affects water quality and can lead to fish kills.

⁴¹ Evidence of Dr Harris, 2 April 1997, p 22

⁴² Source: Murray-Darling Basin Commission (1993). *The Murray-Darling Basin*, promotional material

Mr Maloney stressed the importance of some control over urban and rural development:

Water quality is probably being affected mostly because of the fact that some of the towns on our major rivers are getting so much bigger; we are getting effluent and excess water from sewerage plants still being released into some rivers; and we are getting the stormwater wash from the roads. ... I think probably chemicals and fertiliser from irrigation farmlands would have to be a factor. I think that is probably evidenced by the blue-green algae outbreaks on the Darling River, which seem to be fairly close to the cotton and have increased as the cotton growing in that area has increased.⁴³

Mr Hood emphasised the discharges emanating from both urban and rural areas in the Snowy River area:

As to sewerage, there are the Jindabyne and Berridale and Bombala sewerage works and the Nimmitabel sewerage works in our area. We are trying to get them all upgraded to tertiary stage, and we are trying to keep the phosphorus out of the rivers. Agricultural practices are the source of other contaminants. Nobody knows quite how much this degrades the river, but the more we can stop the knocking down of banks and getting trees along the river banks, the more we can stop the manure and so forth washing into the river and upsetting the balance.⁴⁴

Mr Miners also described widespread problems with septic systems associated with scattered rural residential development in the Snowy River area, claiming:

... In particular, with some of the studies done in the alpine areas, because of the harsh conditions, they were getting 80 per

⁴³ Evidence of Mr Maloney, 2 April 1997, p 86

⁴⁴ Evidence of Mr Hood, 24 March 1997, pp 39-40

cent failure of septic systems on a fairly regular basis. So there is a fair danger.

The Snowy River Shire Council is acting on that at the moment. It has put a development freeze on rural residential developments in the whole of the Snowy River Shire area, I think for two years, and has set the Shire a two-year limit to develop a rural residential development plan.⁴⁵

7.3 The Riparian and Riverine Environment

7.3.1 Sedimentation Caused by Bank Erosion and Collapse

The de-vegetation of the riparian environment, interference with a river's natural flow regime, and allowing stock access to the water's edge can all contribute to bank erosion and collapse, sedimentation, and increased water turbidity. Sedimentation can reduce useable fish habitat by filling in pools and reducing river-bed variation. It can also affect fish reproduction by filling in the spaces between rocks and the like on the river-bed, which are used as rearing and habitat areas for juvenile fish, and smothering the adhesive eggs of species that use the river-bed for attachment, such as Murray cod⁴⁶. In extreme cases bank collapse and sedimentation can alter a water course.

A number of witnesses expressed concern at the widespread and serious nature of riparian degradation and the slow progress of remedial measures. For example, Mr Jonassen stated:

I believe that a lot of the decay of the river, particularly in the western streams, is due to the lowering and raising of the water level and to exposure of the banks so that the banks are

⁴⁵ Evidence of Mr Miners, 24 March 1997, p 47

⁴⁶ Kailola et al (1993). *Australian Fisheries Resources*, p 40

collapsing. I could go on and on regarding the abysmal state that our river systems in New South Wales are in.⁴⁷

Mr Hood noted:

Erosion and sedimentation are the second problem we have. The Snowy catchment was the only one mentioned in the Soil Conservation Act by name as a highly degraded catchment area. There was the Duncan report of 1989. Duncan, a soil conservationist in the area, did a very detailed report on the source of sediment and erosion in the area. Following on that, we have started works in the Corrowong area, and hopefully we can get into the Dalgety, Matong and Paupong area next, to try to alleviate some of those problems.⁴⁸

The Standing Committee inspected a number of degraded inland river systems and witnessed the physical consequences of altering flow regimes. The junction of the Bell and Macquarie rivers was perhaps the most graphic example, with the unregulated Bell River entering the Macquarie at high velocity during naturally high-flow periods while the regulated Macquarie is maintained at a relatively low level resulting in serious bank erosion.

The Standing Committee also inspected riparian crown land, under the management of the Department of Land and Water Conservation, which was leased to private individuals for grazing. When asked what the Department is doing to minimise this type of usage, both of private and crown land, in the future, Mr Wright replied:

... we are looking at an approach to management whereby we are trying to put in place buffer strips along the banks not to just to keep the cattle out but also to provide vegetative buffers where the phosphorous and other nutrients will not flow directly into the rivers and therefore further degrade water quality.

⁴⁷ Evidence of Mr Jonassen, 24 March 1997, p 6

⁴⁸ Evidence of Mr Hood, 24 March 1997, p 39

Once again, it would seem to me this applies equally to land which we might lease as Crown land or to privately owned land. I do not think there is any distinction made. ...

What has happened so far, we have done some trial works around New South Wales over about the last five years or so to actually look at the effectiveness of these. By restricting access or providing these buffer strips, you are asking land holders to remove some of their land from production for these. Prior to any wide scale use of these, we would really want to know how effective they are. We have put in demonstration works in various parts of New South Wales and they are being monitored to look at the effectiveness of them.⁴⁹

With respect to the leasing of land under the Department's management, Mr Wright stated:

It gives them, I guess, the same rights as a private land holder to manage their property. In some cases, presumably there are some environmental or some restrictions on what they can do. I am not qualified to comment on that. As far as I know, the same sorts of proposals with regard to buffer strips and the riverland corridor are in place for both private and Crown lands.⁵⁰

7.3.2 Desnagging

Semi-submerged rocky outcrops or dead trees that have fallen into a waterway, known as snags, are an important source of shelter, breeding sites, and protection from high water velocities for some native freshwater fish species, such as the Murray cod and river blackfish⁵¹. Redgum snags can provide fish habitat for several hundred years.

⁴⁹ Evidence of Mr Wright, 5 May 1997, pp 52-33

⁵⁰ Evidence of Mr Wright, 5 May 1997, p 53

⁵¹ Kailola et al (1993). *Australian Fisheries Resources*, p 41

Over a period of many decades, government agencies and individuals have removed hundreds of thousands of snags from large stretches of our inland rivers to improve water supplies, for navigation, and aesthetics⁵². The importance of snags to native fish has only recently been realised and government agencies are now running education campaigns on the issue, such as the Murray-Darling Basin Commission's 'Cod Love Snags' campaign.

A number of witnesses described the importance of public education in relation to the retention of snags for fish habitat, including Mr Davison who pointed out:

I am a [NSW Fisheries] habitat monitor, too, for the inland. That is another little job that somebody has got to have. I am dead against desnagging because you have got to have snags and logs to allow the fish to breed.⁵³

7.4 Introduced Species

7.4.1 Carp

Carp, a species native to Asia, were introduced into Victoria in the late 1950s as an ornamental fish and, through both accidental and deliberate releases, found their way into the Murray-Darling system in 1968/69⁵⁴. They have since become established throughout the Murray-Darling Basin and in some rivers of the eastern drainage.

Carp have a number of attributes that have assisted their spread throughout south-eastern Australia. They prefer warm, slow flowing waters but have a wider spawning temperature range than native species, are highly fecund, with a single female producing up to 1 million eggs, and are tolerant of high salinities and low oxygen concentrations⁵⁵.

⁵² Australian Conservation Foundation (1996). *Fish Out of Water*, p 7

⁵³ Evidence of Mr Davison, 25 March 1997, p 8

⁵⁴ Law (1980). "Fish and fisheries of New South Wales", *Fish and Fisheries*, p 138

⁵⁵ Kailola et al (1993). *Australian Fisheries Resources*, pp 214-215

While carp have been declared a noxious fish in most states including NSW, with prohibitions on returning them to the water, there is little scientific evidence of either negative or positive interactions with native fish species. It has been suggested that carp increase water turbidity through their practice of straining food material from the mud, and that they may reduce aquatic plant concentrations. It has also been suggested that carp utilise a food resource (benthic detritus) relatively unexploited by native fish and that juvenile carp are a significant forage species for predatory native species such as golden perch and Murray cod.⁵⁶

Regardless of this scientific ambiguity, fisheries managers throughout Australia have concentrated on the control of carp numbers and limiting their spread. The Standing Committee received evidence suggesting that carp populations have declined in recent years. For example, Mr Davison claimed that, while commercial fishers are still catching substantial numbers of carp:

The carp in our 5 per cent [of the State open to commercial fishing] have dropped off a lot to what they were. We were getting between 400 and 500 tonne a year. I have not done the figures lately for that, but our carp catch has gone down a lot now because they are not there. They are in pockets, but not everywhere like they were.⁵⁷

Mr Davison added:

They are a problem, but where we are fishing at the moment it is just a nuisance. The carp are still there. You can't keep taking out the amount of carp we have taken out of those sections of the river and not break their numbers down a little bit. High water and flood waters, every time it comes along, in the last couple of years, when we have been yabbing, the traps have been full of small carp, but they don't seem to be increasing. I could not get enough carp during the summer months to keep my yabby traps. I was getting the heads off fish

⁵⁶ See Kailola et al, pp. 214-216, and Law op cit, p 138

⁵⁷ Evidence of Mr Davison, 25 March 1997, p 5

and the backbones from one of the wholesalers at the border at Moama to keep up the bait because I could not catch enough.⁵⁸

When made aware of these comments, Dr Harris replied:

We commonly hear such comments. They tend to arise from areas in which commercial fishermen operate intensively. They also reflect cyclical changes that happen to a very high degree in freshwater fish populations, as they do in all fish populations, but cyclical fluctuation in freshwater fish is very marked, especially in Australia. There is certainly no problem with the supply of carp generally. We recently finished some experimental work in the Bogan River near Bourke. We estimated the total fish population in the reach of the river and came up with the very concerning result that on average, for the total surface area of the lower Bogan River, there is one carp for every square metre of river. Such figures reflect an immense problem with the development of the population of carp throughout our rivers.⁵⁹

Other comments made by Mr Davison supported the view that the degree of carp infestation is highly variable due to seasonal fluctuations:

Going back 14 or 15 years ago, our native fish catch went down when the carp got real bad, but now that the carp have dropped back our native fish are coming up. I am probably getting 10 to 20 native fish to a carp at the moment in the area that I am fishing. But that can turn around with different water temperatures and at different water levels.⁶⁰

Considerable state and Federal resources have been devoted to the study and control of carp. Dr Jane Roberts, Senior Research Scientist with CSIRO and Project Leader of the River and Wetlands Programme, stated:

⁵⁸ Evidence of Mr Davison, 25 March 1997, p 9

⁵⁹ Evidence of Dr Harris, 2 April 1997, pp 15-16

⁶⁰ Evidence of Mr Davison, 25 March 1997, p 14

In terms of controlling the fish, we certainly need to have an integrated strategy. I do not think we can rely on one kind of tactic that is going to work. In terms of what people can do at the moment to control the fish - for example, commercial harvesting or use of chemicals - I think these control mechanisms are wishful thinking, will not achieve anything, and will put us backwards.⁶¹

Dr Roberts also said that she did not support the large scale stocking of predatory native fish, such as Murray cod, as a control measure except as part of an integrated control strategy⁶², adding:

... An integrated strategy, to me, means including managing the rivers better and in a way that is more suitable for native fish. We may have to, as it were, give a kick-start to the whole process. My ideal would be that, after having given the whole system a kick start, it would be managed in such a way that it would maintain itself in a better condition than that in which it is maintaining itself now.

... A kick-start could be some kind of futuristic method of control. Now, the various futuristic methods that have been suggested have been pathogenic, immuno-contraception, genetic manipulation.

... There is a single virus that is a potential candidate. I would expect it not to be acceptable as a candidate, for various reasons, in its natural state.⁶³

Dr Glaister agreed with this assessment:

I do not believe that you can physically control carp with fishing and techniques like that. There have been suggestions of a fish equivalent of a calicivirus, but my feeling is that the virus that

⁶¹ Evidence of Dr Roberts, 25 March 1997, p 30

⁶² Evidence of Dr Roberts, 25 March 1997, p 30

⁶³ Evidence of Dr Roberts, 25 March 1997, pp 30-31

could do the job, the so-called spring viraemia virus, would have unknown impacts on native fish. So, on a decision to introduce something like that, I do not think we get agreement with all the States. ... The risk is too great.⁶⁴

When asked about the use of electro-fishing for carp control, Dr Glaister said:

Electro fishing is a useful research tool for sampling some waters. The down side is that the sub-lethal effects of electro fishing can adversely impact native species. In juvenile fish, for example, it causes a condition known as lordosis, which is a twisting of the spinal column, and that is at quite low doses. So willy-nilly use of electro fishing is not something I would support.⁶⁵

With respect to other control measures, Dr Glaister stated:

I think there has been some thought of biological control through breeding infertile carp and so on, but I think that we are going to be playing catch-up all the time. The best we can hope to do, I believe, is to improve the quality of the water of our inland rivers. I think that would do more to stop carp than any other technique.⁶⁶

Dr Glaister later added to these comments, reiterating the importance of habitat improvement as a way of controlling carp:

... the issue with carp is really about maintenance of water quality as much as anything. The carp seem to flourish in waters that are adversely impacted.

The Standing Committee on Fisheries, which is the peak body in Australia represented by each of the directors of fisheries in each of the States, has set up a carp coordinating group to look

⁶⁴ Evidence of Dr Glaister, 26 May 1997, p 67

⁶⁵ Evidence of Dr Glaister, 26 May 1997, p 95

⁶⁶ Evidence of Dr Glaister, 26 May 1997, p 67

at ways of tackling it, because it is multi-State; it goes across State borders. The consensus so far seems to be that limited physical harvest, combined with improving water quality, seems to be the likely way of tackling it. The use of gee-whiz things like viruses I do not think anyone will support. There may be some scope for bio manipulation of sterile animals, but, really, I think it is going to come down to long-term water quality issues.⁶⁷

Referring to the commercial harvesting of carp, Mr Davison stressed that recent low prices made it uneconomical, stating:

You can get rid of it if you want to give it away for 30 or 40 cents. I will put it into the market when the price is round the dollar. If it is under 80 cents, I feed it to the pelicans because it would not pay the freight, by the time you pay \$10 a box for new ice, refrigeration and so on. I have got to take it out of the nets, so I feed it to the birds, or use the lot for yabby bait.⁶⁸

Mr Davison was optimistic about the future demand for carp meat but warned that variable supply may pose problems in developing the market:

Our counterparts in South Australia are now doing a lot of work on this. At the trout summit at Renmark a couple of years ago everyone ate carp for a couple of days and did not know what they had eaten, because they had gone to a lot of trouble and made little fish patties and little rolls and all sorts of stuff out of it, and no-one was any the wiser. They are doing a lot of work on it down at Lake Alexander. One of the professionals has a restaurant there too. They are selling mainly carp. But they are experiencing the same problem; they are having trouble getting enough carp now. When they rang me before Christmas and wanted another 300 tonne of carp, I said, "We can't fill the orders."⁶⁹

⁶⁷ Evidence of Dr Glaister, 26 May 1997, p 95

⁶⁸ Evidence of Mr Davison, 25 March 1997, p 9

⁶⁹ Evidence of Mr Davison, 25 March 1997, pp 19-20

Other opportunities for the commercial exploitation of carp have been explored. Dr Glaister described some of these and their likely prospects:

I have spoken with Richard Saul, who is an entrepreneur in Tasmania, but formerly in New South Wales, who harvests shark and uses shark livers to extract oils. He is very involved in that line of business. I asked him to run a sample of carp to see if there was anything comparable in the carp. He said not, that they are a very low oil fish.

The Standing Committee understands that carp populations in some unregulated rivers constitute a considerably lower proportion of the fish population than in regulated rivers. The relatively natural conditions in such rivers allow native fish populations to control carp numbers. The Standing Committee considers that improving the overall habitat quality of our river systems will in itself play an important part in the management of introduced fish populations.

7.4.2 Trout

Salmonids were introduced into the alpine and sub-alpine waters of New South Wales late last century. Since then, they have been regularly restocked by both private organisations and NSW Fisheries due to high demand from anglers and their inability to reproduce in some locations. The salmonid species found in New South Wales are brown, rainbow, and brook trout and Atlantic salmon. The latter cannot reproduce naturally in New South Wales and is stocked only in Lake Jindabyne.

The State's major trout stocking program is conducted by NSW Fisheries. Approximately 1.3 million brown trout and 1 million rainbow trout are hatched from captured wild stock by the Gaden Trout Hatchery, near Jindabyne, which distributes the fry and fingerlings to the State's four acclimatisation societies and the Dutton Trout Hatchery, near Armidale, for release⁷⁰.

⁷⁰ Source: Gaden Trout Hatchery, *Brief to State Development Committee*, March 1997

Although the various species of trout in the alpine areas of the State are generally seen as a valuable angling resource and are actively stocked into these waters, it has been argued that their predatory nature may have had an adverse affect on native species. A major survey of scientific work into the effects of salmonids on Australian native fauna conducted by P L Cadwallader concluded that trout, through predation and/or competition for food and habitat, have had an adverse impact on the number and distribution of stream-dwelling galaxiids and are implicated in the demise of trout cod, Macquarie perch, Australian grayling and two species of pygmy perch⁷¹.

Speaking in relation to the possible displacement of native species by trout, Dr Harris stated:

That has certainly been an area of discussion for a long time, and I think the information has not always been good. Alpine areas over about 700 metres of altitude in nature had very few species native to them—commonly, there were eels and two or three small species of non-targeted fish. That is the environment in which the trout become most successful. They have certainly displaced the native species from much of that environment. The impact occurred up to 100 years ago, so it is pretty much an established situation. The impoundments are totally artificial environments... In those areas there is no longer an issue about biodiversity, it seems to me. Where an issue still remains is in the interchange where the alpine zone merges with the slope zone. There are threatened native species there, such as trout cod and Macquarie perch, specifically in the upper Murray and the upper Murrumbidgee rivers. Trout stocking in those rivers is an issue that needs to be carefully monitored, in my view.⁷²

Mr Miners, describing the fish species of the Snowy River prior to the release of trout last century, agreed that there was an absence of large predatory fish in the upper reaches, but claimed:

⁷¹ P L Cadwallader (1996). *Overview of the Impacts of Introduced Salmonids on Australian Native Fauna*, Australian Nature Conservation Agency, Sydney, pp 51-52

⁷² Evidence of Dr Harris, 2 April 1997, p 21

There were certainly remnants of blackfish populations. There are still blackfish populations in some of the other non-regulated rivers. The Delegate and Bombala systems have still got quite good populations of blackfish. They obviously co-existed with the trout since the early part of this century.⁷³

When questioned in relation to the continued stocking of trout, Dr Glaister stated that such stocking only occurs in waters that have previously been stocked with trout, including those in national parks. Referring to the scarcity of galaxids in waters stocked with trout, Dr Glaister said:

With the benefit of hindsight, stocking of exotics anywhere probably would not be a wise practice, but the fact that it was done 50 years ago or whenever it was to me indicates that there were interactions with native species that happened long ago and that [cessation of trout stocking] is not going to bring the galaxids back.⁷⁴

Other witnesses questioned the amount of public resources used in stocking trout. Mr Maloney said:

I agree entirely that a huge amount of money is being spent on trout, and for what reason I do not really know. Coming from a warm water area, perhaps our passion is with the native fish. A lot of our native species are under threat—fairly serious threat. We have seen the trout cod come back from almost extinction in the last few years. They are still not by any chance out of the woods but we are starting to see some of them in our waterways again after releases. I would very much like to see much more concentration on native species. The introduced species have been detrimental to our native species. Trout are very predatory fish.⁷⁵

⁷³ Evidence of Mr Miners, 24 March 1997, pp 54-55

⁷⁴ Evidence of Dr Glaister, 26 May 1997, p 86

⁷⁵ Evidence of Mr Maloney, 2 April 1997, p 83

Trout angling representatives argued that any displacement affects occurred many years ago and that many alpine habitats are now unsuitable for native species due to extensive regulation of these waterways, particularly in the Snowy Mountains area. Consequently, the stocking of trout in these areas should be continued so that local economies can benefit from tourism opportunities based on recreational trout angling. For example, Mr Hole stated:

There is no doubt that trout are here to stay. If you were to take them out, suddenly you would remove this huge pile of dollars from the recreational tourist industry, because in this part of the world and in the Armidale district of New South Wales trout are the main attraction. I mean, if you took trout out of New Zealand half of its economy would collapse.

Do they impact on native fauna? Yes. I mean, most fish are cannibals. Just because they are imported does not mean they eat harder or stronger. In fact, I would say that they have given huge enjoyment to mankind wherever they have been put in, and they have done less damage than any other species. ...

... I think I will finish by saying that, of course, the imported species that has done more damage than anyone else is the white Anglo-Saxon homo sapien.⁷⁶

7.4.3 Willows

Willows, introduced from England, have become a major problem through a large proportion of the inland drainages. Willows choke waterways, form a dense canopy preventing the formation of an understorey of shrubs, grasses and reeds, and, because they are deciduous, release their leaves (that is, organic input) into the water at once, rather than steadily throughout the year as do native tree species⁷⁷.

Mr Geary explained the reason for the initial introduction of willows as follows:

⁷⁶ Evidence of Mr Hole, 24 March 1997, p 32

⁷⁷ Kailola et al (1993). *Australian Fisheries Resources*, p 41

When willows were initially introduced, they were introduced to stabilise essentially the outside of river bends. The theory at the time was that we had only one sex in Australia and they would not breed.⁷⁸

Mr Hood described the spread of willows in the Snowy River area:

Until recently, all willows were spread by vegetative means. Now, through the introduction of willows from overseas, there are female willows as well as male willows, and they are now seeding. You get willow seeds coming down the stream, and that leads to a lot quicker spread of willows.⁷⁹

Mr Miners explained some of the difficulties experienced with the eradication of willows:

... one of the theories says that you start at the top of the catchment and you work all the way down, so that the areas you have treated lower down are not being re-infested from the top.

The difficulty with the Snowy is that it is such a big river, and its problems are now so large, that the idea adopted was to treat seeding willows first. It is a little bit like precautionary management. We are hoping that the Snowy River environmental flows issue will be resolved fairly shortly, but if it is not it would not be worth allowing those seeding willows to stay in the river for the next five to 10 years because of their ability to rapidly colonise. You could get a couple of hundred thousand willow seedlings coming up in a season, having devastating impacts on your river.

... Then you have got to go back ... and take out the problem willows. There I refer to the willows that are within the channel and diverting flows onto any of the banks, or that are causing

⁷⁸ Evidence of Mr Geary, 5 May 1997, pp 53-54

⁷⁹ Evidence of Mr Hood, 24 March 1997, p 40

major flow obstructions which compel the river to behave erratically under flow conditions, or increases the probably that the river will stop flowing in a dry time because of the willows drawing up a lot of water and forming small pondages, so that further downstream the river will be dry because the water is held back.⁸⁰

Mr Geary outlined what the Department of Land and Water Conservation was doing to eradicate willows:

... we are now looking at firstly monitoring campaigns to find the extent of the spread of willows and at eradication campaigns. That sort of stuff is being researched at the moment. The manuals and things that are produced for vegetative stabilisation of rivers now still mention willows but as an avenue of last resort where we cannot find a replacement native species to do the same thing and we are now researching native species to try and replace them.⁸¹

The Standing Committee considers that willows are major contributor to the degradation of the riparian environment. The eradication of willows would benefit a number of groups dependent on healthy river systems including landholders, recreational fishers, rural and regional communities. The Standing Committee believes that there is scope for these groups to contribute towards willow eradication and recommends:

Recommendation 23

That the Department of Land and Water Conservation expedite its river bank willow eradication programme with the financial and non-financial support of the programme's beneficiaries, including funds raised through a recreational licence fee.

⁸⁰ Evidence of Mr Miners, 24 March 1997, p 48

⁸¹ Evidence of Mr Geary, 5 May 1997, pp 53-54

7.5 Conclusion and Recommendations

The Standing Committee considers that there are a number of major factors contributing to the existing poor state of our inland fisheries including flow regulation, barriers to fish passage, and thermal pollution. The solutions to these problems are invariably expensive and the lack of scientific research into these factors makes it difficult to prioritise their relative impacts. Nevertheless, the Standing Committee considers that progress in this area is urgently required to maintain and restore the State's inland fisheries.

The Standing Committee considers that a pilot scheme conducted on a catchment-wide basis would allow a scientific evaluation of the most effective methods for improving inland fish stocks and the general environment. The Standing Committee believes that the Macquarie Valley would be the most suitable catchment for such a study because:

1. It is a heavily regulated river system with high rates of water extraction and is therefore representative of many of the State's inland rivers;
2. It contains relatively few barriers to fish migration, allowing the effects of water temperature and flow improvements to be measured while providing some opportunity for fishway experiments;
3. It has significant populations of introduced fish species against which the effects of water quality and habitat improvements could be measured;
4. NSW Fisheries is about to undertake a major feasibility study of installing a multi-level offtake at Burrendong Dam (the principal water storage in the valley) to reduce downstream cold water pollution;
5. The 1996 Macquarie Marshes Water Management Plan is in effect and aims to provide variable environmental flows to the marshes.

Accordingly, the Standing Committee recommends:

Recommendation 24

That NSW Fisheries, in cooperation with DLWC and the Murray Darling Basin Commission, develop and commence a pilot study in the Macquarie Valley with the specific goals of estimating the combined effects on native and introduced fish species of:

- **the partial restoration of the river's natural flow regime in accordance with the Macquarie Marshes Water Management Plan;**
- **the elimination of cold water pollution downstream of Burrendong Dam; and**
- **the removal of barriers to fish migration and the installation of fishways (in conjunction with the Fishways Program).**

The results of this pilot study should be used to determine the most effective methods of restoring inland fish habitats across New South Wales.

6 COASTAL AND ESTUARINE HABITAT MANAGEMENT

6.1 Introduction

Though resource allocation plays an important role in promoting the ecologically sustainable development of fisheries resources, restoration and preservation of habitat is a more fundamental factor in achieving sustainable fisheries. Resource allocation debates are becoming more acute and complex due to competition between growing user groups for dwindling fish stocks or the habitats that support them. While much time and resources are expended in determining equitable resource allocation outcomes, the impact on fish stocks due to accumulated habitat damage is often ignored.

The plight of fish stocks has often been described as the “tragedy of the commons” in that resource users have not been given an incentive to exploit or protect common property resources in a sustainable manner. However, the primary problem of declining fish stocks is habitat degradation rather than the common property nature of the resource. Governments have encountered difficulty in effectively regulating the intensity and diversity of activity in these fragile environments.

The tragedy of the ocean is not the tragedy of the commons, but the tragedy of overuse. Overuse may result from fragmented and ineffective ownership. Overuse may also result from short term profit taking by private owners. It is a red herring to link overuse to common ownership.²

The regulation of activities which have an impact on fish habitats is one of the primary mechanisms through which government can improve the quality and quantity of the resource.

¹ For further information on coastal management legislation refer to Stewart Smith, Parliamentary Research Service Briefing Papers 4/95, 34/95, 25/96, 5/97 and 9/97.

² S S Hanna (1990). “The Eighteenth Century English Commons: A Model for Ocean Management”, *Ocean and Shoreline Management* 14, pp 155-172

Mr Stan Moberly, US fisheries expert, has argued:

The greatest threat to the resource is not over harvesting or competition amongst fishermen; it is the loss of habitat, and pollution! Human population growth, ignorance, poverty, irresponsible land activities and developmental practices have endangered water resources and destroyed habitat essential for sustainable aquatic resources.³

6.2 The Condition of Fish Habitat in New South Wales

Worldwide, coastal and estuarine habitats play a central role in the life cycles of many fish species. These areas receive nutrient run-off from the adjacent land and provide sheltered fish breeding and nursery areas.

Australia, with its relatively nutrient poor oceans, is particularly dependent on coastal and estuarine habitats. New South Wales is especially reliant on its estuaries, which act as nutrient "sinks" supporting substantial stocks of adult and juvenile fish which supply the commercial and recreational fisheries.

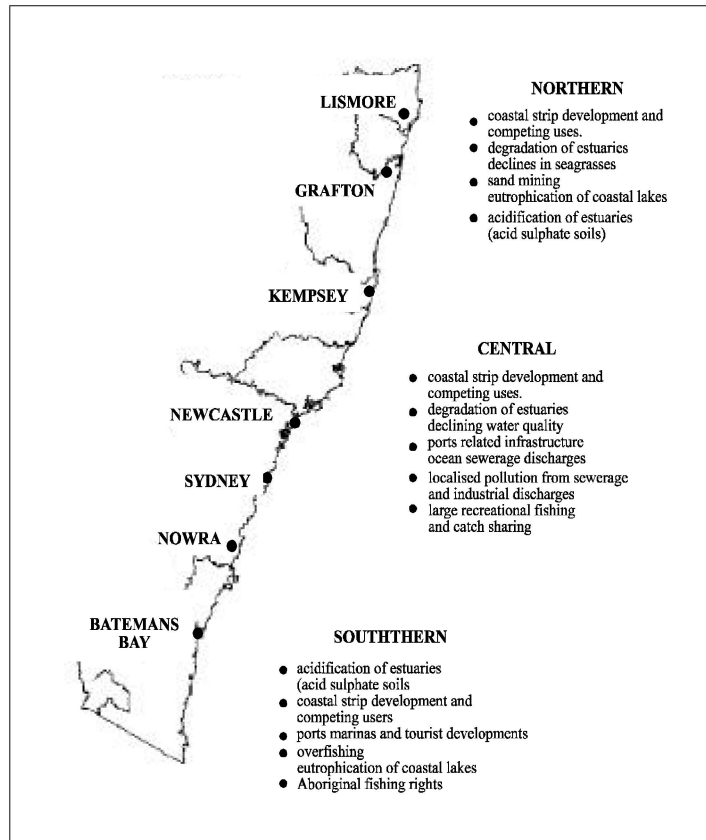
In NSW 75 per cent of the population lives in the coastal zone.⁴ Policies intended to promote sustainable fisheries must effectively manage population pressure and the effects of development to maintain the health of the habitat on which fish depend.

The relationship between population density and habitat degradation is evident in Figure 6.1.

³ S J Moberley (1992). "Habitat is where it's at! It's more fun to fight over more fish than less fish", *Key note address, Sustainable Fisheries Through Sustaining Fish Habitat, Proceedings of Australian Society for Fish Biologists Workshop*, Department of Primary Industries and Energy, D A Hancock (Ed), p 4

⁴ NSW Government (1992). *Estuary Management Manual*, New South Wales Government, Sydney, p 27

Figure 6.1 - Impacts on the NSW Coastal Zone ⁵



Factors that have contributed to the loss of coastal and estuarine habitat in New South Wales include:

- shoreline development;
- dredging and drainage schemes;

⁵ Adapted from L P Zann (1995), *Our Sea Our Future, Major Findings of the State of the Marine Environment Report for Australia*, Department of Environment, Sport and Territories, Canberra, p 73

- changes in salinity due to altered river flows and artificial opening of lakes and estuaries to the sea;
- eutrophication (fertilisers and sewerage);
- sediment deposition as a result of poor land use;
- impact from fishing methods (trawling and dredging);
- contaminants (for example, heavy metals and hydrocarbons); and
- introduction and translocation of exotic species.

The health of the aquatic environment adjacent to many urban and industrial areas is generally regarded as poor.⁶ Mr Michael Geary, Manager - Coastal and Flood Plain Riverine Resources, Department of Land and Water Conservation (DLWC), told the Standing Committee:

We have done the worst things to our estuaries. We have filled them and drained them, either for industry, urban development, and most significantly for agriculture, so we have made a massive change to the natural processes of our estuarine ecosystems over the past hundred years.

In the last 20 or 30 years a lot of legislation has been brought in to constrain adverse impact, probably not enough in many peoples' eyes but more than used to exist. Going back 20 years, coastal wetlands were regarded as swamps, which were used for tips and there was Government funding provided so that they could be, "usefully farmed". That sort of attitude no longer prevails. Legislation no longer allows that.

The biggest impact has already happened. We are now in an era of trying to hold the status quo in terms of impacts and starting to invest in physical restoration. I think we

⁶ Zann (1995). *Our Sea, Our Future, Major Findings of the State of the Marine Environment Report for Australia*, p 12

physically lost 50 per cent of our coastal wetlands. We are in an area where we have to physically replace them.⁷

6.3 Federal, State and Local Jurisdictions

Administration of the coastal zone is divided between Commonwealth, State and local governments. States have jurisdiction from the high water mark out to three nautical miles from shore. In practice, the states delegate much of the administrative responsibility for the area between the high and low water marks to local government. It is this zone that is most heavily impacted by land use decisions. The Commonwealth has sole territorial responsibility for the area between three and 200 nautical miles from shore. The Commonwealth may also influence marine and coastal zone activities under s.51 of the Australian Constitution. Federal financial grants, such as those used to fund the Ocean Rescue 2000 programme and the National Land Care Programme, are made under s.96 of the constitution.

6.4 Coastal Zone Administration

The Commonwealth exercises control over its coastal zone jurisdictions through 26 agencies. The New South Wales Government maintains a further 18 authorities, administering over 60 Acts, involved in coastal zone management, although day to day administration is often in the hands of local government.⁸

There have been 29 major state and Commonwealth inquiries into the coastal zone between 1980 and 1992, including two reports by the Standing Committee on State Development in 1991 and 1992.⁹ More recently, Commonwealth and State governments have released the following reports.

⁷ Evidence of Mr Geary, 5 May 1977, p 59

⁸ Coastal Committee of New South Wales (1994). *Draft Revised Coastal Policy for NSW*, p 3

⁹ J Woodford (29 May 1995). "\$53m Plan to Care for the Nation's Coastline", *Sydney Morning Herald*, p 5

- 1993 Commonwealth of Australia - Resource Assessment Commission - *Coastal Zone Inquiry*, including 20 consultancy reports to the Commission.
- 1994 NSW Government- *Draft Revised Coastal Policy for NSW as Proposed by the Coastal Committee of NSW*.
- 1995 Commonwealth of Australia - State of the Marine Environment Report for Australia.
- 1995 Commonwealth of Australia - Living on the Coast. The Commonwealth Coastal Policy.

A common criticism of these inquiries is the lack of coordination among the public authorities charged with regulating coastal zone development and protection. For example, the Commonwealth Resource Assessment Commission's 1993 report made the following conclusions in regard to current coastal zone management:

- There remains a plethora of acts affecting coastal zone management, mostly reflecting the traditional sectoral approach to such management.
- Whilst there have been improvements in the level of coordination among the large number of institutions involved in coastal management, coordination and integration between institutions remains inadequate.
- Management and use of resources spanning marine and terrestrial areas is particularly impeded by a lack of integration and coordination of management systems.
- Existing systems do not provide for effective long term management of coastal zone resources.
- Developmental approval procedures are complex, time consuming and often sequential rather than concurrent, making them costly for applicants and governments.

- Although some Commonwealth, State and Local Government agencies have developed policies to achieve coastal zone management objectives, the policies and objectives are often not implemented and they are rarely integrated with social, economic and environmental goals.¹⁰

Despite repeated calls for coastal policy reform, governments at all levels have shown a reluctance to implement such wide ranging and complex recommendations. The Standing Committee on State Development has itself been frustrated in this way in relation to the Government's response to its 1991 *Report on Coastal Planning and Management in New South Wales: A Framework for the Future, Volume 1*. The Standing Committee wrote in 1992:

... the Committee is disappointed to conclude that, for a number of reasons, the Governments response is both less than adequate and inappropriate... Specifically, the response is inadequate in that several critical aspects of the Committee's report were completely ignored and were not commented upon.¹¹

The Standing Committee subsequently received a more comprehensive response in the form of "New South Wales, Facing the World", a document which outlined Government environmental policies.¹²

The Standing Committee considers the present lack of defined coastal policy to be detrimental to fish habitat and recommends:

Recommendation 17

¹⁰ Resource Assessment Commission (1993). *Coastal Zone Inquiry: Final Report*, AGPS, Canberra, p 84

¹¹ Standing Committee on State Development (1992). *Coastal Planning and Management in NSW: the Process for the Future*, Vol 2, Legislative Council of NSW, Sydney, p 201

¹² NSW Government (April 1992). *New South Wales Facing the World*, Policy Statement, Sydney

That the Government release its Coastal Policy without further delay.

6.5 Major Habitat Protection Legislation in New South Wales

There are four primary pieces of New South Wales legislation which are concerned with the protection of fish habitat. These are the *Catchment Management Act 1989*, the *Environmental Planning and Assessment Act 1979*, the *Marine Parks Act 1997* and the *Fisheries Management Act 1994*.

6.5.1 The *Catchment Management Act 1989*

The *Catchment Management Act 1989* relates to estuaries, rivers and their tributaries. The aim of the Act is to provide for a more holistic approach to land use management through Total Catchment Management. Total Catchment Management is defined as the coordinated and sustainable use and management of land, water, vegetation and other natural resources on a water catchment basis which balances resource utilisation and conservation. Section 5(1) contains the objectives of the Act as follows:

- to co-ordinate policies, programs and activities as they relate to catchment management;
- to achieve active community participation in natural resource management;
- to identify and rectify natural resource s degradation;
- to promote the sustainable uses of natural resources; and
- to provide stable and productive soil, high water quality and protective and productive vegetation cover within each of the State's water catchments.

The Act provides for a network of Catchment Management Committees and Catchment Management Trusts which are overseen by a State Co-ordinating Committee.

The New South Wales Government has formulated four State policies within the framework of Total Catchment Management. These include a State Ground Water Policy, State Trees Policy and a Rivers and Estuaries Policy.

The objectives of the Rivers and Estuaries Policy are:

To manage the rivers and estuaries of New South Wales in ways which:

- slow, halt or reverse the overall rate of degradation in their systems;
- ensure the long term sustainability of their essential biophysical functions; and
- maintain the beneficial use of these resources.

These objectives are to be achieved through the application of the following principles:

- those uses of rivers and estuaries which are non-degrading should be encouraged;
- non-sustainable uses which are not essential should be progressively phased out;
- environmentally degrading processes and practices should be replaced with more efficient and less degrading alternatives;
- environmentally degraded areas should be rehabilitated and their biophysical functions restored;
- remnant areas of significant environmental value should be accorded special protection; and
- an ethos for the sustainable management of river and estuarine resources should be encouraged in all

agencies and individuals who own, manage or use those resources, and its practical application enabled.¹³

6.5.2 *Environmental Planning and Assessment Act 1979*

Coastal development is controlled through the *Environmental Planning and Assessment Act 1979*. Planning instruments of this Act include:

- State Environmental Planning Policies (SEPPs)
- Regional Environmental Plans (REPs)
- Local Environmental Plans (LEPs)

SEPPs and REPs are initiated by State Government instrumentalities and provide a framework for local governments to prepare LEPs. LEPs outline the zoning boundaries for different types of land use. Local governments are therefore major participants in the environmental management of the State. The two planning instruments most applicable to the coastal zone are SEPP 14 - Coastal Wetlands and SEPP 26 - Littoral Rainforests.

A number of witnesses were critical of the ability of local governments to effectively and responsibly manage coastal development. The “tyranny of small decisions” has been cited as one of the primary factors responsible for the present inadequate management of coastal and estuarine habitats. For example, Mr Jeff Angel, Director of the Total Environment Centre, questioned the ability of local governments to implement responsible environmental planning. Mr Angel stated:

... it is no good giving local councils with low skill levels, low resource levels and frankly often a culture that is more disposed towards local development than strict environment controls, important pollution control activities—and in the case of Wallis Lake it was septic tanks. It is probably worth noting in passing that the new

¹³ NSW Water Resource Council (1993). *The NSW State Rivers and Estuaries Policy*, NSW Government, p 45

protection of the environment operations legislation just released by the Government only reinforces that problem by giving more environmental regulatory roles to local government, which, frankly, will not be capable of implementing it to any level of adequacy.¹⁴

6.5.3 *Fisheries Management Act 1994*

The passage of the *Fisheries Management Act 1994* introduced significant new provisions for the maintenance and protection of aquatic habitats. The objects of the Act, listed in s. 3(2) include a commitment:

- to conserve fish stocks and protect key fish habitats; and
- to promote ecologically sustainable development.

The primary provisions for the protection of coastal and estuarine habitat are contained in Part 7 - Protection of Aquatic Habitats (see section 3.2.7 of this Report), which encompasses the preparation and implementation of Habitat Protection Plans (HPP), the protection of marine vegetation and the declaration of aquatic reserves. Habitat Protection Plans set out guidelines for activities and practices within the area covered by the plan, "whether the habitat is critical to the survival of the species or required to maintain harvestable populations of the species".¹⁵

HPP 1 was gazetted on 10 March 1995. This plan provides greater protection for marine habitat by ensuring that individuals who wish to reclaim fish habitat, remove snags, destroy marine vegetation or create a new structure or modify a structure that impedes fish passage must seek a permit from NSW Fisheries. A second HPP (gazetted 26 September 1997) has been developed specifically for seagrasses, with a third, jointly funded by the Nepean Catchment Management Trust, being drafted for the Hawksbury-Nepean River system.

¹⁴ Evidence of Mr Angel, 2 April 1997, p 60

¹⁵ *Fisheries Management Act 1994*, s. 192(1)

There are no penalties associated with breaches of HPP guidelines, although public authorities have a statutory obligation to consult with the Minister before carrying out or approving any actions contrary to a HPP under s. 193(3) of the Act.

The Standing Committee heard that a lack of funding to implement the habitat protection provisions of the *Fisheries Management Act 1994* has rendered them ineffective.

For example, Duncan Leadbitter, Executive Director of Oceanwatch, commented:

Most of the damage that was done to flood plains was done long before the Fisheries Management Act even recognised environmental management as an issue. The advent of the habitat protection provisions under the previous Act, and increasingly so under the new Act, have slowed the rate of degradation. I acknowledge that. There has been very little pull back and very little gain of habitat. There are a number of reasons. First, it is relatively recent that we have legislative power to go out and do that. Second is the lack of funds. Third, there is still some jockeying between agencies as to who has the power. For years Fisheries was steamrolled over by agencies such as Public Works and the Water Resources Commission in its various forms. There is still not a strong enough constituency out there to chivvy Fisheries along. They are not as pro-active as they could be, largely due to the small size of the habitat section and the main focus being on the resolving of fisheries management issues.¹⁶

The *Fisheries Management Act 1994* has also been criticised for making the Department responsible for both habitat protection and the management of resource exploitation. For example, Mr Angel stated:

It is our view that additions should be made to the Act so that accountability is improved and a coherent management

¹⁶ Evidence of Mr Leadbitter, 3 April 1997, pp 68-69

system can be put into place. Further there is a clear need to improve the capacity of the Department of Fisheries. In this regard it will be important to separate the conservation and economic exploitation aspects of the fisheries agency. Past experience, for example, shows that these two duties cannot be placed in the one agency as economic factors inevitably degrade delivery of environmental regulation.¹⁷

The Department's conservation and resource management roles may be separated to some degree through the formation of the NSW Fisheries Office of Conservation. The Office of Conservation has a staff of twelve, including five field officers, six field managers and the principal manager, Dr Darryl Grey. Dr Glaister outlined the role of the Office of Conservation as follows:

The most recent change has been the creation of the Office of Conservation, which will bring together all of the Department's activities concerned with the area of conservation. This has been a quite deliberate decision to highlight the importance that is placed on conservation issues. Paul O'Connor is acting in that capacity as head of that unit at the moment. It includes elements of research, management, compliance and information. It has, in addition to the identified areas of conservation, in particular, rivers and coastal, also the responsibility for threatened species, marine parks and some other recent innovations. It is primarily to act as a renewed area of interest for us.¹⁸

6.5.4 Marine Parks Act 1997

Prior to the introduction of the *Marine Parks Act 1997*, marine protected areas were declared under the *Fisheries Management Act 1994* or the *National Parks and Wildlife Act 1974*. This crossover of responsibilities led to some confusion and exposed deficiencies in the legislation relating to the protection of all marine

¹⁷ Submission 74, Total Environment Centre, p 1

¹⁸ Evidence of Dr Glaister, 19 May 1997, p 4

life. The previous legislative arrangements were also criticised for failing to provide a transparent process for the identification of marine reserves which combine marine and terrestrial activities.

The objects of the *Marine Parks Act 1997* are outlined in s.3 as follows:

- (a) to conserve marine biological diversity and marine habitats by declaring and providing for the management of a comprehensive system of marine parks,
- (b) to maintain ecological processes in marine parks,
- (c) where consistent with the preceding objects:
 - (i) to provide for the ecologically sustainable use of fish (including commercial and recreational fishing) and marine vegetation in marine parks, and
 - (ii) to provide opportunities for public appreciation, understanding and enjoyment of marine parks.

Part 3 of the Act provides for the regulation of activities in a marine park. Marine Parks are to be established following the multiple zone model. Under s. 16(1):

The regulations may make provision for or with respect to classifying areas within a marine park for different uses (for example, sanctuary areas, habitat areas and general use areas) by a means of zoning plans set out in the regulations.

The largest of the zones in each of the Parks will be the “general use zone” in which a broad range of ecologically sustainable activities will be permitted. Only the sanctuary zones, which represent a small proportion of the total area declared, will exclude all fishing activity.¹⁹

¹⁹ NSW NPWS (1997). *Marine Parks Information Booklet*, NSW National Parks and Wildlife Service, Sydney, p 2

Sections 17, 18 and 19 provide for the regulation of various activities within marine parks, including commercial activities, navigation and the use of marine vessels, where vessels may be moored or anchored, mining activities, the carrying out of development, and the fees payable in respect of the use of a marine park.

Section 29 establishes the Marine Parks Authority, consisting of the Director General of the Premiers Department as chairman, the Director of Fisheries and the Director General of the NSW National Parks and Wildlife service. The functions of the Authority are described in s.30 as follows:

- (a) to investigate, assess and consider proposals for marine parks or variations for the areas of marine parks,
- (b) to make recommendations as to the appropriate classification of areas within marine parks,
- (c) to prepare an operational plan in respect of each marine park,
- (d) to manage and control activities that may affect marine biological diversity, marine habitats and marine ecological processes in marine parks,
- (e) to provide for and regulate the ecologically sustainable use (including commercial and recreational fishing) of marine parks,
- (f) to disseminate information about marine parks,
- (g) to encourage public appreciation, understanding and enjoyment and, where consistent with the other functions of the Authority, public recreation in marine parks,
- (h) to encourage and permit, when appropriate, scientific research into the ecology of marine systems.

The Act provides for consultation on two levels: at the State level through a Marine Park Advisory Council and at a local level through Advisory Committees established for each park. In accordance with s. 32(2), the Marine Park Advisory Council consists of the director of Fisheries, the Director General of the National Parks and Wildlife Service and the following members appointed from public nominations by the relevant Ministers:

- (a) one member representing the Commonwealth Government,
- (b) two members to represent the interests of marine conservation, at least one being an expert in marine conservation,
- (c) one member with expertise in marine science,
- (d) one member to represent the interests of aboriginal people,
- (e) one member to represent the interests of the tourism industry,
- (f) one member to represent the interest of the commercial fishers,
- (g) one member to represent the interests of recreational fishers, and
- (h) one member to represent the interests of recreational divers.

The Advisory Council is, on the request of the relevant Ministers or the Authority, to advise on any of the following matters:

- (a) proposals for marine parks and variations of the areas of marine parks;
- (b) the appropriate classification of areas within marine parks;

- (c) the conservation of marine and biological diversity within marine parks;
- (d) the ecologically sustainable use of marine parks;
- (e) the public use and enjoyment of marine parks; and
- (f) any other matter relating to the operation of this Act and the regulations.

Section 35 requires the establishment of Marine Parks Advisory Committees as follows:

- (1) The Authority must establish an advisory committee for each marine park.
- (2) An advisory committee is to include at least 9 members representing the interests of the national parks and wildlife service, NSW Fisheries, marine conservation, Aboriginal people, the tourism industry, commercial fishers, recreational fishers, scuba divers and local councils.
- (3) The Authority is to nominate a member of an advisory committee to be the chairperson of the advisory committee
- (4) The principal function of an advisory committee is to advise the Authority on the management of the marine park or marine park for which it was established.

The declaration of marine protected areas is an integral part of the New South Wales Government's strategy to protect sensitive fish habitat. There are presently 22 marine protected areas in the State's waters, including seven aquatic reserves established under the *Fisheries Management Act 1994*, 14 terrestrial national parks and nature reserves with estuarine or marine components established under the *National Parks and Wildlife Act 1974*, and

two marine parks established under the *Marine Parks Act 1997*.²⁰ The Minister announced on 8 August 1997 that the Cook Island Aquatic Reserve would also be declared.

The *Marine Parks Act 1997* has been criticised for not containing stronger provisions regarding zoning arrangements and its failure to include compensation mechanisms for commercial fishers for the declaration of a Marine Park. For example, the Hon Ian Cohen stated, during the second reading of the Marine Parks Bill in the Legislative Council:

The Bill does not identify clearly what will be allowable within a marine Park or the criteria of each zone, providing certainty to neither commercial fishers nor the conservationists. The Bill does not identify adequate investigation of the compensation for commercial fishers - a vexed problem that both the conservation movement and the commercial fishing fraternity have been seeking to solve.²¹

6.6 Departmental Responsibilities

There are numerous New South Wales Government Departments and Agencies that have some responsibility for the coastal zone. These include the Department of Public Works, NSW Agriculture, the Department of Mineral Resources, the Department of Land and Water Conservation, the Soil Conservation Service, the Environment Protection Authority and the National Parks and Wildlife Service. This section of the report will examine the key pieces of legislation which govern the activities of the above agencies, to assess the effectiveness of the current legislative mechanisms in managing estuarine and coastal habitats. The coordination of the habitat protection functions or responsibilities of all these agencies has long been a difficult proposition.

²⁰ J Burchmore, D Pollard, (1995). *Marine Conservation and Marine Protected Areas in NSW, the Past 25 Years*, State of the Marine Environment Report for Australia, Technical Annex.

²¹ I Cohen (25 June 1997). *Second Reading of the Marine Parks Bill 25/6/97*, Hansard, p 11144

In an attempt to coordinate State agencies, the Coastal Council of NSW was constituted under the *Coastal Protection Act* in 1979. The function of the Council was to advise and report to the Minister on the coordination of the activities of Government Authorities and the development of new coastal policies. The term of Council members was not extended beyond 1985. In October 1988 the Council was re-established as the Coastal Committee under s. 22 of the *Environmental Planning and Assessment Act 1979*. The Coastal Committee was then reformed in 1995 as the Coastal Council. Stewart Smith, Parliamentary Research Officer, wrote in his review of NSW coastal policy:

It appears that the current direction of coastal management is cyclical rather than moving forward. The State coastal advisory body, the Coastal Council of NSW, disbanded and then renamed the NSW Coastal Committee, and now again reformed as the Coastal Council is a good example.²²

The Department of Land and Water Conservation has acknowledged the need for a more integrated legislative approach to habitat management. Mr Geary stated:

I believe that the habitat management and water quality management, certainly of the coastal zone, needs to be in some form or another integrated. ... There is water quality legislation, rivers and foreshores legislation about banks and so on. There is a vast raft of legislation which controls what people can and cannot do in and around the coastal zone and waterways. At the moment that legislation is not integrated. There is no good tool for bringing it all together at the present moment.²³

6.6.1 Estuary Management Plans

²² S Smith (1995). *Coastal Protection*, NSW Parliamentary Library Research Service, Sydney, p 24

²³ Evidence of Mr Geary, 5 May 1997, p 57

Estuary management plans are being developed as part of the Government's estuary management policy. Estuary Management Committees, consisting of representatives of relevant authorities, local community groups and users of the estuary, have been set up to formulate the Estuary Management Plans and provide a link between the Department of Land and Water Conservation and the local community. The Department of Land and Water Conservation provides Estuary Management Committees with technical expertise and advice on biological and policy considerations.²⁴

During the formulation of an Estuary Management Plan, government agencies and community groups with commercial, ecological or other interests in the estuary, will be able to present their preferences and requirements for the future conservation, rehabilitation, development and use of the estuary to the Estuary Management Committee. The Estuary Management Committee will then determine a list of management recommendations and objectives to be implemented by local government, State Government and community groups.

6.6.2 Coordination of Coastal Policy.

A lack of integration and coordination of coastal policy between government agencies has long been a major problem for habitat protection in New South Wales. The Standing Committee wrote in 1991:

The difficulty of coordinating formally autonomous but functionally interdependent organisations constitutes a major obstacle to the implementation of policy and related strategy.²⁵

The Standing Committee recommended in the same report:

... that the State Government establish an agency, to be called the State Coordination Agency, vested in the

²⁴ New South Wales Government, *Estuary Management Manual*, October 1992

²⁵ Standing Committee on State Development (1991). *Coastal Planning and Management in New South Wales: A Framework for the Future*, Vol 1, Legislative Council of NSW, Sydney, p 57

Premier, to facilitate coordination between government agencies.²⁶

Referring to this lack of coordination, Dr David Pollard, habitat researcher and manager, NSW Fisheries, wrote in 1992:

... the management of "fish" and their habitats in most areas of the marine/estuarine system involves the piecemeal management (sometimes successful but often not) of individual species, stocks, habitats and uses, carried out by a plethora of different and often competing management authorities, each often working within in its own narrow and conflicting legislative and jurisdictional framework. While this is obviously an improvement over the previously unmanaged state, in my view this approach cannot hope to assure the maintenance of biodiversity, and thus equity of use, in the longer term. What I therefore suggest is needed is a much more holistic approach to aquatic ecosystem management.²⁷

The Standing Committee received evidence supporting this approach. In evidence, Mr Angel stated:

It would be sensible to treat the natural environment, at least in the higher order regulatory functions like pollution and threatened species, as one system, which is what it really is. It is one system that you must devote regulatory resources to resolve some of the critical problems that are essentially canary warnings. Yes, we never actually

²⁶ Standing Committee on State Development (1991). *Coastal Planning and Management in New South Wales: A Framework for the Future*, Vol 1, p 58

²⁷ D A Pollard (1992). "Maximising the potential for both sustainable fisheries and alternative uses of fish habitat through marine harvest refugia", *Sustaining Fisheries Through Sustaining Fish Habitat. Proceedings of Australian Society for Fish Biologists Workshop*, D A Hancock (ed), Department of Primary Industries and Energy, Canberra, p 157

believed that the Fisheries Management Act of necessity only required one agency's effort.²⁸

Determining a lead agency under which estuarine and coastal management can be coordinated has been suggested as a possible means of improving the coordination between regulatory authorities.

Mr Geary agreed, provided that care was taken in the choice of the lead agency:

When you get down to agencies, I think in terms of the natural resource players, you probably need an agency that has not got a particular industry agenda to pursue. Provided in each location you pick one who is not going to represent a high profile interest of a particular industry group or community group, it almost does not matter which one it is as long as it is competent.

That agenda issue needs to be watched very carefully because a lot of agencies certainly have the government as their primary client and they represent the government, but they also, on the other hand, represent the interests of an industry within government. It is that element that can be dangerous.²⁹

Mr Geoffrey Wright, Acting Director of Water Resources, Department of Land and Water Conservation, added:

I just make the comment that I think equally important in any legislation that was developed a clear definition of the roles of various agencies. One of things that we suffer from, not just on the coastal areas but right across New South Wales, is the lack of clarity into the various roles of say EPA which one might think is an environmental policeman. However, it does get involved in resource

²⁸ Evidence of Mr Angel, 2 April 1997, p 62

²⁹ Evidence of Mr Geary, 5 May 1997, p 61

management issues which one would have thought Land Conservation might be primarily interested in, and it is. But at the edges there are some very grey areas and the legislation, I think, would need and presumably would make very clear where the boundaries were so that with each agency, there could be some way of arbitrating as to which agency should have responsibility in a particular case. I think that is at least as important as picking a lead agency.³⁰

Habitat management of the NSW coastal environment is shaped by the political, legislative and administrative overlap of interest and responsibilities between NSW Government agencies. The Standing Committee considers that the continuing decline in the condition of coastal and estuarine habitats indicates that the present habitat protection mechanisms should be reviewed. The Standing Committee recommends:

Recommendation 18

- 1) **The Office of Natural Resources and Policy review, as a priority, all natural resource legislation relating to integrated land and water management and development in the coastal zone.**
- 2) **The performance measures for the review shall be:**
 - a) **to rationalise, simplify and strengthen the legislative framework (60 Acts) which currently manage NSW Coastal zone.**
 - b) **the creation of clear and accountable lines of responsibility and management of coastal resources by state agencies.**
 - c) **a clear separation of the roles of resource management, resource use or extraction regulation, and the monitoring and reporting of the State of NSW coastal resources.**

³⁰ Evidence of Mr Geary, 5 May 1997, p 61

- d) **provision for a compulsory mechanism whereby agencies share and consult in a strategic manner regarding decisions which affect natural resources in the coastal zone.**
- 3) **That the coastal resources review be implemented in this calendar year and report back to Government by June 1998.**

6.7 Urban Marine Parks

In response to concern over an increase in the use of the intertidal areas bordering urban areas, 14 Intertidal Protected Areas (IPAs) have been created by regulation around Sydney. They extend from the mean high water mark to 10 metres beyond the mean low water mark. These areas have been chosen to preserve and protect intertidal animals and habitat and act as reservoirs to repopulate other areas.

Interest has been expressed in an extension of this policy in order to create Urban Marine Parks to protect the urban marine environment and provide a sense of awareness of the importance of marine conservation in the more populous areas along the NSW coast. For example, Mr Howie Cooke, Secretary of Ocean S, argued:

I am coming from a people's value point of view in marine conservation, anthropomorphic or an urban social point of view. If the community is to be involved in marine conservation, all users within the community deserve representation. I think the community will resist participation if it does not have a sense of ownership, stewardship and an understanding of marine environment. The current Fisheries policy of bioregional strategies is a good one to protect significant habitats, but if people feel isolated or alienated from those strategies because, in a lot of cases, they are offshore or away from dense urban areas, they do not feel they are in a position to contribute or participate.³¹

³¹ Evidence of Mr Cooke, 3 April 1997, p 44

NSW Fisheries does not support the establishment of urban marine parks without good scientific justification. Dr Glaister stated:

There is a lot of interest along the coast to establish marine reserves, intertidal protected areas—a whole bunch of generic marine protected areas. I think it is fair to say that in the past a number of these have been declared for other than biological reasons. People have said that there has been an unacceptable impact by non-resident gatherers. People from western Sydney and other places have harvested resources from areas around Sydney. Local government councils have been very sensitive to that and have said that they wanted an area protected—presumably for biological reasons but really to act as a deterrent and to be able to stop people doing that. My view is that the more of those that are set up without good justification the more the activities will be concentrated in fewer and fewer areas. It is a mistake to declare things without having a solid foundation on which to declare them. Biodiversity is certainly worth protecting and it is appropriate to protect unique areas and I am very supportive of that.

... I have asked my researchers to provide a series of criteria that might be used to identify areas that need that kind of protection. But with increasing population it is a challenge. Many areas previously were declared with criteria as loosely based as, "There are a lot of flora and fauna in this area." It was not specifically stated what and why.³²

6.8 Protection of the Environment Operations Bill 1996

The Protection of the Environment Operations Bill 1996 proposes to update or replace the *Clean Air Act 1961*, *Clean Waters Act 1970*, *Pollution Control Act 1970*, *Noise Control Act 1975*, and the *Environmental Offences and Penalties Act 1989*. The NSW Government released a draft exposure bill in December

³² Evidence of Dr Glaister, 7 July 1997, p 29

1996 in recognition of the need to consolidate and improve the present legislation. The associated Green Paper stated:

The major pollution control laws in NSW are up to thirty five years old. Parliament passed each of these Acts separately in response to then pressing environmental issues. Although the Acts met the environmental needs of their day, they now form an overlapping and often confusing network of responsibilities and requirements .

... The proposed Protection of the Environment Operations Bill will, when it is enacted by Parliament, be the pivotal legislative mechanism for reducing pollution and protecting the environment in NSW.³³

The Green Paper also stated:

Under the existing legislation the pollution control licensing scheme does not provide a comprehensive system of integrated environment protection. The requirements relating to each media - air, noise, water and waste - are spread across five acts, with offences and penalties set out in the sixth.

... The draft Bill shifts the emphasis away from the existing water legislation's 'licence to pollute' towards environmental protection licensing that controls and minimises the combined environmental impacts of activities.³⁴

The Bill has the following objects:

³³ NSW Government Green Paper (1996). *Protection of the Environment Operations Bill 1996, Public Discussion Paper*, NSW Government, Sydney, p 1

³⁴ NSW Government Green Paper (1996). *Protection of the Environment Operations Bill 1996, Public Discussion Paper*, p 10

- (a) to rationalise, simplify and strengthen the regulatory framework for environment protection;
- (b) to improve the efficiency of administration of the environment protection legislation
- (c) to provide mechanisms to protect the environment, consistently with the objectives of the EPA (d) as set down in section 6 of the *Protection of the Environment Administration Act 1991*,
- (d) to assist in the achievement of the objectives of the *Waste Minimisation and Management Act 1995*.

The centrepiece of the draft legislation are Protection of the Environment Policies (PEPs). Currently the EPA has a range of environment protection mechanisms available to protect the environment, including: regulation and enforcement; community education; economic instruments and environmental reporting. Existing legislation does not provide for any formal means for establishing plans, policies and strategies to secure positive environmental outcomes.³⁵ The Green Paper stated:

Protection of the environment policies provide a flexible tool to assist in environmental protection programs to an extent not available to government beforehand and provide a means for regulatory authorities to target specific areas that require specialised programs to protect it.

PEPs may be made for the whole of NSW or to specified areas. They may deal with any aspect of the environment, or with any activity may impact detrimentally on the environment. Examples of possible PEPS include: water quality objectives for a specified river catchment.³⁶

³⁵ NSW Government Green Paper (1996). *Protection of the Environment Operations Bill 1996, Public Discussion Paper*, p 7

³⁶ NSW Government Green Paper (1996). *Protection of the Environment Operations Bill 1996, Public Discussion Paper*, p 8

While the Bill offers tools for a uniform approach to regulating activities that impact on the coast and estuaries, the enforcement provisions have been criticised for only requiring authorities to “take into account” the guidelines set down in any Protection of the Environment Policy.³⁷

6.9 Case Study: Acid Sulphate Soils

The deficiencies of the current mechanisms to deal with habitat damage to the State’s estuaries and coastline is evidenced by the inability of the responsible agencies to effectively control land use practices which exacerbate run off from acid sulphate soils. A major difference between the management of the terrestrial and marine habitats is that fish habitat can be destroyed without much visible evidence. A primary example is the destruction of fish habitat and existing populations due to the effects of drainage from acid sulphate soils.

The effect of acid sulphate soils on the State’s waterways has not been extensively studied but is believed to pose one of the most severe threats to the productivity of the State’s waterways.

Acid sulphate soils are the greatest potential pollution risk to estuaries and aquatic ecosystems in coastal NSW. Disturbance of these soils by drainage, development or agricultural practice can produce huge quantities of sulphuric acid which run into drains and water ways.³⁸

Acid sulphate soils are the result of long-term bacterial activity in organic rich sediments. These soils are found in the estuarine areas of all NSW coastal catchments and cover an area of at least 400 000 ha. Acid sulphate soils are not a problem as long as they are left undisturbed. When acid sulphate soils are excavated or drained, oxygen is allowed to enter the soil, oxidising the pyrite and producing sulphuric acid (H₂SO₄). This causes severe soil

³⁷ J Johnson (1997). “The solution to pollution?”, *Pollution Perspectives*, Program and Conference Papers 20 March 1997, p 17

³⁸ J Williams (1996). *Land Management Water Quality and Acid Sulphate Soils: A Report From the Acid Sulphate Soils Management Advisory Committee*, Acid Sulphate Soils Management Advisory Committee, Wollongbar Agricultural Institute, Wollongbar, p 2

acidification and pollution of local ground water and surface water bodies. In turn, the acidification process increases the solubility of many metals. Metals of concern which can be acutely toxic to macroinvertebrate and fish populations include aluminium, iron, manganese and cadmium. These toxic species can be produced in great quantities. Drainage waters from areas of acid sulphate soils will affect water quality and can lead to the death or disease of aquatic organisms. These factors can cause environmental degradation, including: inhibiting or killing vegetation through acidification, reduced soil fertility and increased salinity, stunting or killing aquatic life, such as fish (red spot disease) and long-term destruction of aquatic ecosystems. Extensive deposits have been identified in the Tweed, Richmond, Clarence, Macleay, Hunter, Hawkesbury-Nepean and Shoalhaven catchments; Newcastle Harbour and Tuggerah Lakes.³⁹

Mr Jesmond Sammut, Lecturer, Department of Geography, University of NSW, who has carried out the only comprehensive survey on the impact of acid sulphate soils in NSW, commented on the cause and effect of acid sulphate soils on the Richmond River system in northern NSW:

I have been doing research for the last three years looking at the role of acid sulphate soils in triggering fish diseases. That work has also looked at fish kills and the patterns and processes in association with acid discharges coming out of drained wetland environments. The work that I have done rings a lot of alarm bells because it has shown that a lot of our estuaries have major problems with acid sulphate soils that have been heavily developed. For example, my main study site, which is on the Richmond River in northern New South Wales, called Tuckean Swamp, has about a thousand tonnes of sulphuric acid sitting in the flood plain, largely because of extensive drainage works. That one thousand tonnes of sulphuric acid is continuously being replenished every dry period. In a moderate flood I have measured being discharged from the floodgates about 950 tonnes of sulphuric acid, approximately 500 tonnes of toxic

³⁹ J Williams (1996). *Land Management Water Quality and Acid Sulphate Soils: A Report From the Acid Sulphate Soils Management Advisory Committee*, Acid Sulphate Soils Management Advisory Committee, p 3

species of aluminium, and several hundred tonnes of toxic species of iron. There were fish kills associated with those events, and fish diseases. For about 36 months the catchment upstream of the floodgates had continuous acidity in most of its major drains. Downstream of the floodgates there were periods of up to eight weeks when it was continuously acidic. Every month for 36 months there were acid discharges going through what used to be a quite important commercial fishery. So I think that there is quite a lot that needs to be addressed in terms of trying to manage acid sulphate soils.⁴⁰

Acid sulphate soils have been shown to contribute to fish kills in the effected systems. Mr Sammut described the pathology and potential impact on the commercial industry of acid runoff as follows:

The work that I have done has been with people from New South Wales Fisheries. We have proven unequivocally that the acid causes fish kills. It causes severe skin and gill damage, leading to the fish kills. We have also proved that fish which are sub-lethally exposed go on to suffer various fish diseases. One of the main ones is called red spot disease. It can affect about 80 per cent of the commercial catch on the Richmond River. So there is quite a lot of economic impact from that disease. The people from New South Wales Fisheries and I believe that the only way that we can manage these fish kills and fish disease outbreaks is essentially to manage the acid discharges.⁴¹

The practices of the sugar and tea tree industries which are located on acid sulphate soils have come under close scrutiny. Poor farming practices and the run off from cuttings used to drain these areas are one of the major causes of acid runoff and have brought fishermen and landowners into serious conflict. Dissatisfaction of the current management of the affected estuaries has been heightened by the perceived inability of government to ameliorate the impact

⁴⁰ Evidence of Mr Sammut, 2 April 1997, p 3

⁴¹ Evidence of Mr Sammut, 2 April 1997, p 3

of acid runoff. Mr Sammut is critical of the lack of action taken compared to other areas of environmental damage.

At present I have reservations about how the environment is being managed. I do not think that there has been much response to the problem. Lip service has been paid to it. I believe there have been attempts to give the impression that it is being managed, yet throughout New South Wales these problem soils occur in all the major estuaries. Their impact varies: it is probably more severe in parts of northern New South Wales and parts of the south coast. It concerns me that those areas are receiving less attention than, say, the salinisation problems that occur out west. The problems are probably in a similar ballpark yet a lot of money is injected into trying to manage salinisation and not much is injected into acid sulphate soil management.⁴²

Associated with the lack of government agencies' abilities to recognise the existing and potential damage to habitat from acid sulphate soils is the inability to resolve the conflicting land use problems which are required to effectively manage the acid sulphate problem. Mr Sammut comments on the failure of the present strategies to provide effective management plans due to the politicisation of the process:

I will go back to the example of my study site. About \$200,000—I am not sure of the exact figure—was injected into the management of Tuckean Swamp. I worked at the Wollongbar Agricultural Institute. My office was about three or four doors away from the team that was intended to manage Tuckean Swamp and they developed a land and water management plan. The whole point of that land and water management plan was to address the issues that the fishermen had raised regarding acid sulphate soils. On that committee there were quite a lot of farmers; I think about 51 per cent of the committee were actually farmers. I believe that there was a lot of political interference in that

⁴² Evidence of Mr Sammut, 2 April 1997, p 3

process as well, because there were politically oriented farmers being represented on that group.

That committee for the first year and a half really side-stepped the issue of acid sulphate soils, and the focus became how can we improve agricultural productivity by trying to manage floods in the system, for example. It was not until later that acid sulphate soils really came through as perhaps a very important issue, but even when it did there was continuous interference in really trying to address that problem. I did some consulting work for that particular committee, and quite a lot of my recommendations were not taken on board or were heavily criticised. The words of some people were, "You are going to upset the farmers." What that committee felt was important was to appease the farmers, to really have them on side. In the end the farmers were all convinced that the land and water management plan was going to improve their agricultural productivity, and water quality never became a real issue. It was mentioned; it was raised a few times, but it really was not the actual driving force for that committee.

... The fishermen are not represented on that committee—they were never invited to be—and there are other interest groups which were intentionally kept off that committee.⁴³

In a report to the Tuckean Swamp Land and Water Management Plan, Management Committee, Mr Sammut recommended that;

The Land and Water Management Plan should review legislative controls and policies that may influence the

⁴³ Evidence of Mr Sammut, 2 April 1997, p 5

management strategy. State, regional and local planning and development policies should be especially reviewed.⁴⁴

Mr Sammut indicated what impact acid sulphate soils would have on estuarine habitats and fishstocks if more effective measures were not taken to address the problem.

With the rate of coastal development that is taking place, and if development keeps following the path that it has taken, I believe that most of our estuarine flood plains will become highly acidic. There will be scenarios where for every dry period there will be acid production in the flood plain of around 200 kilograms per hectare per year, which is an average for northern New South Wales. For every wet period for every estuary that is affected by acid sulphate soils, there would be at least 2,000 to 3,000 tonnes of sulphuric acid being pumped into the system by drainage works. That means that we will have recurrent fish kills and recurrent fish diseases.

Attempts to control the acidified water have been complicated by the conflicting aims of the *Drainage Act (1939)*, *Clean Waters Act (1970)*, and the *Environmental Planning and Assessment Act 1979*. Drainage unions or trusts were originally conceived and embodied within the *Drainage Act (1939)*. Drainage Unions provided a mechanism by which landholders could be organised to ensure that adjoining land could be effectively drained to provide for farming practices.

The objectives of the Act are set out in s. 8:

Wherever any tract of land is so circumstanced that from any permanent or occasional cause, considerable quantities of water accumulate thereon or flow there over, and by reason of the absence of sufficient or artificial drainage or

⁴⁴ J Sammut (1996). *Processes and Impacts of Soil and Water Acidification in Tuckean Swamp, Lower Richmond River Northern NSW: A report to the Management Committee*, The Tuckean Swamp Land and Water Management Plan Management Committee, p 66

of flood prevention works or of works for the mitigation of the effects of tides, accumulate thereon or flow there over to the injury of such land application may be made to the Ministerial Corporation for the formation of a drainage union for compulsory drainage and mitigation of the effect of floods or tides.⁴⁵

Subsequent modification of the land use practices coupled with further development of wetlands areas have exacerbated the problems associated with maintaining an effective drainage and many of the current practices do not comply with the existing guidelines set down by the *Clean Waters Act*, the *Environmental Planning and Assessment Act* and State Environmental Protection Plans.

An examination of the causes and effects of acid sulphate soils indicates not only the real threat to the States fisheries resources but illustrates the deficiencies of the current regulatory mechanisms to ensure responsible development of coastal and estuarine environments. Government agencies need to take decisive and coordinated action to ameliorate this threat to fish habitat. The Standing Committee recommends:

Recommendation 19

That an adequately resourced task force, including representatives of the Department of Land and Water Conservation, NSW Agriculture and NSW Fisheries, be established immediately. This task force should be charged with concurrently:

- **reviewing the legislative framework related to acid sulphate soil run-off with a view to removing contradictory provisions so that the regulatory agencies (for example, EPA, DLWC, NSW Fisheries) can more effectively manage impacted areas; and**

⁴⁵ Drainage Act 1939 No 29 (Reprinted as at August 1988)

- **assessing the effectiveness and necessity of existing drainage works with a view to recommending the removal, redesign or relocation of drainage works to the relevant Minister[s].**

6.10 Conclusions and Recommendations

The Standing Committee recognises that there is an obligation on behalf of government to preserve critical marine habitats to ensure the viability of fish populations. The Standing Committee considers that providing stricter management controls over these areas will ensure the maintenance of sustainability and diversity of marine ecosystems and the productivity of fish stocks for all user groups. Comprehensive identification and assessment areas for protection will facilitate consultation and the development of management plans, including compensation for affected parties. Accordingly, the Standing Committee recommends:

Recommendation 20

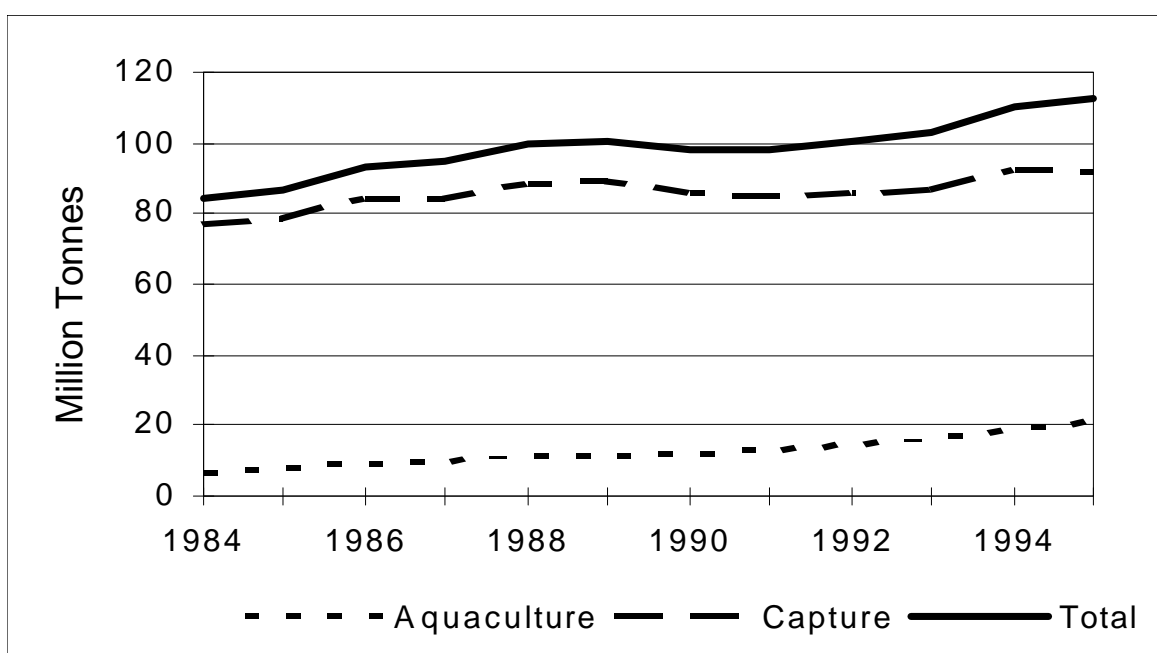
That NSW Fisheries, in consultation with the National Parks and Wildlife Service, conduct an extensive research survey to identify key areas of habitat along the New South Wales coast for classification as Marine Parks.

8 AQUACULTURE

8.1 Introduction

Aquaculture is the farming of marine or freshwater biota, including finfish, crustaceans, molluscs, seaweed, algae, and reptiles such as crocodiles. There has been steady growth in worldwide aquaculture production since the 1950s, with the relative importance of aquaculture increasing markedly over the last decade. Aquaculture contributed 8.0 per cent of world fishery production in 1984 increasing to 18.5 per cent, or 20,940,000 tonnes¹, in 1995 (figure 8.1).

Figure 8.1 - Aquaculture Vs Capture Fisheries ²

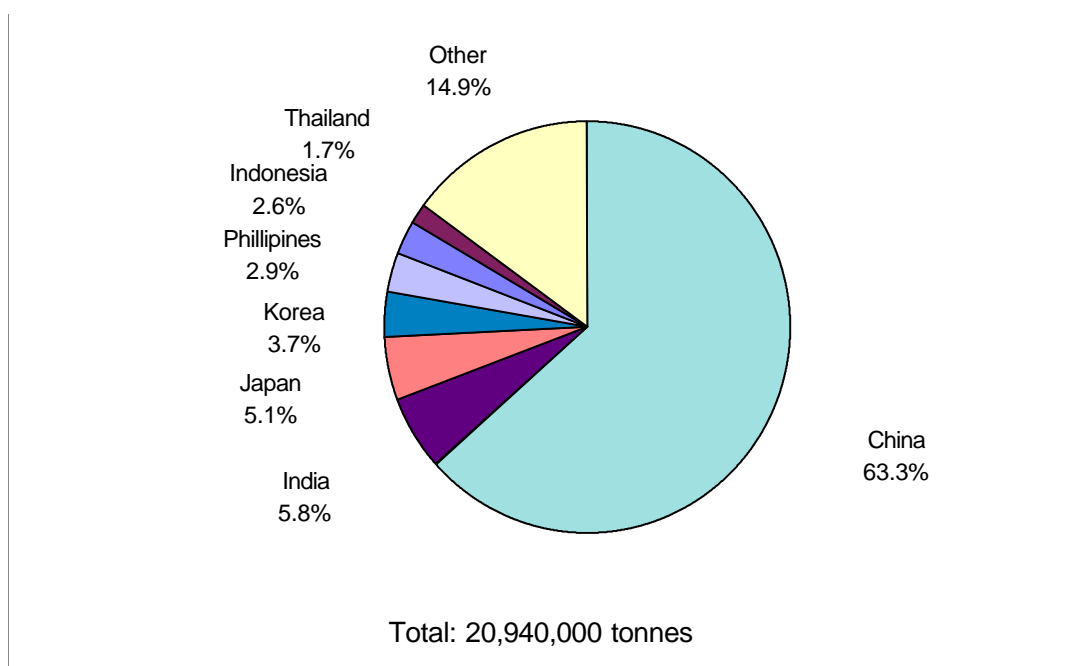


¹ FAO, 1997, Fishery Production Statistics, Fisheries Department, Food and Agriculture Organisation of the United Nations: Rome, Italy, website <http://www.fao.org/waicent/faoinfo/fishery/trends/catch/catchf.htm>

² FAO, 1997, Fishery Production Statistics, URL: <http://www.fao.org/waicent/faoinfo/fishery/trends/catch/catchf.htm>

Asia produces over 90 per cent of world aquacultural output, with China alone producing in excess of 12 million tonnes, representing 60.2 per cent of that nation's total aquatic production (figure 8.2).³

Figure 8.2 - World Aquaculture Production ⁴

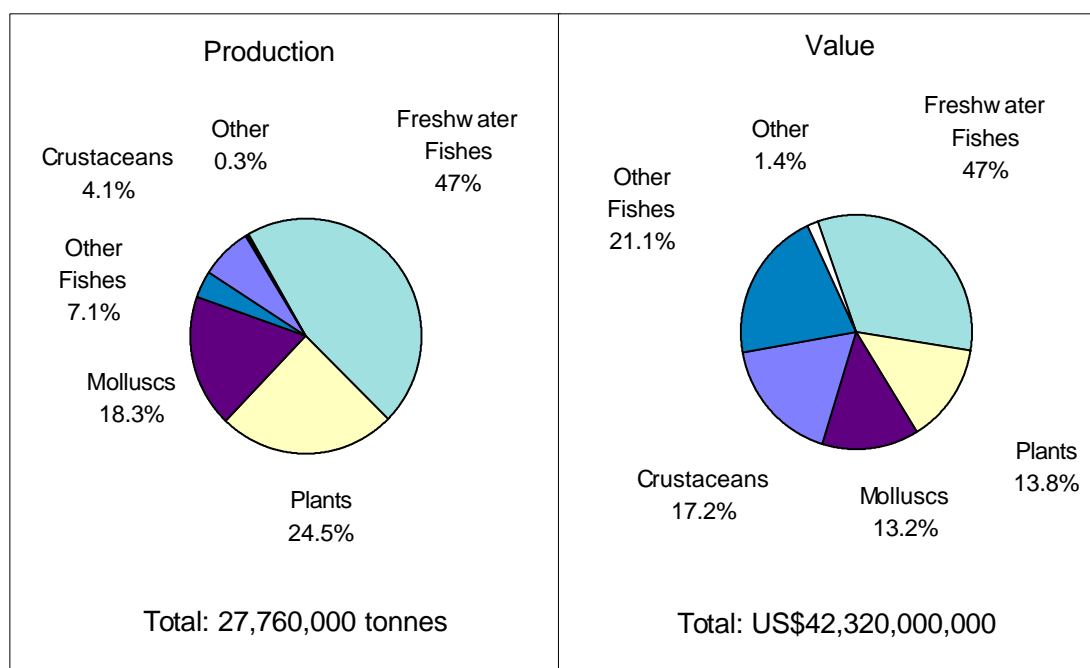


World aquaculture production is centred on freshwater fishes (particularly carps), plants and molluscs (figure 8.3).

³ FAO, 1997, Fishery Production Statistics, URL: <http://www.fao.org/waicent/faoinfo/fishery/trends/catch/catchf.htm>

⁴ FAO, 1997, Fishery Production Statistics, URL: <http://www.fao.org/waicent/faoinfo/fishery/trends/catch/catchf.htm>

Figure 8.3 - World Aquaculture Production by Type



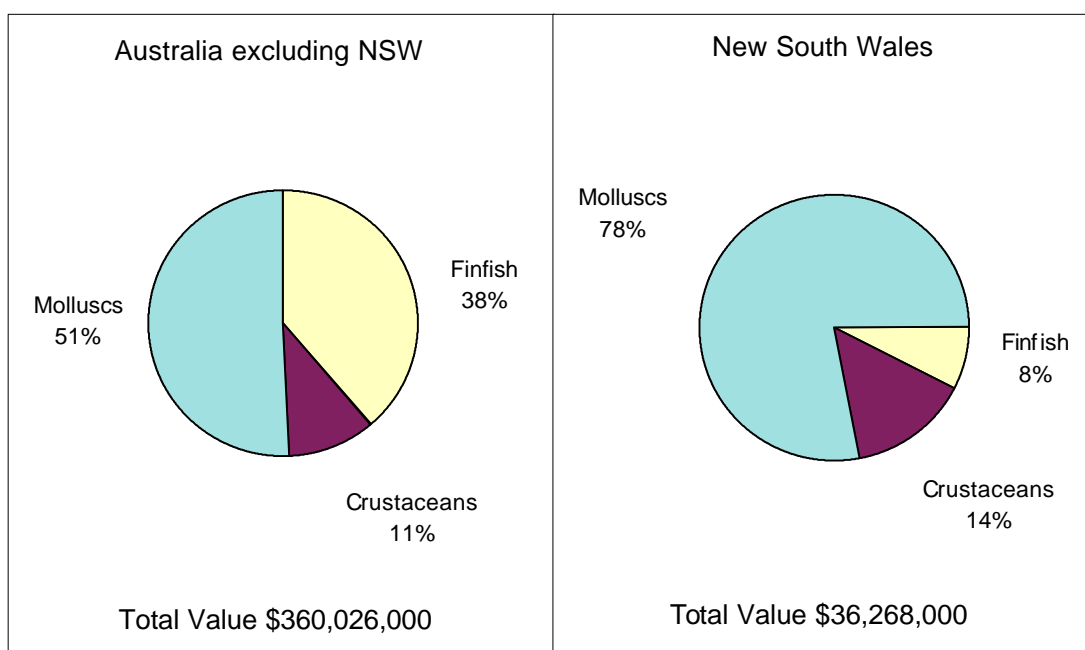
By world standards, Australia is not a major aquacultural nation. Australia's total aquacultural output of around 26,117 tonnes in 1995-96⁵ represents just 0.12 per cent of total world production. In 1995-96 the value of New South Wales aquacultural production was ranked sixth among Australian states. Approximately 77 per cent of the State's aquacultural production by value consists of oysters, with prawns (13 per cent), trout (6 per cent), and freshwater crayfish (1 per cent) making up the bulk of the remainder⁶. New South Wales also produces silver perch, ornamental fish, mussels, barramundi and eels on a relatively small scale. Figure 8.4 shows the value of aquacultural production for New South Wales and the rest of Australia by the principal

⁵ D Brown, K Landeghem, & M Schuele, (1997). *Australian Aquaculture*, Australian Bureau of Agricultural and Resource Economics, Canberra, p 3

⁶ D Brown, K Landeghem, & M Schuele, (1997). *Australian Aquaculture*, Australian Bureau of Agricultural and Resource Economics, Canberra, pp 4, 91

species groupings. The most notable aspect of New South Wales aquaculture is the relatively low proportion of finfish.

Figure 8.4 - NSW and Australian Aquaculture Production by Value ⁷



8.2 Potential of Aquaculture in NSW

With static or declining wild capture fisheries, growing demand for protein from an expanding world population, and growing doubts in relation to the sustainability of existing aquaculture producers, there are likely to be further opportunities for the expansion of the New South Wales aquaculture industry. Greater control over the end product and growing consumer awareness of the

⁷ D Brown, K Landeghem, & M Schuele, (1997). *Australian Aquaculture*, Australian Bureau of Agricultural and Resource Economics, Canberra, pp 2, 91

health aspects of eating seafoods should also contribute to export and import-replacement aquaculture opportunities.⁸

The Standing Committee heard from a broad spectrum of witnesses enthusiastic about the prospects for greater aquaculture production in New South Wales. For example, Mr Barry Jonassen, representing the NSW Institute of Freshwater Anglers, stated:

I believe that aquaculture is the fishing industry of the future. I believe that to take the pressure off the wild stocks, be they ocean or inland, aquaculture is the necessary way to go. The demand for fish is ever-increasing. The fish stocks, as we read and see, are apparently diminishing. If we are to maintain the food stocks for the table, the only direction to head is more and more aquaculture, adequately supervised.⁹

Mr Neville Whiffen, aquaculture developer, highlighted existing opportunities for import replacement:

Woolworths, Coles and Franklins have fish bays. I shop regularly and I can find all the fish I want—not in fish shops but in supermarkets. It is spreading all over Australia. Supermarkets are preparing filleted fish and whole fish packed ready to use. These days it is important to have food which people can take home and cook in a hurry when they get home from work. The marketing side of aquaculture in Australia has changed. Most of the fish is coming from overseas. ... They are selling imported [fish] not grown in Australia, and that is no way for us to get employment.¹⁰

⁸ P J Kailola, M J Williams, P C Stewart, R E Reichelt, A McNee, & C Grieve (1993). *Australian Fisheries Resources*, Bureau of Resource Sciences and the Fisheries Research and Development Corporation, Canberra, p 166

⁹ Evidence of Mr Jonassen, 24 March 1997, p 14

¹⁰ Evidence of Mr Whiffen, 3 April 1997, p 37

Similarly, Mr Michael Bamford, mussel grower, commented:

... we have got 1200 tonnes of mussel being imported into New South Wales from New Zealand every year. It is the same old story. We are providing jobs for New Zealanders by eating their mussels when we could be growing them right here and providing jobs for New South Welshmen.¹¹

Dr John Glaister, Director of Fisheries, agreed that there were many opportunities for aquaculture in New South Wales that were yet to be explored but argued that any new ventures would need to take the State's geographic constraints into account:

I believe aquaculture can be an important industry for New South Wales. ... in terms of production value, at the moment it is quite limited. Most [of the] focus on aquaculture in Australia has been on marine aquaculture, and as we have the highest population concentration on coastal settlements I think the focus for marine aquaculture in estuarine areas is probably misplaced in that such development could possibly alienate existing habitat important to all of our fisheries.

I believe that the exposure of our coast would limit the potential for cage culture and mariculture centres. There are only a very few sheltered ports. And most of the high energy coast and the prevailing weather conditions would limit the expansion in that area. So I think the most likely avenue for the development of an aquaculture industry lies in the inland, in fresh water.¹²

Dr Glaister later expanded on the last point:

... my view is that if we are looking at expanding our aquaculture industry, then it lies in the inland. In particular,

¹¹ Evidence of Mr Bamford, 28 January 1997, p 36

¹² Evidence of Dr Glaister, 19 May 1997, p 16

an area that is worth considering is the use of saline water in areas where we have got significant problems, particularly in the south-west.

... Species like snapper could be perhaps raised in inland saline water. Although this water includes magnesium salts rather than sodium salts, the fish may be able to adapt to that. That is certainly an area that we are interested in pursuing.¹³

Dr Glaister also saw considerable potential in polyculture, where enterprises undertaking integrated aquacultural and agricultural activities could significantly increase output in both spheres. Dr Glaister stated:

One of the requirements for the use of freshwater aquaculture is that the water is not returned to the river. So farmers are the people best placed to be able to multi-use water. An example that I would give you would be the Mailler farm at Jerilderie. He is a very successful rice and wheat farmer. He basically uses the water for aquaculture. Then that water, with the nutrients added through aquaculture, is used in the watering of several crops. He uses the water about five times. So my feeling is that someone like him, who is a very innovative person who has a lot of expertise in other forms of agriculture, could make a significant contribution.¹⁴

Dr Stuart Rowland, NSW Fisheries Scientist, supported this view, suggesting that freshwater aquaculture had "enormous potential because of the availability of sites and the ease of using or disposing of effluent water, unlike the marine environment".¹⁵

¹³ Evidence of Dr Glaister, 19 May 1997, p 38

¹⁴ Evidence of Dr Glaister, 19 May 1997, p 39

¹⁵ Evidence of Dr Rowland, 4 April 1997, p 17

8.3 Obstacles

While aquaculture has great potential, some obstacles to its further development in New South Wales exist. These include: environmental considerations such as threats to wild stocks from the use of wild-caught juveniles, effluent discharge, and disease and species translocation; post-harvest issues including marketing; and administrative or social obstacles such as the development approval process and community opposition.

8.3.1 Use of Wild-caught Juveniles

Aquaculture ventures that rely on the collection of juveniles from the wild pose risks to the sustainability of existing fisheries. While the South Australian tuna farming industry is the major user of this technique in Australia, there is some pressure from local and offshore investors to allow the harvest of juvenile eels in New South Wales for grow-out here or overseas.

Since 1992, when 45 permits to harvest eels from farm dams were granted, export markets for live eels have been established in Hong Kong, Taiwan and Europe, in addition to local sales in Sydney. The eel catch in 1994 was 286 tonnes, with 25 tonnes sourced from impoundments, 42 tonnes from farm dams, and 219 tonnes from estuaries.¹⁶ The draft NSW Fisheries Eel Aquaculture Policy states:

Commercial catches of eels from the wild appear to be decreasing as more and more dams and impoundments are heavily fished. Of particular concern are the anecdotal reports of the considerable effort of unlicensed fishers who harvest and sell eels illegally.¹⁷

The Policy also states:

¹⁶ NSW Fisheries Eel Aquaculture Policy, 3rd Draft, 4 May 1997, NSW Fisheries Policy Paper A97/1, p 2

¹⁷ NSW Fisheries Eel Aquaculture Policy, 3rd Draft, 4 May 1997, NSW Fisheries Policy Paper A97/1, p 2

NSW Fisheries recognises the potential for an eel farming industry to evolve in NSW that has the capacity to generate export dollars and stimulate employment in regional areas. Experience ... has shown that the Department should be pro-active in establishing guidelines to promote the development of a viable aquaculture industry and to ensure that development is environmentally sustainable.

NSW Fisheries will promote the small-scale development of an eel aquaculture industry in NSW recognising that until juvenile eel resources are quantified, the eel aquaculture industry will be regarded as experimental in nature. Policy will regulate the rate at which the eel aquaculture industry will develop in NSW.¹⁸

Dr Glaister described the Department's efforts to balance the fostering of a new eel aquaculture industry with the preservation of the existing fishery:

... it is a very huge market. The difficulty with eels is that they are not able to be artificially induced to breed in captivity. They spawn somewhere in the ocean, and basically the young elvers come back to land. There is a real demand for glass eels, or elvers or baby eels, because they are worth some tens of thousand of dollars per kilo, but there have also been some spectacular collapses of eel fisheries in other parts of the world, and that basically [is] what has driven the demand for Australian eels.

We are adopting a very cautious approach, as are the other States, particularly Queensland and Victoria, and limiting the commercial harvest of eels and the collection of baby eels because of that concern about potentially over-fishing.¹⁹

¹⁸ NSW Fisheries Eel Aquaculture Policy, 3rd Draft 4 May 1997, NSW Fisheries Policy Paper A97/1, p 1

¹⁹ Evidence of Dr Glaister, 26 May 1997, p 63

Mr O'Conner, Director Fisheries Management, added:

We do have two operators who are licensed to experiment with techniques to collect those baby eels and to supply a limited quantity - I think it is 50 kilos per year - to the eel aquaculture industry in New South Wales, to enable them to develop their techniques while we do our homework in trying to decide what quantity of baby eels can actually be harvested from the rivers without impacting on the eel resource.²⁰

8.3.2 Effluent

Economically viable aquaculture inherently relies on relatively intensive production practices. Some aquaculture activities rely on naturally occurring food sources, such as the production of filter feeders like oysters and mussels. Others involve feeding, such as the production of finfish through cage-culture. Both practices often result in effluent discharges significantly greater than would be the case under natural conditions. This problem can be exacerbated by the decomposition of unused food which has settled on the river or ocean floor. Particulate nutrients derived from either effluent or diet supplementation can lead to sedimentation. Dissolved nutrients and sedimentation can in turn lead to a number of adverse environmental and public health outcomes, including algal blooms, shading of the water column, and benthic blanketing.

ABARE has cited sedimentation and biofouling (growth of aquatic organisms on cages et cetera) as a limiting factor to the expansion of cage cultured finfish, such as tuna and Atlantic salmon.²¹ The disposal of pond effluent has also been

²⁰ Evidence of Mr O'Conner, 26 May 1997, p 63

²¹ D Brown, K Landeghem, & M Schuele, (1997). *Australian Aquaculture*, Australian Bureau of Agricultural and Resource Economics, Canberra, p 6

identified as a major constraint to the environmentally sustainable expansion of the Australian prawn farming industry.²²

NSW Fisheries' effluent policy presently varies with species. Zero discharge is required for land-based silver perch, golden perch, Murray cod and yabby operations. Land-based barramundi operations are permitted to discharge effluent into the aquifer only, whereas trout and prawn farms may discharge effluent into streams and estuaries under certain conditions.

Mr Calvin Terry, President of the NSW Silver Perch Growers Association, suggested that freshwater fish farms could limit these negative outcomes through the use of effluent storage ponds and the re-use of effluent water for irrigation of cereal, fruit and vegetable crops and forestry.²³

8.3.3 Disease

A number of witnesses expressed concern that aquacultural activity may spread disease, particularly the farming of species not native to the area in question. For example, Mr Terry Maloney, Secretary of the South West Angler's Association, referring to barramundi production in the south of the State stated:

The barramundi picorna-type virus is a virus which affects the barramundi. Very little work has been done on whether that virus is transmittable to our native species.

I believe that some work has been done in Queensland in recent times that suggests that the virus can in fact be contracted by some other native species. Our concern with these barramundi grow-out complexes—and there is one at Grong Grong—was that bringing juvenile barramundi into the Murray-Darling system without any assurances that the virus would not affect our native fish was almost as silly as

²² N Preston, I Macleod, P Rothlisberg, & B Long (1997). Environmentally sustainable aquaculture production - an Australian perspective, *Developing and Sustaining World Fisheries Resources*, 2nd World Fisheries Congress, CSIRO, Collingwood Victoria, p 474

²³ Evidence of Mr Terry, 20 February 1997, p 15

bringing cane toads, prickly pears and European carp into the country. The virus did get into the Grong Grong establishment; it was quarantined for a few weeks a couple of years ago. The suggestion that the testing procedures were adequate and the virus could not get there proved to be entirely incorrect.

... if a virus like that was to gain a foothold in the Murray River it may spell the end of Murray cod, golden perch and any other natives that are susceptible.²⁴

Mr Michael McManus, another freshwater angling representative, expressed similar concerns:

There are a lot of fish farms, usually trout and yabbies, and there is no reason why it cannot continue to expand in those types of species. I would be reluctant to bring species from outside the catchment into the area, because I think that would be fraught with danger - such as bringing Queensland fish, such as barramundi or something like that into the area. I think that could lead to trouble through the bringing in of foreign viruses and so on. But, certainly, there is no reason why trout farming and yabby farming cannot continue and increase.²⁵

Dr Glaister described the perceived disease problem with barramundi farming in New South Wales as follows:

The concern with this particular virus is that it is undetected in young animals up to, I think, 21 days or something like that. So, if you have got fingerlings that are older than 21 days, you can tell whether they have got this bug or not. But, in younger animals it is impossible to detect. So the interest in raising barramundi has met with fierce opposition from people concerned about the

²⁴ Evidence of Mr Maloney, 2 April 1997, p 85

²⁵ Evidence of Mr McManus, 24 March 1997, pp 13-14

untoward introduction of this virus that may potentially impact some of our native fish.²⁶

Dr Glaister and Mr O'Conner noted that NSW Fisheries were pursuing funding for research into this particular virus and that the Department had prohibited the importation into New South Wales of barramundi younger than 21 days. Dr Glaister added:

I might add that the focus on the picorna-like virus in barramundi is really peculiar in that I think there could equally be viruses that have not as yet been discovered or named in a range of things that routinely happen now. I think people are right to be cautious.²⁷

8.3.4 Species Translocation

Species translocation occurs when species are introduced into an area in which they are not native. Translocated species can displace or negatively affect native species in a number of ways.

Barg et al have written:

Aquaculture is the principle reason for the introduction of freshwater fishes and experience has shown that the introduced species will eventually enter the natural ecosystem (either through purposeful release or accidental escape). Thus, non-native species in culture can adversely impact local resources through hybridization, predation and competition, transmission of disease, and changes in habitat, e.g. burrowing, plant removal, sediment mobilisation and turbidity.²⁸

²⁶ Evidence of Dr Glaister, 26 May 1997, p 97

²⁷ Evidence of Dr Glaister, 26 May 1997, p 97

²⁸ U C Barg, D M Bartley, A G L Tacon, & R L Welcomme (1997). Aquaculture and its environment: a case for collaboration, *Developing and Sustaining World Fisheries Resources*, 2nd World Fisheries Congress, CSIRO, Collingwood Victoria, p 463

The Standing Committee received evidence in relation to species translocation from numerous witnesses, particularly in relation to silver perch. For example, Professor Robert Kearney, former NSW Director of Fisheries Research and presently Head of the Department of Resource, Environmental and Heritage Sciences, University of Canberra, argued:

... there is a need for restrictions and I believe that things need to be kept tightly under control. There are disease problems with hatcheries and aquaculture ventures. Australia's record in this area is reasonably good and we are improving with our environmental controls. I believe environmental controls in these sorts of ventures should be strong and obviously based on science and we need to make sure that the risks are minimised.

However, I am not one who believes we should not tolerate a manageable amount of risk and I do not have a particular problem with having silver perch aquaculture operating on the east coast. I would make sure all of those operations are above flood levels and all other requirements are there for proper environmental control and that environmental control must be rigorous. I do not have a hang up with them being east of the Divide.

They have been released in many of our rivers, together with other species. It is foolish to pretend they have not been. I do think the risk is minimal.²⁹

NSW Fisheries' Introduction and Translocation Policy requires that all stockings of fish into New South Wales waters are conducted under a Departmental permit. The Policy also states that further introductions or translocations of native or non-native species into the State's waters will not be permitted, with the exception of:

- the stocking of salmonids into those waters where they have been traditionally stocked;

²⁹ Evidence of Professor Kearney, 12 May 1997, p 54

- the stocking of golden and silver perch into farm dams in the eastern drainage located above the 1/100 year flood level;
- the stocking of golden and silver perch into impoundments in the Hunter river system (this policy to be reviewed in 1999);
- the stocking of marine or estuarine fish into NSW waters, which will be evaluated on a case by case basis; and
- the aquaculture of fish outside their natural range provided adequate controls can be put in place to ensure that the fish or associated disease cannot escape.

In addition, the extension of the geographic range of any of these species will not be permitted without undertaking an environmental assessment and consultation with key interest groups.³⁰

8.3.5 Development Approval and Interdepartmental Integration

Standing Committee heard examples of difficulties encountered by aquaculture operators and developers in gaining the relevant development approval to set up their aquacultural enterprises. For example, Mr Michael Bamford, President of the New South Wales Cultured Mussel Growers Association, described the ongoing difficulties that his enterprise, Eden Shellfish Pty Ltd, has encountered over nearly 20 years in having its mussel growing development application for Twofold Bay, Eden, processed and in achieving security of tenure over its existing site. Mr Bamford explained that he had first applied for a permit to grow mussels in 1976 and had received a temporary scientific permit in 1979. Mr Bamford then claimed that he was informed by the Department in 1980 that he would qualify for a crown land lease for the purposes of mussel growing, but that little happened in this regard until 1986 when he was again told by the Department that he should qualify for a lease. Mr Bamford began marketing his mussels in 1988, still under a scientific lease, and production peaked in 1993 at 53 tonnes. The lease issue is yet to be resolved. Mr Bamford outlined the

³⁰ NSW Fisheries Introduction and Translocation Policy, NSW Fisheries Policy Paper R94/1, August 1994, pp 4-5

major exercises that his business has so far conducted in attempting to get its development application approved:

The Department of Planning directed Fisheries to tell us to go to the local council and get a DA. When we did so in April 1993 it landed us in the Land and Environment Court, with the contestant being another development, Boydtown Pty Ltd. So then we had to fight a court case, ... and this court case is reported to cost \$128,000, of which our part was about \$30,000. So that resulted from the directive of the Department of Planning.

... we are now under the scrutiny of every department. And last, but not least, we have just seen our application process go on for so long we are now coming under the Threatened Species Act, which was only passed in February 1996, and we have got to put up a full statement. We have done a registered business management plan, as directed. We have done an EIS, as directed. And we have done a fauna impact statement, as directed. All up, there has been \$100,000 worth of paper work and consultancy, as directed. And now we are in the middle of the National Parks and Wildlife Service telling us what interaction whales will have with our project.

... I have over a quarter of a million dollars worth of equipment sitting out there. I have four men employed constantly on the project, and another two when we are harvesting, plus myself and my wife on shore doing the business.³¹

Mr Bamford claimed that the environmental impacts of mussel growing were minimal as mussels are filter-feeders, utilising existing nutrients in the water and not involving any additional feeding³². Mr Bamford added that Twofold Bay has the highest mussel growth rate in the world, with a minimum harvest of 10

³¹ Evidence of Mr Bamford, 28 January 1997, pp 31-32

³² Evidence of Mr Bamford, 28 January 1997, pp 38-39

tonnes per hectare in as little as 12 months, but that the industry and export opportunities were being constrained by red tape and bureaucratic inaction:

You could get an export product out of here. Actually, six years ago we had an inquiry from Italy for 400 tonnes per annum of the mussels that they had sampled here from my permit area. They rang me up for two years and said, "How are you going? Have you got your Crown land lease? Can you make production on it?" Anyway, they gave up in the end. I said, "Look, I can't see where I am ever going to get to production like that." But they would have taken 400 tonnes per annum.³³

Mr Neville Whiffen, aquaculture developer, also described to the Standing Committee his difficulties in gaining approval for a major aquaculture research and production development south of Grafton:

My own proposal would have been one of the best aquaculture operations in the world. ... which involved six universities sharing the common expensive items like power generation, standby generation, effluent control, waste disposal, and refrigeration. By putting all those items together at one location as I propose it would save each company millions of dollars, it would save each university a very large amount of money, and for the first time in Australia we would have six major universities working together sharing facilities.

... I met with an interdepartmental committee around a table as big as this one that had representatives of 10 individual departments including Aboriginal Affairs, Development, Fisheries, Land and Water Resources. It was frustrating, devastating and terrible. Every single person around that table had a reason why we could not grow fish on the coastal areas of New South Wales.³⁴

³³ Evidence of Mr Bamford, 28 January 1997, p 37

³⁴ Evidence of Mr Whiffen, 3 April 1997, p 36

Mr Whiffen stated that one of the reasons for not allowing the facility was species translocation. Mr Whiffen noted that NSW Fisheries conducted its silver perch research outside Grafton, stating:

That is translocation of species by the State Government. If it is good enough for the State Government surely it is good enough for industry. I went to Fisheries first and they referred me to the Department of State Development.³⁵

Mr Whiffen was particularly critical of the Department of State Development, stating:

The activities of the Department of State Development—and I include Fisheries as well—are cumbersome, at times insensitive and certainly not conducive to the investment of private capital in new ventures.³⁶

In relation to the environmental conditions applied to aquacultural developments, Dr Rowland suggested that:

The EPA has a difficult task and it is relatively new. As I mentioned at Grafton, it appears to many—including industry and us—that the EPA has targeted the aquaculture industry because it is an easy target. It is point source pollution, whereas some of the broader polluters of the river are difficult to come to grips with.³⁷

While claiming that NSW Fisheries has done a lot to encourage aquaculture in New South Wales, Mr O'Conner conceded that the development approval process was a major obstacle to the industry's growth:

One of the reasons that, I guess, those industries have not developed is because of the complexities of the planning legislation in New South Wales. When you look at

³⁵ Evidence of Mr Whiffen, 3 April 1997, pp 36-37

³⁶ Evidence of Mr Whiffen, 3 April 1997, p 36

³⁷ Evidence of Dr Rowland, 4 April 1997, p 20

something that is going to take off in our estuaries, for instance, or in the near-shore waters off the coast, then the number of agencies involved, the number of approvals that are required, is extremely complex. If you look at the mussel industry in Twofold Bay, you begin to understand some of the problems and complexities that exist there.³⁸

Mr Whiffen suggested that an inter-departmental body charged with dealing with aquacultural development approval be set up and supervised by the Advisory Council on Aquaculture, stating:

... I would like to recommend that you first of all give to your State Government departments these objectives. The role of State and Regional Development is to bring industry, investors and government together with a one-stop shop so that instead of having 10 different agencies all telling you what you cannot do, there is a one-stop shop saying, "If you do this we can help you do it". We will then have a great deal of growth in New South Wales.³⁹

8.3.6 Departmental Research and Extension

Dr Rowland was critical of recent funding cuts to NSW Fisheries aquaculture research and extension activities, particularly in relation to silver perch. Citing the success of aquaculture initiatives in other Australian states, Dr Rowland stated:

In New South Wales, we really have not got a major aquaculture strategy in place to develop new industries over and above what we have. ...

I do think that there is somewhat of a lack of commitment, foresight and planning in our department towards aquaculture. We did have a period in the late 1980s when

³⁸ Evidence of Mr O'Conner, 19 May 1997, p 40

³⁹ Evidence of Mr Whiffen, 3 April 1997, pp 37-38

we were really looking for new industries, and that is why we did select silver perch and there was some marine fin fish work at Port Stephens, which you are probably familiar with. But over the last few years we seem to have lost the impetus, and we find that either loss of staff or budget cuts on these facilities are affecting the research and extension output. I think that significantly more could be done if the Government chooses to have a large aquaculture industry in New South Wales.⁴⁰

Dr Rowland added:

The communication about aquaculture issues is virtually non-existent. We really do not have any planning mechanism other than a few policy people in head office, but very little is directed towards forward thinking and forward planning for the industry. It is more day-to-day issues with the current aquaculture industry and it is a major shortcoming that we have not got a strategy in place to look ahead, select species, evaluate sites, support industry, and so on in the long term. That is the basic reason why the industry is static and, in fact, is declining in New South Wales.⁴¹

Dr Glaister rejected this criticism of the Department, stating:

In terms of an aquaculture strategy, I believe that with the legislation allowing for the development of an aquaculture industry development plan that we have the mechanism to go down that track. We had in fact started, and are in the process of developing, a strategy for the oyster industry, our most important aquaculture industry. ...

In terms of forward planning, we have devoted an amount of resources into, particularly, the aquaculture management

⁴⁰ Evidence of Dr Rowland, 4 April 1997, pp 17-18

⁴¹ Evidence of Dr Rowland, 4 April 1997, p 23

area ... Regarding prawn research, there has been quite a bit of research done by New South Wales. In fact, New South Wales was the first State to undertake such work. That has been taken up by other States. The difficulties of prawn aquaculture in this State has been that, unlike Queensland, it is basically only a crop every year or a crop every two years, whereas in places like Queensland, with high temperatures, they are able to generate more productivity. So I think that is a big attraction, plus the fact that there is a large area of coastal land available for aquaculture in Queensland, whereas in New South Wales we do not have that.

... We are commencing a review of our aquaculture activities very soon, as soon as the oyster strategic plan is in place. We will then, logically, go on to other aquaculture activities, including inland.⁴²

Referring to the setting of NSW Fisheries aquaculture research priorities, Mr O'Conner said:

... in terms of the department priorities for aquaculture research, there have been regular meetings over at least the last seven or eight years that I have been involved in where we have discussed priorities for aquaculture research. ... That is how our priorities have been set.⁴³

8.3.7 Marketing

The Standing Committee heard that a major flaw in the development of aquaculture in New South Wales was a lack of research into the marketability of species being considered for aquaculture prior to large scale production. The lack of demand for silver perch was the most cited example of this shortcoming (see section 8.4.1.5). NSW Fisheries were particularly criticised for focussing

⁴² Evidence of Dr Glaister, 19 May 1997, pp 16-17

⁴³ Evidence of Mr O'Conner, 19 May 1997, p 18

on aquaculture research and development without adequately considering the market opportunities for the end product. Dr Glaister answered this criticism as follows:

We have not got a brief in our Act to be involved in the marketing of seafood in New South Wales, and that is an area that I believe needs some attention, particularly, as I say, with things like silver perch.⁴⁴

8.3.8 Social Conflicts

Proposed aquacultural activities can be resisted by local communities. Barg et al have written:

Cage culture installations sometimes have raised aesthetic concerns and conflict with tourism and traditional fisheries, and the enclosure of some public waters for culture has deprived other users of access.⁴⁵

The Standing Committee has heard a number of Australian examples of resistance to aquaculture developments on aesthetic or tourism grounds. These include opposition to salmonid cage culture in Tasmania and the growing of mussels on rafts in Twofold Bay near Eden.

8.4 Specific Industries

The New South Wales silver perch and oyster industries received considerable attention during the inquiry, primarily due to their specific problems. This section examines the difficulties encountered by these industries.

8.4.1 Silver Perch

⁴⁴ Evidence of Dr Glaister, 19 May 1997, p 38

⁴⁵ U C Barg, D M Bartley, A G L Tacon, & R L Welcomme (1997). "Aquaculture and its environment: a case for collaboration", *Developing and Sustaining World Fisheries Resources*, 2nd World Fisheries Congress, CSIRO, Collingwood Victoria, p 464

The Standing Committee received much evidence in relation to silver perch production and considers the manner in which the selection, production, and subsequent marketing of the species was carried out to be an important case study for government and the State's aquaculture industry.

8.4.1.1 Advantages

The Standing Committee heard that in the late 1980s NSW Fisheries identified silver perch as an aquaculture opportunity on the basis of a number of criteria, namely its physical, behavioural, biological, and reproductive attributes. Silver perch's desirable physical attributes included:

- attractiveness;
- scaled & relatively thick skinned for easy handling;
- flesh that is white, moist, and firm;
- few bones, easily filleted and skinned, making for easy processing;
- good keeping qualities chilled or frozen.

Silver perch's desirable behavioural attributes included:

- schooling characteristics;
- active near water surface and edge, making for easier feeding;
- adapts well to pond culture with high stocking densities.

Silver perch's desirable biological attributes included:

- wide temperature tolerance (2-38 degrees Celsius);
- omnivorous, allowing the use of cereal-based feeds;
- good food conversion ratio (1.6-2.3);

- rapid growth, with growth of up to 3g per fish per day and sexual maturity achieved in 2-3 years.

Silver perch's desirable reproductive attributes included:

- high fecundity, with 150,000 eggs produced per kilo of female body weight;
- well understood reproductive process;
- hormone induced spawning;
- established hatchery production.

Silver perch production was also considered well suited to inland New South Wales due to:

- availability of relatively unpolluted water;
- abundant land at relatively low prices;
- widespread availability of clay soils suitable for pond construction;
- opportunity for zero effluent discharge through settlement and evaporation and/or reuse via polyculture (for example irrigation).⁴⁶

The Standing Committee also received evidence from a number of past and present NSW Fisheries officers involved in the early stages of the silver perch project. Professor Robert Kearney, former Director of the Fisheries Research Institute and currently with the Faculty of Applied Science at the University of Canberra, stated:

I was as much responsible for us going into silver perch research as probably any other person, with the possible exception of Stuart Rowland. We went into it after a lot of research into trying to select a species that would be appropriate for New South Wales future aquaculture

⁴⁶ Information supplied to the Standing Committee by Dr Rowland at Grafton, 20 February 1997

development. We unashamedly copied the catfish industry in the United States to some degree. We looked at their success and looked at the areas in which we had at least comparative similarity and preferably a comparative advantage.

You are aware that the catfish industry in the United States is about a 250 thousand tonnes fishery which is about twice Australia's total fishing catch. We selected silver perch because it had market potential. ...⁴⁷

Dr Geoffrey Allan, Research Scientist at the Fisheries Research Institute, described some of the specific characteristics that made silver perch an attractive aquaculture species. In relation to the existing hatchery industry, Dr Allan said:

The fingerling industry was based on supplying fingerling stock to farms. That industry is worth several million dollars a year in Australia. That meant that the technology to supply fingerlings and the actual supply would not be a strain on developing aquaculture. That is almost unique among other species being considered for aquaculture throughout Australia.⁴⁸

Dr Allan also asserted that the species has a relatively high flesh recovery when processed and, referring to the rapid growth rate of silver perch, stated:

... the species grows very rapidly, from approximately 50 grams through to market size from October to May-June, so a summer-autumn period. That is as fast as any other species growing in Australia and in fact it rivals the growth and production of carp, tilapia and channel catfish, which forms the basis for industries around the world.

⁴⁷ Evidence of Professor Kearney, 12 May 1997, p 52

⁴⁸ Evidence of Dr Allan, 12 May 1997, pp 11-12

It grows very fast. It grows in quite dense situations, so you can farm it with a lot of its stock density. For a given area of ponds you can produce quite a large number of fish. From our research, we can produce around about 10 tonnes per hectare per year. That is equivalent to any other species, carp, tilapia or catfish.⁴⁹

In relation to the omnivorous nature of silver perch, Dr Allan stated:

Around the world most diets for species are based on fish meal. In Australia we produce little or limited fish meal. If we are going to have an aquaculture industry in Australia, we are not going to be able to rely totally on that. In general, in fish farming the nutrition costs anywhere between 50 to 80 per cent of the total operating costs, so we recognise the importance of the diet product.

With silver perch we had an omnivorous species with the potential to use Australian agriculture products.⁵⁰

8.4.1.2 Disadvantages

The Standing Committee heard that while silver perch had many advantages in relation to aquacultural production, there were also a number of potential problems in the production process. These include algal tainting, effluent disposal, bird predation, and species translocation. While the Standing Committee received conflicting evidence in relation to the seriousness of these, Dr Allan affirmed:

In terms of protecting the water environment, silver perch is a very environmentally responsible industry.

⁴⁹ Evidence of Dr Allan, 12 May 1997, p 12

⁵⁰ Evidence of Dr Allan, 12 May 1997, p 12

You have to dig ponds so there is some sort of land change, but I do not believe that it presents an environmental problem at all.⁵¹

8.4.1.2.1 Quality Control

The primary quality control problem facing the industry is that of off-flavours in the flesh as a result of algal and bacterial tainting. The practice of keeping the fish in clean water for a period prior to marketing, or purging, significantly reduces or eliminates these off-flavours, but is a relative expensive and land and capital intensive undertaking.

Dr Rowland describing the purging process as follows:

The muddy taste in all fresh water fish, all species, is derived from two main compounds—soluble compounds produced by blue-green algae and a group of bacteria called actinomycetes. The compounds are absorbed by the fish and stored in the fat. Those compounds are eliminated from the fish if they are placed in clean water without those compounds. You can add a little bit of salt to the water—it does not have to be salted. The period of time in the water depends on the degree of off flavour, the temperature and the fattiness of the fish. We recommend these things to industry, and it is up to it to undertake that.⁵²

Referring to the length of time required for purging, Dr Allan stated:

It basically depends on the concentration of the off flavours in the flesh of the fish. The two compounds are geosmin and 1-2 methylisoborneol. That causes that off flavour. If they are in a high concentration it takes longer for purge a

⁵¹ Evidence of Dr Allan, 12 May 1997, p 6

⁵² Evidence of Dr Rowland, 4 April 1997, p 21

fish. Generally from one to two weeks are more than enough to get rid of the strongest flavour.⁵³

Dr Allan related to the Standing Committee the experiences of the Taiwanese silver perch industry with respect to purging:

If I recall correctly, there was about 200 tonnes a year grown and that production has since declined and they are concentrating on higher value marine species in Taiwan. Taiwan is a country where land costs are extremely high and space is limited. It is a very different environment from Australia.

My understanding is that they have had a temporary move away from silver perch in Taiwan and it has been mainly driven by the off flavour problem. They need to purge the fish. That takes up space and that is much more expensive in Taiwan than Australia, because of land costs.⁵⁴

A number of witnesses supported the use of saline water in purging. Mr Whiffen claimed that saline water not only assists purging but renders fish flesh firmer, stating:

... if one takes freshwater fish like silver perch and it is taken through gradations into semi-saltwater—not 35 parts per thousand as sea water is but 15 or 16 parts per thousand. If one keeps them there for three weeks, all the muddy flavour has gone and the fish will be firm. However, no-one is doing that commercially. ... It (off-flavour) has given aquaculture a bad name because the Government has been pushing silver perch and people have eaten silver perch from a pond and it is no good. There is a market for good filleted fish, particularly if it is firm, white, and has a good clean taste. We can grow them.⁵⁵

⁵³ Evidence of Dr Allan, 12 May 1997, p 22

⁵⁴ Evidence of Dr Allan, 12 May 1997, p 5

⁵⁵ Evidence of Mr Whiffen, 3 April 1997, p 40

Mr Whiffen added:

We are currently working on inland aquaculture so that you can add salt if you wish to firm it up. It is an enzyme matter: the enzymes in fish soften the flesh, but that is not good because they become floppy. You can progressively add salt for three weeks and produce a very firm fish. Then you have to take the salt out [of the water] with a membrane. ... You can put salt in and you can take salt out, no problem.⁵⁶

Dr Allan supported saline purging primarily for flesh-firming, stating:

Straight salt water will kill silver perch, but transferring them to a saline water will help them regulate their off flavours, but so will fresh water. I think the advantage of salt water would be for other textural changes rather than a real advantage to off flavours.⁵⁷

The Standing Committee also received evidence relating to product of variable quality reaching the market through unlicensed growers. Mr Terry expressed concern in relation to unpurged and poorly handled fish, stating:

The quality is dubious because a lot of them do not have the infrastructure on their properties to deal with chilling and handling and packaging of fish, which, although licensed growers do not have to have, through our association we are making sure that they do have those facilities near at hand or on the property.⁵⁸

Mr Terry was critical of NSW Fisheries allowing farm dams east of the Great Divide to be stocked with silver perch due to the risk of species translocation and added:

⁵⁶ Evidence of Mr Whiffen, 3 April 1997, pp 41-42

⁵⁷ Evidence of Dr Allan, 12 May 1997, p 23

⁵⁸ Evidence of Mr Terry, 20 February 1997, p 14

It creates several different problems in that if they stock their farm dams fully with commercial quantities of fish they have water quality problems. Then, if the dams overflow, that low oxygen water or whatever goes into rivers and streams as well.⁵⁹

Mr Terry was also critical of NSW Fisheries' policing of the industry, particularly unlicensed growers marketing their product via licensed third parties.

Mr Terry said:

People are stocking farm dams with fish to sell and they are unlicensed. In fact, some of them are our members, and I have written to all the ones who are not licensed growers to say, "If you are selling fish, we want to know why you have not got a licence."

... We would like Fisheries to ... do something about policing of people who are selling fish.

... From my point of view, the licensing division is not even looking at it as an issue, yet there are a lot of fish in farm dams east of the divide, and people are selling them on the market, which affects us as growers. We have to go through the whole system, and it can take 12 months to get a licence, yet people are quite able to stock their farm dams and sell their fish as long as they do not get caught.⁶⁰

⁵⁹ Evidence of Mr Terry, 20 February 1997, p 6

⁶⁰ Evidence of Mr Terry, 20 February 1997, p 6

8.4.1.2.2 Effluent Disposal

The EPA and NSW Fisheries have imposed a policy of nil water discharge from silver perch farms in an effort to prevent species translocation, the spread of disease, and pollutants entering waterways. Dr Rowland believed that these relatively strict effluent guidelines were appropriate:

We have fairly tight conditions on silver perch farms, for obvious reasons. We do not want these fish to escape if they are not in the body of water if they are east of the Great Dividing Range, and we do not want them escaping if they are west either. We do not want water getting back into the river that might carry phosphorus, nitrogen, pathogens or whatever. The policy that has been set up by the department—it is probably the only species, outside the oyster industry, that has a specific policy—is very tight: people must have an effluent evaporative settlement dam and they are not allowed to release water into the wild. I do not think that they are terribly restrictive; they are responsible and environmentally sound.⁶¹

Despite this, the NSW Silver Perch Growers Association expressed concern that certain aspects of the environmental regulation of the industry were inadequate. Mr Terry stated:

We need more understanding of our water use, and we need more liaison with Fisheries on how to deal with our effluent. They have a policy that our effluent ponds have to be twice the size of our biggest pond to treat the effluent water. The EPA has guidelines to deal with that effluent water. Preferably, they say, you re-use your water. If I have got 500 ponds of half a hectare, regardless of how many I have got, my effluent pond only needs to be as big as two of my other ponds... . That, to me, needs to be looked at seriously because even an inch

⁶¹ Evidence of Dr Rowland, 4 April 1997, p 21

of rainfall on 20 ponds or whatever can put a lot of water in your one effluent pond.⁶²

Referring to water re-use, Mr Terry said that he believed more research and extension by NSW Fisheries was necessary to ensure that growers were aware of and adopted the best re-use technology, adding:

I do not think just having a settlement pond is good enough. The CSIRO has done a lot of work on improving water quality on farms. Fisheries has given us a nil discharge. That is the policy. There is to be no discharge at all to rivers from fish farm effluent. Most people are happy to deal with that, but if you have got a large farm and you only have an effluent pond twice the size of your biggest pond to deal with your effluent water, I think we can use channels and use technology a lot more to improve that water and re-use it.⁶³

8.4.1.2.3 Bird Predation

Some silver perch growers have had difficulty in controlling birds, particularly cormorants, that prey on fish kept in grow-out ponds. The Standing Committee is aware that some growers have resorted to shooting these birds.

Mr Terry told the Standing Committee that his Association is presently investigating a new, oil-based, bird control product and added:

The association has taken the policy that we adhere to National Parks and Wildlife policy on dealing with birds. ...

We have taken the view that if people cannot manage their bird problem without shooting them, then they need to consider netting or scare lines or things like that. It is not the association's policy that they shoot birds. It is not

⁶² Evidence of Mr Terry, 20 February 1997, pp 7-8

⁶³ Evidence of Mr Terry, 20 February 1997, p 8

an option. We encourage all members to deal with the problem by other than shooting.⁶⁴

Dr Allan agreed that shooting was undesirable and stated:

I believe there is a range of solutions to bird predation on fish, none of which involve shooting. I don't believe it is acceptable for an industry to be based on shooting birds. There are ways of excluding birds from ponds. To start with, my personal belief is that for young fingerlings it is total exclusion. For larger fish it is the judicious use of certain types of triangular wires which I understand work reasonably well. They are the most effective ways.

Our Department has been involved in putting in a research submission to try to look at some of those different ways to improve them but my personal belief is that industry cannot be based on shooting any of our wildlife.⁶⁵

8.4.1.2.4 Silver Perch Translocation

Silver perch are native to the Murray-Darling system, and are not found east of the Great Dividing Range except in systems where they have been accidentally or intentionally introduced.

Despite NSW Fisheries having a policy of restricting silver perch farming to west of the Great Divide, stocking of farm dams in the eastern drainage is allowed. Mr Terry was critical of allowing such dams to be stocked with silver perch, and gave the Standing Committee an example of how this could contribute to the accidental introduction of silver perch into river systems east of the Great Divide:

In fact, people in Coffs Harbour that I know had one holding dam above two smaller dams, and the whole lot ran

⁶⁴ Evidence of Mr Terry, 20 February 1997, p 8

⁶⁵ Evidence of Dr Allan, 12 May 1997, pp 14-15

during the flooding at Coffs Harbour into the river [Coffs Creek], and they had silver perch in those dams, a non-native species, in two of the dams that were flooding into the river. Apparently they did not escape, but that is a situation that can arise. We would rather see silver perch left west of the divide. There is no reason for them to be in the rivers here if they are a non-native species. We do not know what can happen, what diseases they contribute, what they do to wild stocks of anything else in the rivers.

... We would like Fisheries to do something about that, particularly for east of the divide, to use eastern freshwater fish, not western ones.⁶⁶

8.4.1.2.5 Lack of Departmental Support

A number of witnesses were critical of NSW Fisheries for what they perceived to be a decrease in the Department's commitment to the silver perch industry after earlier encouraging silver perch production.

Dr Rowland described the funding and staffing arrangements at the silver perch research station outside Grafton as follows:

Since 1990 the research at Grafton has been funded by CR funds and FRDC grants, which between 1990 and 1993 enabled us to employ two technicians and myself; there were only three of us there over those three years. Since then we have had a small FRDC grant enabling the appointment of one position, a Cooperative Research Centre grant, and a large grant from Australian Native Fish, which is a private company. That grant enabled us to build nine new research ponds, a shed, and to employ three technicians. The CRC and FRDC grants were completed last year. We have since obtained another FRDC grant on the fish meal replacement and nutrition research. The ANF grant finishes about now; late March or early April.

⁶⁶ Evidence of Mr Terry, 20 February 1997, p 6

During most of this time I have been the only CR-funded position on site. At the height of these grants we employed seven people on the research facility, plus an extension officer. For the first 12 months the extension officer was funded by OLMA or NOFARIC; it is currently funded by TAFE. That funding runs out in June. Last June there were eight positions at the facility. It is a large research facility.⁶⁷

Dr Rowland claimed that the continued development of the industry will be undermined unless NSW Fisheries devoted more resources to silver perch research and extension, stating:

We are struggling now to operate it [the Grafton Research Station]. In the last six months there has been—and there will continue to be—a significant reduction in research output and a significant reduction in extension. The extension officer has done an absolutely outstanding job. He was a technician for several years at Grafton. He is a very capable person. He has done a tremendous job liaising with the silver perch industry and the freshwater aquaculture industry in general. He has run workshops, he visits farms, and he is constantly talking to industry. The loss of that position will, I think, be very damaging to the future of the industry.

... Extension is vital in these new industries. If we look overseas, there is a major extension component in aquaculture industries. It is even more vital in Australia, where we have a very poor knowledge base in the aquaculture industry because it is so new.⁶⁸

Mr Terry claimed that existing information dissemination and extension services were inadequate, with his Association fielding many enquiries from potential new entrants to the silver perch industry. Mr Terry stated:

⁶⁷ Evidence of Dr Rowland, 4 April 1997, p 18

⁶⁸ Evidence of Dr Rowland, 4 April 1997, p 18

We try our best to advise them, but you need people going around and looking at their properties and talking to them, asking them how much money they have got, and telling them the cost to get involved. There is a lot of interest in it, but there are a lot of mistakes being made, and they will be made in the future because there is not the back-up there to advise them from go to whoa. Most of them have not got a clue what to do.⁶⁹

Referring to NSW Fisheries' perceived lack of commitment to the industry, Mr Terry stated:

As far as I know, they have stopped all interest in it. In a nutshell, that is it. It seems that they [the Department] have decided not to be involved in it, or they have left it up to the industry from now on to develop itself. There are a hell of a lot of questions that need answering, and we need a lot of support to develop the industry. ... There is one liaison officer for the whole of the State to deal with people who want to get into the industry.

It seems to me that Fisheries have said, "Okay, we have had research for six years on these fish, with diet research and so on. Okay, that is fine, and we will let them get on with it now." ...

There are a huge number of things that we need to find out to successfully grow the fish. To me, the biggest problem is that there is no back-up. It seems that they are not going to continue with research funding on the fish, and that is a big disappointment, but there simply is not enough support for people who want to get into the industry. And there is a lot of money floating around to get into it.⁷⁰

Mr Terry added:

⁶⁹ Evidence of Mr Terry, 20 February 1997, p 10

⁷⁰ Evidence of Mr Terry, 20 February 1997, p 9

It seems disappointing to me that despite its potential there seems an utter lack of commitment to it. I do not know why that is. When you look at the water use out west - and we can give you these figures if you like, just for your own interest. One megalitre of water produces one bale of cotton worth \$200. One megalitre of water produces a tonne of fish worth between \$5,000 and \$10,000, with a hell of a lot less damage to the environment. We do not use chemicals and other products that are harmful to the environment. When you look at that value, that is 500 per cent more value than the cotton industry, which is regarded as a high value industry, a major rural industry. It pales to insignificance.⁷¹

8.4.1.2.6 Marketing

The most serious long-term problem facing the silver perch industry is that of market acceptance. The Standing Committee heard much evidence in relation to the need for more effective marketing of silver perch, both within Australia and as an export commodity. Some witnesses raised doubts as to the veracity of market research conducted by NSW Fisheries prior to recommending silver perch production.

Professor Kearney claimed that the Fisheries Research Institute generally conducted limited research into a species' market potential prior to committing itself to a major research project into its suitability for aquaculture, stating:

There would have been no point in us going into major aquaculture research for a species that had no market potential, and, therefore, it was always a prerequisite for Dr Allan ... and myself and other senior staff to seek information on market potential of species that we might do and to seek industry input.⁷²

⁷¹ Evidence of Mr Terry, 20 February 1997, p 15

⁷² Evidence of Professor Kearney, 12 May 1997, p 62

Professor Kearney described the Department's initial market evaluation work as follows:

... we brought a senior Japanese sushi bar owner who owned a chain of 20 sushi bars in Japan to Australia. I personally prepared the fish which Stuart Rowland killed and did the preliminary processing on. He got very annoyed because after he had tasted the fish he said it was clearly the best freshwater fish he had ever eaten in the world and he wanted to buy 100 tonnes on the spot and thought we had hoodwinked him a bit because we did not actually have any. We were in the process of working out whether we should grow it. ...

We also had the Sydney food technology group at Ryde involved in taste tests. We did various cooking tests. Their response was overwhelming. We did freezer tests and all sorts of other tests on the species when we had only very small quantities of it. It was significant that the major criticism of the Japanese sushi bar owner was that the particular fish he had tasted was very fatty and he doubted we would be able to maintain the high fat content year round. In fact, the fish he had eaten had not been fed for four months. We had been putting them on a diet to try to reduce the fat content for some other tests we were doing. There is absolutely no doubt that their fat condition can be maintained year round.⁷³

This initial feedback was then used to justify further research into the aquacultural production of silver perch.

Mr John Roach, President of the Master Fish Merchants Association, claimed that supply characteristics were driving investment in aquaculture rather than market demand. Mr Roach stated:

⁷³ Evidence of Professor Kearney, 12 May 1997, pp 52-53

Part of the problem with the aquaculture is that ... they said, "Here's a fish that can be grown" and they went ahead and grew that fish without investigating the marketing side of it. We find we have a major problem at the moment with, say, silver perch. To produce silver perch, anecdotal evidence suggests from the farmer that it costs about \$9 a kilo to produce, but the market can only command about \$7 a kilo, so there is someone taking a \$2 a kilo loss on all silver perch produced. It does not add up. What should have happened was to start at the other end and say: What can we sell out of a list of products that can be grown; what promotion can be put towards those, and go ahead and market from a consumer point of view.⁷⁴

Mr Samuel Gordon, Executive Officer of the Master Fish Merchants Association, was critical of NSW Fisheries for not conducting more market research before encouraging the development of the silver perch industry, adding:

Unfortunately, the result seems to have been, and it is not just silver perch but also freshwater cray fish, ... People invest large amounts of money, which it does require, only to get to the end of it and find out there is no market. I think the fisheries department have acted irresponsibly and perhaps that comes back to the problem that their mandate at the moment only goes to growing it or catching it.⁷⁵

Dr Rowland agreed that the Fisheries Management Act limited the ability of the Department to do detailed market research, stating:

As I understand it, it is not the department's role because of the Act, so we leave it alone. We get to the fish production end of it and we leave the marketing and promotion of seafood in general to others.⁷⁶

⁷⁴ Evidence of Mr Roach, 14 April 1997, p 62

⁷⁵ Evidence of Mr Gordon, 14 April 1997, p 70

⁷⁶ Evidence of Dr Rowland, 4 April 1997, p 25

Dr Glaister conceded that the silver perch industry had significant marketing problems and may be more suited to Asian palates⁷⁷ and stressed:

There really does need to be a commitment by the people interested in aquaculture themselves to adequately market the product. The production that we have at the moment in New South Wales could more than flood the Sydney fish markets. The demand for silver perch is not high in New South Wales. So, the most likely source of that market growth for the species is as an export. I think the farmers themselves need to be able to tap into potential markets in South East Asia.⁷⁸

Nevertheless, Dr Glaister asserted that the Department was doing what it could to assist in the marketing of silver perch and gave the following example:

I was recently down the south coast and had discussions with the manager of the Eden fish processing company Stephen Brown, and I mentioned to him the difficulty with marketing of silver perch as being one of the impediments to developing that as an aquaculture candidate. Mr Brown was quite interested in pursuing that, and I have sent him printed material that we have on silver perch and also put him in contact with a couple of the farmers who are very keen to try to market silver perch.⁷⁹

8.4.1.2.7 Long Term Industry Viability

The Standing Committee heard divergent views in relation to the long-term viability of the silver perch industry. When asked if many silver perch operations were presently financially viable in the long-term, Mr Terry replied:

⁷⁷ Evidence of Dr Glaister, 19 May 1997, p 38

⁷⁸ Evidence of Dr Glaister, 19 May 1997, p 39

⁷⁹ Evidence of Dr Glaister, 19 May 1997, p 17

Fully operational, yes; fully viable, maybe not, and that includes nearly all of them. It is a precarious situation. Even ANF have 20 hectares or so, and they are probably just breaking even.⁸⁰

Dr Rick Fletcher, Director of Fisheries Research with NSW Fisheries, was equivocal in relation to the industry's long-term viability, but suggested that reducing production costs would benefit the industry. Dr Fletcher stated:

It could be a viable industry. ... biologically there is little impediment to it. Probably the major impediment at the moment is one of marketing and on that I have not the expertise to judge. ... Certainly from a research perspective we have overcome most of the major hurdles and are continuing to reduce some of the cost involved with silver perch production, including setting up selection lines for faster growth. We have undergone feeding trials to come up with the best feed and low cost feeds, as well as locally produced feeds, and reducing fish meal. These are all of benefit. However, there are other aspects beyond the control of what our research can do which may or may not mean that silver perch is ultimately a successful large aquaculture industry.⁸¹

While agreeing that it would be essential to lower production costs, Dr Allan was more optimistic about the future of silver perch. Referring to the long-term pricing of silver perch, Dr Allan stated:

... I see there is an immediate market at the moment for live fish and that is what is actually being sold now at around \$10 a kilo to the farmers and that is a market of a few hundred tonnes. That is shown out by the only studies I am aware of.

⁸⁰ Evidence of Mr Terry, 20 February 1997, p 12

⁸¹ Evidence of Dr Fletcher, 2 April 1997, p14

Once we get past that stage of a few hundred tonnes, I am sure the price the farmers will receive will be substantially lower than that ... but I believe it will be a price at which the farmers will be able to produce the fish at some profit.

...

I would that say in Australia we import about 45,000 tonnes a year of fish, not tinned fish, but fresh and frozen, whole and filleted fish, and the average price of those imports is somewhere between \$2 and \$5 a kilo. I believe we can grow silver perch somewhere in that band width and sell it to make a profit. I do not think there is a marketing problem.

If you ask the farmers at the moment can they sell silver perch for \$5 a kilo and make a profit they would say no. They can grow and market silver perch at \$10 a kilo, with less than 100 tonnes being produced. As the volume goes up... They will get into the market for the cheap product and at that stage the farmers will have developed the technology and have the experience to produce commercial silver perch at an acceptable price.⁸²

Dr Rowland cited "a general lack of support and promotion" as a major factor in the industry's struggle to become viable, but conceded that it is a technical industry that is not easy to get into⁸³. Dr Allan also emphasised the technical nature of the industry, suggested that operators would take some time to learn how to produce efficiently, and compared it with the establishment of the prawn farming industry in Australia, stating:

The farmers start off with a technology package developed by New South Wales Fisheries and they decide which parts of that package are important for them to learn about in their circumstances. That takes several years. During that time they kill a lot of fish. In many ways I would be

⁸² Evidence of Dr Allan, 12 May 1997, p 4

⁸³ Evidence of Dr Rowland, 4 April 1997, p 21

surprised if a majority of farmers were making money, but if you asked me that question in five years time, I am sure the answer would be different. There are some commercially viable farmers and their numbers will grow and the viability of that farming will grow, but that is my best guess.⁸⁴

Professor Kearney suggested that economies of scale through large scale production would assist the industry in becoming viable, stating:

I am reasonably confident that nobody has gone into it big enough to make it go. When we did the developmental research, we said all along, and I can provide the documentation on this, that for someone to really make a go of it they must do it on a large scale because of the need for purging and other things affecting marketing require a constant quality of product and a product that is available year round.

Clearly, we saw as one of the targets people like Macdonalds who still import 100 per cent of their fish and the other food chains require constancy in supply. We estimated that until someone was producing of the order of 1,000 tonnes a year they would not be able to get the market share and maintain the consistency of quality that was required. In fact this has been born out by a number of very small operators getting into the market and producing variable quality product which has detracted from the species' standing in the market place.

... I have no doubt that if a large enough player comes into the silver perch industry in this State, they will make a lot of money.⁸⁵

⁸⁴ Evidence of Dr Allan, 12 May 1997, p 6

⁸⁵ Evidence of Professor Kearney, 12 May 1997, pp 53-54

Despite the current marketing problems being experienced by silver perch growers, Dr Rowland was enthusiastic about the future of silver perch aquaculture in New South Wales and suggested that import replacement might be a viable market segment for the species. Dr Rowland stated:

On the big picture and in the future, the massive market is in the white fish that Australians consume. ... we import 70 per cent of the white-fleshed fish that we eat in Australia. It is imported from South America, New Zealand and so on. Much of it comes in very cheap product, but also a lot of it comes in the middle range. To me that is where we need to target silver perch, paralleling the catfish industry ... If we can get production costs down low enough, that massive market of processed product in the supermarkets, food chains, hotels and hospitals is there for the taking, that is, if we can get the price structure right and the production costs right.

Silver perch is the only species that can get into that area. That area is also serviced partly by the wild fisheries industry and as their products decline ... we must farm those fish or continue to import them.⁸⁶

8.4.2 Oysters

The Standing Committee received much evidence in relation to the problems of the State's oyster industry which have seen Sydney rock oyster production almost halved since its peak of around 10,000 tonnes in 1976-77.⁸⁷ The New South Wales oyster industry is presently divided into two main interest groups, based primarily on the size of individual operations and attitudes towards farming Pacific oysters. These groups are represented by two organisations, the Oyster Farmers' Association of NSW, representing the larger interests, and the NSW Farmers' Association Oyster Division, some of whose members are

⁸⁶ Evidence of Dr Rowland, 4 April 1997, p 25

⁸⁷ NSW Fisheries Research Institute (1995). *New South Wales Commercial Fisheries Statistics 1940-1992*, Cronulla, pp 303-308

attempting to farm Pacific oysters commercially following the species' introduction to waters around Port Stephens. This separation among the industry has been blamed by the Department for hindering progress, with Dr Glaister stating:

Not the least of the problems are that there are two quite distinct camps, the Oyster Farmers' Association and the New South Wales Farmers' Oyster Section. That division is based largely on the size of holdings but also fundamentally on how the introduction of the exotic Pacific oyster impacted on individuals.

It has caused enormous drama and has split families and communities, and the Fisheries Department has been largely the meat in the sandwich.⁸⁸

The main issues brought to the attention of the Standing Committee were the questionable viability of certain oyster producers, declining estuarine water quality, administrative problems within NSW Fisheries, the Departmental research programme's perceived lack of commercial focus, and the absence of marketing tools to counter falls in consumer confidence.

8.4.2.1 Industry Viability

The viability of smaller enterprises was questioned during the inquiry by the Oyster Farmers' Association of NSW. In evidence, Mr Richard Roberts, in his capacity as President of the Oyster Farmers' Association of NSW said:

The salient point is the fact that members of the Oyster Farmers' Association of New South Wales produce around 70 per cent of the State's oyster crop. ... about 4 per cent of the permit holders—the people who own the leases in New South Wales—produce about 50 per cent of the New South Wales oyster crop; about 20 per cent produce 90 per cent; and about half the permit holders in the industry produce no oysters at all. So for various historical reasons

⁸⁸ Evidence of Dr Glaister, 7 July 1997, p 38

the industry comprises a lot of people who are simply not in any way commercial; they are people who are just sitting on leases.⁸⁹

Mr Roberts added:

Statistics available, principally through the Australian Bureau of Agricultural and Resource Economics surveys of all rural industries in Australia, clearly show that anybody who produces less than \$22,500—I think that is the figure at the moment—in gross earnings from beef, wool, wheat or oysters is not considered to be a commercial farmer. In the case of the oyster industry, that would represent about 50 bags of production. This means that by ABARE standards about 70 per cent of permit holders in the industry would be looked upon as being uncommercial. Using ABARE's figure that would bring in a net income of around \$10,000. An average family man on social security would get \$23,556 a year. So there is a significant poverty trap at the bottom end of the oyster industry in New South Wales.⁹⁰

In contrast, the NSW Farmers' Association, in a submission to ACIL Economics, authors of a strategic plan commissioned by the NSW Oyster Industry Plan Steering Committee, wrote:

... the size of an oyster production enterprise should not lead to a judgement that it is not a legitimate farming enterprise. Each farmer has a set of criteria they use to determine the 'success' of their farming enterprise. ... Many small oyster farming enterprises are professionally run and are considered by the manager to be economically

⁸⁹ Evidence of Mr Roberts, 2 April 1997, pp 69-70

⁹⁰ Evidence of Mr Roberts, 2 April 1997, p 70

successful, when measured against the subjective 'success' criteria of the grower.⁹¹

Difficulty in obtaining commercial loans is another factor perceived to be contributing to the industry's problems. Oyster leases are presently granted for an initial term of 30 years, following which leases are renewed every 15 years. The Oyster Farmers' Association of NSW claimed that most leases had now been issued for more than 30 years and had moved to renewal every 15 years. The Association supported 30 year lease renewals, with the ability to renew mid term, or Torrens title over oyster farms to provide growers with better security of tenure and thereby improve their ability to borrow against their holdings.⁹²

8.4.2.2 Environmental Problems

Environmental degradation and the consequential decline in water quality and productivity has also been identified as a major threat to the oyster industry's viability. In its Strategic Plan, ACIL Economics identified declining water quality and the introduction of the Pacific oyster, an aggressive competitor, into Port Stephens (once the largest oyster growing estuary) as the two major causes of the decline in the State's oyster production.⁹³ With respect to the effect of declining water quality on industry viability, the Strategic Plan states:

The current wisdom is that the oyster industry is vulnerable to various changes in water quality which result from environmental degradation and increasing population density along coastal rivers and estuaries. Given the intrinsic preference of the majority of Australians to live along the coastal fringe, some conclude that a viable oyster industry is simply incompatible with nearby human habitation. Moreover, the filter-feeding attributes of the

⁹¹ NSW Farmers' Association as quoted in ACIL Economics Pty Ltd, *Oysters at the Crossroads: A Strategic Plan for the New South Wales Oyster Industry*, May 1997, p 22

⁹² Submission 86, Oyster Farmers' Association of NSW, p 12

⁹³ ACIL Economics Pty Ltd, *Oysters at the Crossroads: A Strategic Plan for the New South Wales Oyster Industry*, May 1997, pp 7-8

oyster allow untoward organisms to be concentrated, posing potential health risks to consumers, and requiring constant vigilance in the interests of consumer safety ...

The alternative approach, which ACIL recommends ..., proceeds from the premise that the oyster is a uniquely valuable indicator of the environmental health status of rivers and estuaries. ...

In essence, if NSW coastal waterways are fit to support oysters which are healthy for consumers, they will pass muster on any more general water quality grounds. Concern about oyster disease or contamination should be primarily directed at the causes of the problems, namely the pollution sources, not at turning the oyster industry into a convenient scapegoat or considering it expendable.⁹⁴

Mr Laurie Derwent, Fisheries Manager - Oysters, New South Wales Fisheries, emphasised differences in productivity between individual oyster producing areas as the primary factor contributing to the abandonment of leases. Mr Derwent stated:

If I could be bold enough to suggest, the oyster industry has developed over 100 years, its methods have changed, and the area in which oysters are grown—and grown successfully these days—is different from what it was late last century. From my current project I believe that there are a number of areas that are suitable for oyster farming but perhaps are not necessarily available for oyster farming for various planning reasons, or they have not been made available for various planning reasons. I think the object of the aquaculture industry development plans that are mentioned in the Fisheries Management Act are to help identify those areas. At the same time, there are a lot of areas that are currently held as leases, and have been for many years, that are not suitable for commercial oyster

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ACIL Economics Pty Ltd, *Oysters at the Crossroads: A Strategic Plan for the New South Wales Oyster Industry*, May 1997, pp 2-3

cultivation using today's methods, and the industry is still holding those for a range of reasons. Of course, that is basically looking at the areas that are suitable for growing oysters. But there is a lot of work that could be done, if resources were available, in developing oyster farming technology suitable for New South Wales conditions. The joint research project involving triploid oysters I saw as being of a high priority. The problems with pollution and disease in oysters, including QX disease, which I was involved in, are something of a black shadow over the oyster industry.

... the healthy rivers aspects are ones that certainly must take priority because, no matter how well oysters grow, if they are not coming out of clean waters, the marketplace is not likely to be very happy about it, even if the oysters can be treated for the pollution that is affecting them.⁹⁵

8.4.2.3 NSW Fisheries Administration of the Oyster Industry Criticisms

The Oyster Farmers' Association of NSW was critical of the administration of its industry by NSW Fisheries. The Association submitted:

The OFA has major concerns regarding the incapacity of NSW Fisheries to manage the NSW oyster industry, particularly the basic administrative and management requirements as prescribed in the Fisheries Management Act 1994. This problem is exacerbated by the need to service such a high proportion (70 per cent) of permit holders who are non-commercial.⁹⁶

The Association claimed that the numerous geographic relocations of the Department in the last decade and constant staff changes had made it "impossible to build sound and stable management structures, let alone pursue

⁹⁵ Evidence of Mr Derwent, 28 July 1997, pp 9-10

⁹⁶ Submission 86, Oyster Farmers' Association of NSW Ltd, p 1

stable and predictable policy directions and retain any corporate memory". The Association also considered that, given the importance of the oyster industry in New South Wales, the number of Departmental staff devoted to the industry was disproportionately few.⁹⁷

In evidence, Mr Roberts reiterated this view and stated:

... the New South Wales oyster industry is the largest single fishery in New South Wales. We have about 25 to 30 per cent of the gross value of production of all commercial fishing in the State, yet the number of resources within the Department which are looking after this sector are blatantly totally inadequate. There is one person on the administrative and policy side full-time; there is a second person part-time, and on top of that there are probably three to four people working on things such as lease renewal and administration. Yet when you turn to the commercial sector, which is two to three times bigger than us in financial terms, it has staff of 70 to 80 plus. That is not referring to people involved in the research side of the industry, just on the sheer management and administration. When I entered the industry years ago a far greater proportion of people were working on the oyster industry but over time the Department's commitment to this sector has declined.⁹⁸

Mr Roberts gave an example of how this perceived lack of resources was affecting the administration of the oyster industry:

The principal areas which New South Wales Fisheries administers in respect of our industry are oyster leases and aquaculture permits. The aquaculture permits were new under the 1994 Fisheries Management Act. Again, this is where you start to find the lack of resources coming through. Oyster leasing, which is the renewal of leases or

⁹⁷ Submission 86, Oyster Farmers' Association of NSW Ltd, p 5

⁹⁸ Evidence of Mr Roberts, 2 April 1997, pp 70-71

the granting of leases, has involved massive backlogs in the renewal of leases that are a little complex. The worst case I heard of recently involved a lease—given that leases last for only 15 years—that was still in the too-hard basket 18 years after the application was made. I personally have a lease which I have applied for which has now been floating around for—I am guessing now; I think it is about six years, and it is no closer to resolution today than it was the day that I made application for it.⁹⁹

Mr Roberts also claimed that the Department had failed to collect oyster lease rentals and Quality Assurance Program levies, claiming that between 15 and 20 per cent of the value of the former and around 50 per cent of the latter are not being collected.¹⁰⁰

The criticisms of the Oyster Farmers' Association of NSW received some support from the ACIL Economics Strategic Plan, which stated:

Fisheries has recently begun to chase up unpaid rent payments and growers failing to submit a production return, but it must also develop a process to ensure routine compliance by all growers with public liability insurance payments and industry levies.

ACIL's overall assessment is that, notwithstanding the difficulties it confronts, Fisheries' performance is mediocre at best. The main problems are: a lack of policy development expertise (or reactive rather than pro-active policy), poor follow through of policy decisions, and insufficient timeliness in handling routine administrative tasks. ... To be fair to Fisheries, two important contributing factors are the construction of the *Fisheries Management Act*, and the level of funding.¹⁰¹

⁹⁹ Evidence of Mr Roberts, 2 April 1997, p 71

¹⁰⁰ Evidence of Mr Roberts, 2 April 1997, p 72

¹⁰¹ ACIL Economics Pty Ltd, *Oysters at the Crossroads: A Strategic Plan for the New South Wales Oyster Industry*, May 1997, p vii

Departmental Response

In response to these criticisms, Dr Glaister stated:

... the system of leases has been a manual one up until recently. There was a loss of significant staff from New South Wales Fisheries when it was moved to Orange, then back again. I believe that quite significant corporate memory was lost with that move, and that has caused some problems in the oyster lease section.

We are developing a geographic information system, a computer-aided system, to allow more rapid automated turnaround on oyster leases. That is in its development stage and is progressing very well. I expect that the problems that we have will fade once that is in place.¹⁰²

Mr O'Conner expanded on these comments:

... we have put a lot of effort into improving the administration of the oyster lease area in recent years. In addition to a geographic information system, we are resurveying all leases in the State to ensure that we have a very precise - that is, within one metre - description of where those leases are located. We have also developed a comprehensive database to try to ensure that we manage the transfer of leases and the lease administrations more efficiently.

Specifically with regard to your comment on rentals and levies being overdue, certainly it is a routine practice in the department to send out reminder letters. There are also policies in place to ensure that no transfers of leases, et cetera, take place without all those payments being up-to-date. But, beyond that, there is also provision in the Act

¹⁰² Evidence of Dr Glaister, 26 May 1997, p 47-48

for us to take more draconian action in terms of cancellation, or suspension, of leases and permits after a defined period. We are approaching the period with regard to some of those levies to be able to take more substantial action in the near future.

All I can say is that we are chasing those things up on a routine basis. The proportion that you are talking about is something like 16 per cent of oyster growers who appear not to be paying their rentals or levies on schedule.

... There is provision in the Act to cancel or suspend permits or leases where they have not been up-to-date with their payments for a period of, I think from memory, two years. Some of those levies have not been in place for that period of time as yet, and so that provision in the Act has not been open to us.¹⁰³

8.4.2.4 NSW Fisheries Oyster Research Programme

The Oyster Farmers' Association of NSW was also critical of the NSW Fisheries oyster research programme. The Association submitted:

Over the years many oyster farmers have been critical of the research program of NSW Fisheries believing it has been of little relevance to their needs. This criticism may be in part due to the lack of consultation of NSW Fisheries researchers with the industry before and during the research and the lack of extension services to communicate results and its application. Many oyster farmers believe that the research has been primarily geared at obtaining higher degrees or publishing scientific papers rather than fostering the industry.¹⁰⁴

¹⁰³ Evidence of Mr O'Conner, 26 May 1997, p 48

¹⁰⁴ Submission 86, Oyster Farmers' Association of NSW, p 8

In addition, the Association's submission was critical of the Department's extension services and doubted the value to the industry of work into establishing an oyster hatchery, stating:

Moves by NSW Fisheries to investigate commercial oyster hatchery technology in NSW, while welcome, have been technically orientated without encompassing the broader economic and management needs of the industry.

The Sydney rock oyster industry has been developed around the use of wild caught oysters, and it appears that there is little support for a hatchery from Sydney rock oyster farmers. In these circumstances a hatchery would most likely fail commercially.

It appears to the OFA that the hatchery proposal is being proposed to assist in the development of abalone and other shellfish in NSW. The OFA is opposed absolutely, to the use of oyster R & D funds for the development of facilities for other shellfish.¹⁰⁵

In evidence, Mr Roberts added:

... New South Wales Fisheries has always had a fisheries science bent, to the exclusion of everything else. One of our suggestions is that maybe New South Wales Fisheries would be better going back to being a commodity division within the Department of Agriculture. When New South Wales Fisheries was previously a part of that Department, we had access to its marketing and economics people, rural adjustment and other areas within the department. We are now totally isolated from that. I do not think it is a healthy situation to have that narrow focus and we do not get a whole-of-industry approach.¹⁰⁶

¹⁰⁵ Submission 86, Oyster Farmers' Association of NSW, p 9

¹⁰⁶ Evidence of Mr Roberts, 2 April 1997, p 79

NSW Fisheries rejected these criticisms, claiming that the oyster research programme would be of direct benefit to growers. Dr Allan described the programme as follows:

At the moment our research is primarily concentrated on developing single seed oysters and on genetically improving the strain of oysters to allow oysters to be grown to market size approximately one year earlier than those currently being farmed.

We have identified that the biggest problem in the industry today is that ... it takes three to four years to produce a market size oyster. Together with that, with all the problems of habitat degradation and in some cases the Pacific oyster, it costs the farmers too much money to make a marketable crop. ...

Our next step was to look at whether we can selectively breed the oysters for faster growth or disease resistance ... a couple of generations of breeding from selective lines have shown that we can significantly improve growth rates for oysters. Our other focus has been to look at inducing triploidy, to produce oysters with three sets of chromosomes rather than two. These oysters are sterile. Instead of putting their energy and resources into their sexual development, their gonads, they are putting that into their growth.

With Sydney rock oysters, that means that those triploid oysters grow 30 to 40 per cent faster than the normal diploid oysters and they taste the same. When we combine our triploiding with our mass selection and our hatchery technology, we believe we have an animal that will give the industry an opportunity to make money by turning up a crop one year earlier than they might have otherwise done.¹⁰⁷

¹⁰⁷

Evidence of Dr Allan, 12 May 1997, pp 7-8

8.4.2.5 Post Harvest Marketing Support

Elements of the oyster industry were also critical of the lack of oyster marketing by the Department. The Oyster Farmers' Association of NSW submitted:

NSW Fisheries provides no promotion or marketing services to the NSW oyster industry. NSW Fisheries supported the OFA in its efforts to introduce a promotion and marketing program, at the same time as the introduction of the QAP levy. ... At all times the impetus and drive for this program has come from the OFA.¹⁰⁸

The Association specifically supported the introduction of a seafood marketing levy to allow the industry to promote its product and speedily react to market developments. Mr Roberts stated:

... there was going to be a promotion levy for the oyster industry imposed on the industry but that was scuttled because of opposition from some oyster farmers, most of them at the bottom end of the industry, ... The State Government at the time was prepared to put in what they were calling loans—basically, they would never be repaid—for a quarter of a million dollars, and all of that fell through, which was unfortunate because a key part of that was crisis management. In the current climates that we have been going through, with the problems in Wallis Lake and further north, those particular programs would have been invaluable.¹⁰⁹

The Master Fish Merchants Association supported the latter proposition, with Mr Gordon stating:

At the moment there is a lot of concern that there could be a form of market collapse. We have seen a market collapse

¹⁰⁸ Submission 86, Oyster Farmers' Association of NSW Ltd, p 10

¹⁰⁹ Evidence of Mr Roberts, 2 April 1997, p 73

recently with the Wallis Lake oyster scare where we had a market collapse of 85 percent in sales of oysters and 30 percent in fish across the board. ... We would be overly optimistic to believe that there are not going to be other market collapses in the future.

Where we are in a difficulty at the moment is that we are unable to afford, as an industry, to put some positive media back in to try and get the sales to recover at a faster rate. At the moment we are very much in a situation where we look on helplessly and hope that, after a period of time, the public will get their confidence back. Again we have not got the statistics to work out just how damaging this is to the industry, but it would not be an exaggeration to say that millions of dollars have been lost since the Wallis Lake tragedy.¹¹⁰

The Standing Committee supports the introduction of a broad-based seafood post harvest levy, including oysters, to facilitate quality assurance, product development, and seafood promotion (see Recommendation 6).

8.5 Conclusions and Recommendations

The Standing Committee considers that soundly managed aquaculture, particularly inland aquaculture, represents a major opportunity for New South Wales to expand its seafood production in an ecologically sustainable way. While recognising the need for rigorous environmental safeguards, the Standing Committee believes that the present absence of a coordinated development approval process is the major obstacle to the expansion of the State's aquaculture industry. Accordingly, the Standing Committee recommends:

¹¹⁰ Evidence of Mr Gordon, 14 April 1997, pp 64-65

Recommendation 25

That an interdepartmental task force be formed to identify geographic zones within New South Wales suitable for specific types of aquacultural development. This task force should consist of representatives from NSW Fisheries, the Department of Urban Affairs and Planning, the Environment Protection Authority, the Department of Land and Water Conservation, and other relevant agencies and be charged with developing a strategic plan which:

- **outlines clear and zone-specific criteria against which aquaculture development applications will be judged. These criteria should include environmental parameters;**
- **can be used as the basis of aquaculture development plans as provided for under Part 6 of the *Fisheries Management Act 1994*;**
- **provides for a predetermined period of community consultation, including public advertisement of proposals and provision for public submissions; and**
- **nominates a lead agency to act as the point of contact in the development approval process and coordinate the responses of other agencies.**

The Standing Committee also considers that the marketability of a species should be thoroughly investigated before significant research is conducted into its suitability for aquacultural production. The Standing Committee believes that those engaged in seafood marketing are best placed to comment on a species' likely market value and recommends:

Recommendation 26

That NSW Fisheries be given a statutory obligation to consult with relevant seafood marketing bodies prior to committing significant funds to research the suitability of particular species for aquacultural production.

9 RESEARCH

9.1 Introduction

The need for accurate and adequate research has been repeatedly emphasised throughout the inquiry as the foundation for management decisions to ensure equitable allocation and sustainable management of the resource. The prioritisation of the limited research funds available must balance the need to provide user groups and managers with the basis for making informed and defensible management decisions and ensure a broader strategic assessment of fish stocks.

Research providers receive funding from a number of private and public sources, including universities, the CSIRO, NSW Fisheries, other fisheries agencies and private consultants. Funding for fisheries-based research is provided by the fishing industry and the State and Federal governments.

9.2 Fisheries Research in NSW

Fisheries research in NSW undertaken at the Wollongbar, Grafton, Port Stephens, Cronulla and Narrandera research centres. The Director and Deputy Director of Research are located at the Fisheries Research Institute at Cronulla. The Research Division employs 127 staff, with 36 per cent of total research staff employed on external funding. The budget for NSW Fisheries research in the year 1996/97 was \$8.7 million, with 45 per cent of the total budget derived from external sources.

The NSW Biennial Report of Fisheries Research (1992-1994) outlined the State's research objectives in the *NSW Fisheries Research Strategic Plan* as follows:

1. Identify research priorities in consultation with key client groups.
2. Attract funds from industry and government to support research priorities.

3. Describe the size and distribution of major fish stocks and key species.
4. Describe and assess the catch by all user groups and harvesting techniques.
5. Investigate the dynamics of exploited fish populations.
6. Provide estimates of sustainable catch for key species.
7. Research the relationship between the fish and their environments.
8. Research techniques to minimise the adverse impact of fish harvesting and developments.
9. Research techniques for the enhancement of fisheries and fish habitats.
10. Identify species with aquaculture potential.
11. Develop production techniques suitable for the adoption by industry.

The strategic plan identifies the broad range of responsibilities that must be covered by the limited resources of NSW fisheries. Modification of the existing fisheries legislation and a heightened awareness throughout the community of the impact of habitat degradation on fisheries resources has placed increasing demands on the limited resources available. The Biennial Report stated:

NSW Fisheries' successful stewardship of the new Fisheries Management Act and the progressive move by the NSW Government towards improved use of property rights in the fisheries management process has increased the demand for precise resource assessment and predictions for future catches. At the same time community realisation of the negative effects of habitat destruction and

alteration has increased the pressure for more involvement by fisheries researchers in environmental issues.¹

Determining which proposals should be given priority and devoting the required resources and time to projects which are generally considered by all user groups to be of primary importance have been one of the principal difficulties associated with prioritisation of fisheries research.

9.3 Assessment and Funding of Research Proposals²

The majority of fisheries based research in Australia is funded by the Commonwealth. State-based Fisheries Research Advisory Bodies (FRABs) submit specific research proposals to the Commonwealth Fisheries Research and Development Corporation (FRDC). The FRDC assesses these proposals and directly funds the successful researchers and research institutions.

A 1996 FRDC survey of the quality of fisheries research in Australia was critical of the communication between research bodies in each state and indicated that better communication would result in a more efficient use of the limited research funding available. The survey report stated:

The main factors seen to be influencing the setting of research priorities were fisheries management problems identified by the Department and industry identified needs. None of the research units reported considering research done in other research units when they set their own priorities and there appear to be no mechanisms to consider research being done elsewhere in current priority setting

¹ NSW Fisheries, *Biennial Report of Fisheries Research 1992-1994*, ISSN 1037-761 p 4

² For more information on the relevant advisory bodies see the Standing Committee on State Development *Report on the Fisheries Management Amendment (Advisory Bodies) Act 1996*

process indicating that there may be duplication of research effort.³

The Standing Committee notes that throughout the inquiry, NSW Fisheries has been criticised for an inability to provide concise clear and comprehensive research upon which resource allocation and management decisions can be based. Dr John Harris, Supervisor - River Conservation, indicated that at least some of the problems in satisfying the clients of fisheries research stem from the gradual decline in available resources:

... When I became responsible for the freshwater research section approximately a decade ago, seven scientists were funded directly from government sources answering to the position of leader, but now there are only two. It has been a long, slow decline. It has not happened at any one stage, but it has coincided with an enormous increase in the number and severity of issues that we feel are directly affecting fisheries and which we should attempt to deal with.⁴

The quality of fisheries research is further influenced by the time frame associated with the majority of research projects and constraints on funding available to carry out more strategic ongoing research. The NSW Fisheries submission argued that current funding arrangements did not allow for effective long term monitoring necessary for stock assessment and the determination of management strategy effectiveness. The submission stated:

It is important to point out that the current level of external funding of research programs carried out by NSW Fisheries is high (approximately 40 per cent), and that external agencies generally will not fund long term monitoring studies. Such studies, which are so basic to our understanding of the state of our fisheries resources, need therefore to be funded by the Department. Commitments

³ Elizabeth Gordon Werner (1996). *Fisheries Research Quality Survey*, Fisheries Research and Development Corporation, ISBN 0 7310 9400, p 5

⁴ Evidence of Dr Harris, April 2 1997, p 18

to externally funded projects in recent years have meant that these studies have been under resourced in the past, but this cannot continue. Funding such projects in the future may, therefore, necessitate some re-prioritisation of existing research programs.⁵

The Department has requested more funding to carry out strategic and ongoing research which is not accommodated in the current framework. Dr Rick Fletcher, Director of Fisheries Research, outlined the proposal as follows:

The greatest difficulty the Division will encounter in producing these status reports and stock assessments in general will be the lack of resources to conduct ongoing monitoring. This style of research provides a long time series of data for use in detailed stock assessments. The changing nature of exploitation as new management plans are introduced, in addition to the natural fluctuations in abundance of stocks that occur through environmental influence on recruitment, means that these assessments should be completed on a regular basis to ensure that the true status of stocks are known. Thus the collection of this information needs to be a core activity of the Department which would form the basis of all other research activities.

Currently, less than 50 per cent of research funding is sourced from recurrent expenditure and, if only operating budgets are used, the figure is even lower. Thus, the majority of projects completed recently have been externally funded and while they have been prioritised on the basis of answering specific problems related to major fisheries management issues, they have been of short term duration (one to three year investigations) and therefore "tactical" in nature. External funding agencies will not fund the required ongoing monitoring which they rightly see needs to be derived directly from government sources.

⁵ Submission 42, NSW Fisheries, p 33

A proposed enhancement project has been submitted to Treasury which would increase funding to fisheries research and therefore enable the basic information necessary for the fisheries assessments described to be carried out within the commercial coastal and rivers sections. The alternative of massively re prioritising the NSW fisheries research budget, which could still only accommodate a part of the additional monitoring activities, would require entire sections ceasing operations. All of these are, however, presently considered core business and consequently lead to significant Departmental outcomes.⁶

9.4 Review of Fisheries Research

9.4.1 Premiers Department Report on the Review of the Operations of NSW Fisheries

In January 1996 the Premiers Department released its *Report on the Review of the Operations of NSW Fisheries*. The review was conducted by two Premiers' Department officers, Ricardo Ramirez and John Slidziunas. The authors found that there was a lack of cohesion between the divisions of NSW Fisheries. The report commented that the lack of cohesion had resulted in research which was not sufficiently oriented to the core objectives of the Department, and stated:

The review found NSW Fisheries operating in a fragmented manner, with divisions more intent on securing their own growth and influence than on working cooperatively towards Departmental goals. This makes it necessary to take steps to refocus the Department towards its core business, restructure the agency to ensure such focus is maintained, and provide the policy means to give it strategic direction.

⁶ W J Fletcher (1996). *Review of Research Programs*, NSW Fisheries September/October 1996, NSW Fisheries Research Institute, pp 21-22

The research effort needs to be directed more sharply into the areas which are essential for the achievement of NSW Fisheries core objectives. The review found that the direction of research was very much influenced by the search for extra, external funding and by the researchers need to publish scientific papers in order to be considered for promotion.⁷

Professor Robert Kearney, former Director of Fisheries Research and present Head - Department of Resource, Environmental and Heritage Sciences, University of Canberra, was critical of the review's findings and maintains that they were incorrect and politically motivated. Professor Kearney stated:

... in essence I believe that almost all of the factual statements relating to research are wrong in that report and I say that unqualified. They are wrong. I found it a rather strange review. To come out at that time and make all these statements that were factually wrong.⁸

I think you should know that in the course of the compilation of that document I spoke to the people who subsequently authorised it and presented it and indicated my concerns and they indicated to me that they were certainly, in parts of it, under clear instructions from the Minister's office to carry out the review in the way in which they were doing.⁹

Professor Kearney was also critical of the report's recommendation to sell the fisheries research vessel Kapala, stating:

The second major statement was on the fisheries research vessel Kapala, that the Kapala is apparently run down and

⁷ NSW Premiers Department, *Report on the Operation of NSW Fisheries*, January 1996 p 1

⁸ Evidence of Prof Kearney, 12 May 1997, p 50

⁹ Evidence of Prof Kearney, 12 May 1997, p 51

in need of an overhaul which may cost up to \$250,000. The Department's vessel at that stage was 25 years old. It was in excellent condition. In fact, it was still on its original engine, hardly a statement of a vessel that was run down. It was in excellent condition considering its age.

It said that "The vessel appears to operate without an operational plan or overall direction of her program and its activities may be of little direct value to the management of State Fisheries". That was clearly a statement that was wrong. The Research Institute when I took over it concentrated on Commonwealth managed fisheries exclusively and you could have made that statement then. However, it was not the case at the time this review was done.¹⁰

Dr Glaister, Director of NSW Fisheries, indicated to the Committee that the decision to sell the Kapala resulted from an assessment of the condition of the vessel and discussions with the Australian Fisheries Management Authority (AFMA) concerning the responsibility of the type of research Kapala was carrying out.

Briefly, the vessel is some 28 years old, in need of major refurbishment. The estimates to refurbish it vary, but they have been around \$1.5 to \$2 million. There is a need to replace the winches, most of the electronics, the motors, and some structural changes to the vessel. It is a purpose-built fish trawler. It has been used for other research, but mainly it has been built for fish trawling.

There have been a number of reviews, and they have all concluded that the vessel is basically unsuitable for non-trawl work. It is currently working on revisiting some sampling that it did 20 years ago to look at the impacts of fishing that have occurred over that time.

¹⁰ Evidence of Prof Kearney, 12 May 1997, p 50

The decision was based on the fact that I have had some extensive negotiations with the Australian Fisheries Management Authority, Richard Stevens, looking at working in the south east trawl fishery, which is a Commonwealth-managed fishery, one of the major fisheries. AFMA considered the request to make a commitment to undertaking some long-term research work. They basically declined.

I made further representations. It was one of the first jobs that I did when I joined the Department. Again, there was a negative response. Finally, there was a decision from AFMA that they were not interested in supporting that work. Given that decision, really a review of research in the Department showed that there was not any work for the boat, and based on that conclusion I made the decision.¹¹

When asked how offshore research would be conducted in the future, Dr Glaister replied:

I am reviewing our offshore compliance needs at the moment. If we did need to have an offshore research vessel capacity, we would be looking at a multi-use vessel that could also be used for compliance. To answer your question, we could either charter a research vessel, we could purchase a multi-purpose vessel, or we could lease a research vessel.

There are a number of ways of undertaking the work, including observer programs on commercial vessels, egg and larvae surveys using smaller, high-speed vessels, and a properly conducted acoustic survey would also deliver that kind of outcome.¹²

¹¹ Evidence of Dr Glaister, 26 May 1997, p 44-45

¹² Evidence of Dr Glaister, 26 May 1997, p 45

9.4.2 Review of Research Programs September/ October 1996

Primarily as a response to the Premiers Department review, Dr Fletcher conducted his own review of research programs in September/October of 1996. The report indicated that the major deficiencies were not the nature of the research projects being conducted but in an awareness of how this was directly related to the management of the relevant fishery.

In general, unlike the impressions, most of the research projects being conducted were related to the core activities of the Department. Probably the major deficiency I perceived was the link between the individual project and how it fitted into the larger scheme of influencing the subsequent management of the relevant stock or fishery. Thus there is a need to change the focus of individuals from merely working on projects to working on fisheries/stocks with the project being seen as only part of the process and not an end in itself. There are probably a number of reasons why this has occurred including the short term nature of most funding, and the previous open access style management in which the actual fisheries themselves were difficult to identify.

The report went on to suggest strategies that would provide a greater focus for research and develop research programmes which specifically identify the areas of need for each fishery.

The two main strategies that will assist in the process of ensuring that a global, yet focussed research is undertaken are: First, I have instigated a new publication that will be produced on an annual basis entitled "Status of the Stocks". This document will contain summaries of all the data and current assess on each stock / fishery/habitat. These could be expanded later to include information on the major management and compliance issues.

... The second strategy that will help with the commercial areas will flow from the formulation of the new management plans. Each of these will have performance

indicators that relate to the status of the stocks which will therefore require frequent/annual updates. This should provide the framework in which all research in these areas can be formulated and focussed. For example the two fisheries where this has already happened (Abalone and Rock Lobster) both have a clear research focus.¹³

The Standing Committee recognises the limitation of the existing trend toward the short term externally funded research projects. The existing funding mechanisms have encouraged the management and staff of NSW Fisheries to prioritise projects designed to attract funds rather than consider the long term strategic needs of fisheries management. This has created a reactive and myopic environment in which the effort fails to focus on the more strategic research which will determine the long term sustainability of fish stocks. State and Federal agencies which fund fisheries research must recognise the importance of the need for a more proactive approach, with greater emphasis on long term monitoring programmes to assess the status of stocks and the effectiveness of current management strategies.

9.5 Criticisms of Research

9.5.1 Relevance of Research to Client Groups

Criticisms of the current research structure indicate there is dissatisfaction with the relevance of some research proposals to the client groups and a perceived politicisation of the research effort. The commercial sector remains critical of the current method of allocating research funds. Mr March, Chairman of Oceanwatch indicated to the Committee that the commercial sector desired to play a more instrumental role in the participation and determination of research projects.

Ownership of research is possibly the single most important thing that you can give to the fishing industry. They have got gut feelings on what knowledge is needed. They have

¹³ W J Fletcher, *Review of Research Programs NSW Fisheries*, September/October 1996, p 21

also got gut feelings on what knowledge is not needed. Currently, under the guidance of Queensland and New South Wales, we are spending \$600,000 on research projects into mullet. Any fisherman worth his salt could have given you 99 per cent correct answers if you asked him at the pub, but the researchers wanted to do dollars on getting answers to questions that the fishermen already know.¹⁴

Prof Kearney indicated that the determination of research effort must remain an objective process that it is not under the control of any single user group.

That is a very difficult and complex issue because industry clearly needs to be advised of what is going on and needs to play a role. You have to be very careful with the balance. When you have natural resources that are over-exploited or in danger of exploitation, you have to be careful of industry's input. I do not believe industry should be the final custodian of what research is done.

The real role should be in identifying the problem and in suggesting the ways of fixing those problems that involve industry action. However, they must not be the final custodian of research projects carried out in assessment of the total resource, or setting catches taken from that resource. It is a very difficult narrow line you have to walk.¹⁵

9.5.2 Internal Review of Research Proposals

The change in the administration of NSW Fisheries resulted in a change in the policy for the internal review of research publications. Formerly, approval was gained via a review by the Director of Research; currently the approval of all research publications rests with the Director of Fisheries. The Master Fish

¹⁴ Evidence of Mr March, April 3 1997, p 74

¹⁵ Evidence of Prof Kearney, May 12 1997, p 57

Merchants Association (MFMA) outlined the industry's concern regarding the changes to the review procedure as follows:

The MFMA has previously found the Fisheries Research Department to be efficient and Professional. The Associations Requests in regard to catching sector research had received very helpful and detailed replies. This professional relationship had worked both ways, for example, some merchants had assisted the Department with research (for instance snapper farming).

It came as a surprise when the research Department, unofficially, expressed to the MFMA their concerns about the deteriorating relationship between Fisheries senior management and the catching sector. The catching sector had withdrawn practical support previously provided to Department researchers. The commercial fishers intimated, as the reason for the withdrawal of their support, the concern that the thrust of research papers when finally released, varied somewhat from results indicated from the original results taken on board the fishing vessels. The industry wide conjecture is, that if the content of the a draft report was not commensurate with Ministerial and Fisheries Department preferred results, such reports were subject to significant editorial change. Such speculation is destabilising for industry and associated research.¹⁶

In response to questions put by the honourable Ian Cohen, Dr Glaister sought to clarify the current arrangements regarding the review of research material and outlined the rational regarding the change in the procedure for research reviews. Dr Glaister stated:

Dr GLAISTER: The responsibility for research delivery rests with the Director of Fisheries Research, Dr Rick Fletcher. However, there are also responsibilities that I have, as the Chief Executive Officer for Fisheries. Those include

¹⁶ Submission 80, Master fish Merchants' Association of NSW, p 16

responsibility for management, research and operations. The requirement that research outputs are sent through to the Director of Fisheries merely recognises that responsibility. I have, in former times, been an active researcher myself, and in some areas of research I believe I can value-add to some of that work. But the main reason, basically, is to ensure that research outputs are consistent with departmental policy.

The Hon. I. COHEN: Can you understand why people may perceive that there may be an unhealthy amount of interferences in research that should be independent?

Dr GLAISTER: I would agree that science needs to be independent. I do not know whether I would agree that it is unhealthy that I take that interest because, as I say, I am responsible to the Minister for the administration of New South Wales Fisheries, and an important part of our work is that involved with research. So I see it as entirely consistent that I take an interest in the outputs from the research section.¹⁷

Prof Kearney, previous Director of Fisheries Research, supported management proposals which strengthened the dialogue between the management and Research Divisions of Fisheries.

I think it is important that the Director of the Department be made aware of all research findings. In fact, it was one of my areas that I had been pushing both while I was with the New South Wales Government and since I left, that one of the things that governments have done in recent years is let research and policy get too far apart.

Many a Minister has said to me that it is easy to make good decisions if you are given good advice. Unfortunately, in New South Wales Government in recent years, the

¹⁷ Evidence of Dr Glaister, May 19 1997, p 5

research and policy divisions of various departments have got further and further apart and that is not peculiar to New South Wales Fisheries. I was keen to address that. I think it is important that the policy and management are fully advised of research outcomes but I do not believe there should be any direction of what research should be published in the peer review literature. I think that would be inappropriate.¹⁸

None of the principal research scientists examined by the Committee felt that the research emanating from the Research Institute was undergoing significant editorial change in order to present Departmental management policies in a more favourable light, and in general saw the closer association of the Research and Management Divisions as a desirable and necessary management policy. For example, Dr Geoffrey Allan, Head - Aquaculture Research, said that he had never had modification made to any of his research reports.¹⁹ Dr Phillip Gibbs, Principal Researcher - Coastal Conservation and Research, indicated that the current review procedures were consistent with accepted scientific review practices:

The involvement of science is such that in terms of writing reports, the reports go through for editing and there is various editing done by our peers and colleague at various times on scientific reports. Modification of those is left to the editorial licence of the person who wrote it.

If there are issues related to management or recommendations which impact upon the Government of the day, it is perfectly reasonable for senior management to provide input at that point.²⁰

Dr Harris supervisor of river conservation research, although supportive of closer association of research and management divisions questioned the

¹⁸ Evidence of Prof Kearney, 12 May 1997, p 72

¹⁹ Evidence of Dr Allan, 12 May 1997, pp 2-3

²⁰ Evidence of Dr Gibbs, 12 May 1997, p 3

efficacy of having all research publications reviewed by the Director of Fisheries. Dr Harris stated;

Firstly, the arrangements for approving research publications have changed with the new administration over the last year or so, to the extent that we now have a directive that any research results have to be approved by the Director of Fisheries. That has been a major change because in the past it has been the responsibility of the Director of Research to provide approval. In the past I have commonly had a number of interactions with the Director of Research about particular research reports, where, as part of the policy and review process changes have been made, but internally at the research institute it has always been the practice that we have day-to-day contact as researchers with the managers in our field. We make best use of that because we come from different perspectives on to the same issues and it is important that we do have a good level of communication. Commonly as part of that we, as researchers, learn and improve our output. We certainly actively seek the advice of managers who are relevant to our area and their response to particular findings and the ways that those are interpreted, so it is an interchange that is an important part of our overall processing, I believe.

... I think the Director of Fisheries cannot hope to have technical control over all the detailed items within his Department. I think that is impossible for any person, no matter how skilled. I think there is a need in any well structured, efficiently functioning organisation to devolve the responsibility for its various components to the appropriate people, and I think there is a major issue there.²¹

²¹ Evidence of Dr Harris, 2 Apr 1997, p 30

Although the Standing Committee recognises that the Director of Fisheries should be kept informed of all Departmental activities, there is a need to ensure that the Department's research is perceived to be strictly independent. Accordingly, the Standing Committee recommends:

Recommendation 27

That the Director of Fisheries be advised of research results but not hold power of veto over the publication of those results.

9.5.3 Determination of Research Priorities

The then Chair of the Committee, the Hon Patricia Staunton MLC, indicated that it was important that the clients of fisheries research have a perception that research is carried out in an objective and transparent fashion. Ms Staunton questioned the Director of Fisheries research over the need for a more objective system which clearly defined how research was prioritised.

... Dr Fletcher. Do you have within your division or is there within Fisheries what I would call a fisheries research policy? Do you have a proper research committee? Does it have terms of reference? Is there a proper, objectively based, transparent process whereby research priorities are determined? At the moment it seems to be a bit of hit and miss and anecdotal. Do you understand what I am saying? That is one of the criticisms that the Committee is getting: there is no objectively based, transparent process that goes into determining research priorities; it is what some particular person in the Department thinks is a good idea rather than something based on sound, objective data and criteria that somebody can point to and say, "There are the guidelines. There are the ground rules. This is the committee that has made the decision. It is truly representative. The process is transparent." Whilst you may not please all of the people all of the time, at least the

majority of people in the industry can be satisfied that you know what you are doing.²²

Dr Fletcher indicated that it was the intention of the Department to restructure the way in which research was prioritised to provide a more clearly defined process:

Really what we are attempting to do now is set up teams within the whole department. If there was a team on, say, rock lobsters then the team would include a manager, a researcher and the operations staff. They would have regular meetings at which problems would come up and issues such as project proposals would be discussed. They would agree as a team beforehand. That would be one of the better ways. Once they get in place the germ of an idea for a project, a proposal could be put around at that type of forum and then the reasons for the project being put up would be discussed, and what management implications there would be if the project was successful would be discussed. If it was deemed to be sufficiently useful you would then go to industry and discuss the proposal. If they were in agreement then it would continue through.²³

The Standing Committee believes that, although there are no indications of impropriety in the development or approval of fisheries research, the lack of an objectively based, transparent process to determine research is creating the perception amongst user groups that the process is being manipulated in order to cast the Department in a favourable light. The Standing Committee therefore recommends:

Recommendation 28

That the Advisory Council on Fisheries Research should identify, as a priority, a consultative process to develop clear and consistent guidelines for the

²² Evidence of Dr Fletcher, 2 April 1997, p 22-23

²³ Evidence of Dr Fletcher, 2 April 1997, p 22-23

Department and the Advisory Council on Fisheries Research for the identification, prioritisation, assessment, peer review and publication of research. This process should identify a consultative role for each Advisory Council and Management Advisory Committee.

That NSW Fisheries engage each Advisory Council and Management Advisory Committee in the process of identifying key research and data needs.

11 RESOURCE ASSESSMENT AND ALLOCATION ISSUES

11.1 Introduction

The Standing Committee considers that the sustainability of the State's fisheries are presently under direct threat from over-exploitation, by both recreational and commercial fishers, and indirect threat through habitat degradation. The Standing Committee recognises the present vulnerability of many of the State's fisheries and believes that the next few years may represent the last opportunity to implement fisheries management regimes that will ensure the sustainability of the resource for future generations. The sustainability and equitable distribution of the State's fisheries resources is dependent on allocation mechanisms which provide management agencies with objective, rigorous and defensible advice and habitat protection initiatives that can effectively work within the complex and sometimes conflicting existing regulatory framework.

11.2 Resource and Conservation Assessment Council (RACAC)

The NSW Natural Resources Audit Council (NRAC) was established in 1993 as an independent body reporting to the Government. Its main objective was to facilitate a systematic and comprehensive audit of all the values of public lands and natural resources of New South Wales on a regional basis. The Carr Government came into power in March 1995 with a commitment to provide a broad based mechanism for natural resource decision making. NRAC was restructured to facilitate this policy to become the Resource and Conservation Assessment Council (RACAC) in June 1995.

RACAC is made up of a 14 member council including representatives of the State and Commonwealth Governments, the timber and mining industries, the union movement, conservationists, the academic community and the indigenous community. RACAC is supported by the Resources and Conservation Division of the Department of Urban Affairs and Planning.

11.2.1 Present Role of RACAC

While RACAC may advise the Government on broad based land issues, it has focussed on forestry issues since its inception. RACAC presently meets once a month and reports to the forestry sub-committee of Cabinet.

RACAC's Terms of Reference are as follows:

- 1.1 Interim assessment of high conservation value old growth forest.
- 1.2 Coordination of comprehensive regional assessments of public and private forested land.
- 1.3 Undertake the development of a comprehensive, adequate and representative reserve system.
- 1.4 Facilitate the negotiation of regional forest agreements with the Commonwealth.
- 1.5 Facilitate the wilderness assessments in accordance with the following process:
 - assessment and identification of nominated wilderness to be performed by the National Parks and Wildlife Service in accordance with the *Wilderness Act 1987*;
 - RACAC to have regard to the process mentioned above and to make recommendations to the Forestry Sub-committee of the Cabinet Standing Committee on Rural and Natural Resources.
- 1.6 Undertake after reference whole-of-region analyses and make recommendations on the allocation and use of public and private lands.
- 1.7 Facilitate World Heritage, National Estate and other intra governmental strategic commitments.

- 1.8 Complete the work of the previous Natural Resources Audit Council.
- 1.9 Facilitate the implementation of the biodiversity survey program by assisting the National Parks and Wildlife Service inter-agency coordination and data exchange protocols.

11.2.2 The RACAC Assessment Process

11.2.2.1 Data Collection

RACAC aims to involve stakeholders and the community through regional resource assessments. These assessments involve the establishment of an extensive database using methods accepted by participating stakeholders. The data is then coordinated and compiled into an interim assessment which is made available for public discussion.

11.2.2.2 Negotiation

RACAC uses the interim assessment as the basis for inter-stakeholder negotiation on resource allocation issues. RACAC's 1996 Annual Report sets out the Council's role in the development of consensus on resource use in the forestry industry:

RACAC's task in undertaking the interim assessment is to draw together a wide range of scientific data and also to draw together the major stakeholders in the forest debate, including conservationists, industry and union representatives. This resulted in a first for Australia with long standing adversaries sitting down together to negotiate over the eastern forests of NSW.¹

RACAC considers such negotiation critical to the widespread acceptance of any management plan, with the Council's Annual Report stating:

¹ RACAC Annual Report 1996, p 63

A lack of consultation and consensus over forest issues has in the past led to piecemeal decisions lacking widespread credibility and acceptance.

From the outset, therefore the participation of the community, both directly and through their representative stakeholders was seen as a basis for a successful result. ²

11.2.2.3 Outcome

The outcome of the negotiations facilitated by RACAC are recommendations to the Government. Where the Government's response results in the loss of stakeholder access to the resource, compensation and structural adjustment programmes are formulated. In the case of the forestry industry, compensation and structural adjustment is determined by the Forestry Industry Structural Adjustment Unit of the Department of Land and Water Conservation.

11.2.3 Expanded Role of RACAC

The Standing Committee considers much of the present conflict in relation to fisheries management to be a resource allocation issue and that the resource is being impacted by the "tyranny of small decisions" arising from the plethora of Federal, State and local government agencies responsible for fish habitat management. The Standing Committee believes that these conflicts are exacerbated by a perception that NSW Fisheries' resource assessments are biased to favour a particular interest group and/or are based on incorrect or incomplete data.

The Standing Committee believes that the implementation of an unbiased, transparently compiled and widely accepted resource assessment process is the first step towards an equitable and sustainable allocation of the State's fisheries resources. The Standing Committee recognises that parallels exist between the management and allocation of both forestry and fisheries resources and believes that RACAC, through the development of forestry management strategies, has achieved a high degree of consensus among stakeholders in the forestry

² RACAC Annual Report 1996, p 65

debate. The Standing Committee understands that RACAC has already had limited involvement in the assessment of fish habitat and recreational fishing as part of its broader resource assessment role and considers that RACAC could contribute to a consensual resolution of existing fisheries resource conflicts. Specifically, an extension of RACAC's present responsibilities to an assessment of the State's fisheries would provide the Government with "rigorous and defensible advice" as the basis for equitable, objective and sustainable allocation outcomes. Accordingly, the Standing Committee recommends:

Recommendation 31

NSW aquatic resources, including fish and fish habitat, be assessed as part of the continuing work of RACAC so as to provide an accurate, current and ongoing assessment statement of the state of NSW fisheries.

11.3 Compensation

Where changes in the user mix or level of fishing effort occur over time, fisheries managers must find means of equitably and fairly reallocating the resource to ensure the long term sustainability of the fishery. Payments to fishery participants in exchange for a reduction or cessation in their fishing activities is one solution. Such compensation can be used to reduce effort in overexploited fisheries, eliminate unsustainable fishing practices, or reallocate fish stocks to users that attach a higher value to them.

The Commonwealth has recognised that reallocation, particularly from the commercial fishing industry to the recreational sector, will be a central issue for fisheries management in future. The National Steering Committee on Recreational Fishing wrote:

As recreational fishing continues to expand, especially in areas close to the major population centres, the allocation of resources between user groups will continue to be a major issue.

There is little doubt that in the future there will be resource reallocation from commercial to recreational in some

fisheries - particularly in shore and estuarine waters of major recreational importance.³

NSW Fisheries considers that the payment of compensation should be limited to where a property right exists and must be contingent on a detailed knowledge of the particular fishery gained through research. Dr Glaister told the Standing Committee:

What it comes down to is that if you are sure about a particular fishery—if you understand the dynamics of it, if you understand what can sustainability happen, and if you are willing to issue a strong property right to do that and wear the consequences—that is okay. However, if you have any doubt, it would be irresponsible of me as a public servant to advise the Minister to introduce a system—or, for that matter, for the Government to agree to a system—in which there was an open cheque, with a potential to blow out to hundreds of millions of dollars. That could happen, and future taxpayers would have to wear it. That is basically where I am coming from.⁴

While conceding that compensation schemes may have a role to play, Dr Glaister argued that the decision to pay compensation should be made by government, stating:

I think the issue of compensation and buy-backs again, without trying to duck the question, really is an issue for government. Buy-backs, for example, have been trialed in Canada and in New Zealand and places like that. Generally, as a rule of thumb, buy-backs tend to quickly soak up what is called latent effort, as the jargon is, which is basically effort that is not effectively being currently deployed, in other words, boats that are perhaps not being

³ National Recreational Fisheries Working Group (1994). *Recreational Fishing in Australia: A National Policy*, National Steering Committee on Recreational Fishing, C/- Department of Primary Industries and Energy, Canberra, p 14

⁴ Evidence of Dr Glaister, 7 July 1997, p 26

used to full capacity, et cetera. People who own those assets generally favour the quick exit, take the money and run. That is certainly, in a long-term planning sense, a way of removing a potential problem, so that you are taking them up at current market value and that then tightens up the management for the rest of the fishery. You have talked about compensation. Again I say that compensation is an issue that government must face, not public servants.⁵

The Standing Committee acknowledges that the present transformation of the State's fisheries management mechanisms will inevitably result in the displacement of some commercial fishers. At present, there is a perceived inconsistency within the *Fisheries Management Act 1994* in that the Act only provides for compensation to participants in a share management fishery that has been removed from Schedule 1, whereas compensation is not payable where a fishery ceases to be a restricted fishery. The Standing Committee believes that compensation is integral to sustainable fisheries management as it provides a socially acceptable means of reducing fishing effort. Some form of compensation and adjustment assistance should be available to commercial participants in any fishery that is either not economically viable or has been closed as a result of a resource allocation decision (for example, the establishment of a marine park). Accordingly, the Standing Committee recommends:

Recommendation 32

That the *Fisheries Management Act 1994* be amended to provide for the provision of adjustment assistance and/or the payment of compensation to commercial fishers who either are excluded from their fishery as a result of a resource allocation decision (eg marine park) or wish to surrender their endorsement. Specific compensation and structural adjustment packages should be determined by RACAC.

The Standing Committee considers that an agency parallel to DLWC's Forestry Industry Structural Adjustment Unit is required to process the compensation and

⁵ Evidence of Dr Glaister, 19 May 1997, p 70

structural adjustment claims of commercial fishers. Accordingly, the Standing Committee recommends:

Recommendation 33

That a Fishing Industry Structural Adjustment Unit of NSW Fisheries be established to determine, in consultation with RACAC and affected stakeholders, individual structural adjustment packages. The Government must ensure that this Unit is adequately funded.

10 INDIGENOUS PARTICIPATION IN THE NSW FISHING INDUSTRY

10.1 Indigenous Ownership of Marine Resources

Indigenous groups in many countries are now seeking greater influence in the ownership and management of marine resources. Policies which effectively recognise the rights of indigenous Australians are central to management which provides for equitable allocation of fisheries resources on a sustainable basis.

To be effective, sustainability policies must succeed socially by working to overcome inequities and ignorance concerning indigenous peoples interests and rights in fisheries and an array of coastal and aquatic systems.

....Perhaps the major obstacle to implementing ecologically sustainable development criteria in the context of indigenous sea resources is that the indigenous sector is not generally integrated in national fisheries administration, through conventional management channels, laws and so on. Lack of integration of the indigenous sector frustrates effort to achieve "closure" and is incompatible with expressly stated aims of including all relevant user groups in resource management under the principles of ecological sustainable development.¹

10.2 Indigenous Participation in Fisheries Management

10.2.1 Commonwealth

Limited recognition of indigenous rights in the management of marine resources have been formalised in the *Torres Strait Fisheries Act 1984* which provides statutory recognition for the traditional way of life of indigenous people, including the unrestricted use of regional fisheries for subsistence. The *Torres Strait Fisheries Act 1984* established a Protected Zone Joint Authority which is responsible for the

¹ Ecologically Sustainable Development Working Groups (November 1991). *Final Report*, NSW Fisheries, p xlii

management of several fisheries including the dugong fishery. Torres Strait Islanders have indicated that they would like greater control over the management of the commercial fisheries in the area.

In Torres Strait a continuum exists between commercial and traditional fishing, as Torres Strait islanders may practice community fishing by registering with community councils and fish caught may be either used for subsistence purposes or sold. Although current mechanisms for formal involvement in coastal management by Torres Strait Islanders are more comprehensive than elsewhere, these arrangements do not recognise Islander interests. Islanders believe that the activities of commercial fishers adversely affect the subsistence resources of island communities.²

The rights and role of Australia's remaining indigenous population in the management of marine resources is contingent on the determination and implementation of the relevant Commonwealth State and Territory Acts.

10.2.2 Commonwealth *Native Title Act 1993*

The common law of Australia has recognised traditional land rights since the decision of the high court in *Mabo No.2* in 1993. The *Native Title Act 1993* and the subsequent Wik decision have focussed on pastoral leases and mining rights.

Under the *Native Title Act 1993* rights in land do not equate to rights to wildlife resources. It is possible for indigenous people to have native title rights over an area but limited resource rights... On the other hand under S. 211 of the *Native Title Act 1993* it is possible to have specific resource rights without full property rights in land.³

² Mary Bomford and Judy Caughley (Eds) (1996). *Sustainable Use of Wildlife by Aboriginal Peoples and Torres Strait Islanders*, Bureau of Resource Sciences, Canberra, p 82

³ Mary Bomford and Judy Caughley (Eds) (1996). *Sustainable Use of Wildlife by Aboriginal Peoples and Torres Strait Islanders*, Bureau of Resource Sciences, Canberra p 77 ,

As Legislators and government struggle to come to terms with the impact of native title land claims new problems have emerged in determining the validity of sea claims.

The *Native Title Act 1993* referred only to native land title but does not preclude the possibility that rights in common law in relation to the sea and its resources may exist. Indigenous ownership of the sea and its resources have not yet been recognised in either common law or statutory law. The likelihood that native title can exist and has persisted in marine environments is supported by legal commentators including the office of general counsel of the Commonwealth Attorney - General's Department.⁴

The determination of what impact the *Native Title Act* has had in relation to indigenous participation in the management of Australia's marine resources is contingent on the High Court's decision in relation to existing land-sea claims. The first of these test cases is being put forward for 2000km² of sea by an Aboriginal Community living approximately 200km north of Darwin on remote Croker Island. In an attempt to clarify the governments position on native title issues in general, the Federal Government has presented a controversial ten point plan. Point 8 seeks to clarify the position of the Government in regards to native sea title.

8. The ability of governments to regulate and manage surface and subsurface water, offshore resources and airspace, and the rights of those with interests under any such regulatory or management regime would be put beyond doubt.

The commercial fishing industry is aware of the potential impact that native title claims could have on the industry and are involved in lobbying government to protect the industry. The Australian Seafood Industry Council (ASIC) has elevated its lobbying efforts to get these principles (particularly point 8) into a legislative form acceptable to the industry.

... Specifically, ASIC wants to see:

⁴ Mary Bomford and Judy Caughley (Eds) (1996). *Sustainable Use of Wildlife by Aboriginal Peoples and Torres Strait Islanders*, Bureau of Resource Sciences, Canberra p 82

- confirmation of the validity of existing statutory schemes governing commercial fishing rights and aquaculture, including renewals and restrictions on native title rights developing into competing commercial rights;
- clarification and improvement of compensation provisions if native title rights involve some impairment; and
- improvement of the position in relation to onshore/offshore boundaries.⁵

10.2.3 Northern Territory

The Northern Territory and Queensland have the most formal legislation in relation to indigenous subsistence use of marine resources. The Northern Territory legislation provides Aboriginal people with the greatest options.⁶ The 15 per cent of Australia's indigenous population that resides in the Northern Territory holds 67 per cent of Australian land under Aboriginal freehold title.⁷ Section 53 of the *Northern Territory Fisheries Act 1995* makes provision for Aboriginal fishing stating:

Unless and to the extent to which it is expressed to do so but without derogating from any other law in force in the Territory, nothing in the provision of this Act or an instrument of a judicial or administrative character made under it shall limit the right of Aboriginals who have traditionally used the resources of an area of land or water in a traditional manner from continuing to use those resources in that area in that manner.

⁵ *ASIC Bulletin*, official newsletter of the Australian Seafood Industry Council volume 3 No 2, June 1997, p 1

⁶ Mary Bomford and Judy Caughley (Eds) (1996). *Sustainable Use of Wildlife by Aboriginal Peoples and Torres Strait Islanders*, Bureau of Resource Sciences, Canberra, p 82

⁷ Mary Bomford and Judy Caughley (Eds) (1996). *Sustainable Use of Wildlife by Aboriginal Peoples and Torres Strait Islanders*, Bureau of Resource Sciences, Canberra, p 78

Licensing arrangements accommodate community needs with a special category of commercial license. Technical and business assistance is provided for Aborigines wishing to engage in commercial fishing.

10.2.4 Queensland

Indigenous interests are represented under s.26.(1) of the *Queensland Fisheries Management Act 1994*, under which the Queensland Fisheries Management Authority is:

to ensure the fair division of access to fisheries resources for commercial recreational and indigenous use.

The involvement in the management process of indigenous users is also recognised through their representation on Management Advisory and Zonal Committees (MACs and ZACs). QFMA has identified four main types of indigenous interest or user groups. These are:

- 1) indigenous persons or communities who fish for traditional or customary purposes;
- 2) indigenous persons or communities who fish for recreational purposes;
- 3) indigenous community which has a nominated community resident who fishes for the whole community and supplies their non market fish needs; and
- 4) indigenous commercial fishers.

10.2.5 Victoria

Amendments to the *Victorian Fisheries Act 1995* in 1996 and 1997 resulted in the formation of the Fisheries Co - Management Council and the appointment of Fishery Committees. Victorian Fisheries has provided for Aboriginal representation on the Fisheries Co-Management Council. Consultation between the Co-Management Council, Aboriginal Affairs Victoria and regional meetings with Community Elders resulted in the following principles or guidelines for traditional use:

- the recognition of legitimate stake holding of indigenous users of coastal resources;
- that conservation and sustainability, and public safety, should be overriding planning and management considerations and may require some restriction of traditional uses;
- all resource users should have equal opportunity in consultation and involvement in coastal resource management;
- coastal resources should be generally managed for multiple uses, conflicts should be minimised and the need for priority setting between traditional and nontraditional uses should be avoided;
- laws and policies should not unnecessarily restrict or inhibit traditional uses; and
- there should be legislative exemptions where possible for traditional cultural purposes.

10.2.6 South Australia

South Australia has no formal policy or provisions under the *Fisheries Act 1982* to address indigenous interests in relation to fisheries. Aboriginal fishing interests are handled on a case by case basis through the existing management and advisory bodies structures.

10.2.7 Western Australia

Fisheries in Western Australia are managed under the *Fish Resources Management Act 1994* and the *Pearling Act 1990*. The *Fish Resources Management Act* exempts Aboriginal fishers from the licence fee required for recreational fisheries. Although the Department of Fisheries has no formal policy, it does accommodate for the interests of indigenous fishers in particular areas and for particular species. Community licenses can be applied for by recognised and established groups through submissions to fisheries. The recreational fishing advisory council has an

Aboriginal community representative to explain indigenous interests relating to recreational fishing.

10.2.8 Tasmania

The *Living Marine Resources Management Act 1996* has specific provisions for Aboriginal fishing interests. The implementation of these provisions is dependent on defining what constitutes Aboriginality and Aboriginal cultural activity.

Aborigine is defined under s. 3 as;

The definition of “Aborigine” is restricted to those of Aboriginal descent who have “always been known as Aborigines”.

Aboriginal cultural activity is also defined under s. 3 as;

“Aboriginal cultural activity” as for personal use only (ie includes simple sharing but absolutely excludes sale, including barter), and as “based upon Aboriginal custom of Tasmania as passed down to” the Aborigine concerned.

Aborigines undertaking cultural activities are able to do so without a licence provided it is not detrimental to the resource and subject to the Act.

10.2.9 NSW: indigenous fishing rights and the *Fisheries Management Act*

The *Fisheries Management Act* does specifically recognise indigenous fishing interests and states in s(287):

This Act does not affect the operation of the *Native Title Act 1993* of the Commonwealth or the *Native Title (New South Wales) Act 1994* in respect of the recognition of native title rights and interests with respect of the recognition of native title rights and interests within the meaning of the Commonwealth Act or in any other respect.

Aboriginal fishers feel that present management strategies should be modified to better accommodate the activities of indigenous fishers. Mr Butler, a South Coast beach haul fisher, described the development of Aboriginal involvement in the South

Coast beach haul fishery and the conflicts created between the present management system and indigenous practices:

The main thing that I would like to bring up is the plight of the Aboriginal people involved in the New South Wales fishing industry. Several generations back the Aboriginal people were forced by the government of the day into the beach haul fishery. It was at a time when the Aboriginal people could either pick crops by hand or go into the beach haul fisheries. No other jobs on the coast were for the Aboriginals.

At that time the reservations or missions were set up along the coast and there were boats and nets provided to the Aboriginal people in these settlements to work in the beach haul fishery. From that time the business has been handed down from father to son. The Aboriginal people who are still in this beach haul fishery have not done anything else. They have got no experience in anything else. In some cases they have got a little bit of experience doing other jobs, but, as for making a living and providing for our families, we have had no other interests.

We come to the point now where, not knowing anything else other than the beach haul fishery, we are squeezed right out of existence. We have a situation at the moment with the closure of weekend and public holiday fishing. We cannot handle this as other people in the beach haul fishery may do because, of the New South Wales beach haulers, the only people who work all year round and almost totally dependent on the beach haul fishery are on the south coast.⁸

Indigenous commercial and community fishers do not feel that the Act in its current form can accommodate the specialised nature of indigenous fishing practices. Mr Chapman, representing the NSW Aboriginal Land Council (South East Coast Branch), commented on the sustainability of indigenous fishing methods and the failure of management to accommodate these practices:

⁸ Evidence of Mr Butler, 30 Jan 1997, p 47

Commercial fishing typically involves hauling whatever fish are there and keeping the most commercially valuable species. The immediate demands of the market do not necessarily encourage consideration of factors such as the continued existence of any species.

By contrast Aboriginal people employ a “circular” method of fishing where we fish for whatever is in season at the time. For example there are specific times of the year when prawns are plentiful and at that time of year we target prawns. It is the same with other species of fish such as mullet and so on. This method ensures sustainability of fish resources because by catching the species that are most plentiful at any given time, no species can become endangered.

...The communal and supposedly “irregular” (which we dispute) way Aboriginal people generally conduct fishing does not necessarily fit in well with a licensing scheme based on the allocation of fish quotas to individuals. The general fishing licence limitation scheme has failed to prevent the serious depletion of some species of fish.⁹

The multi-species, multi-method approach employed by many indigenous fisherman has made it difficult for indigenous fishers to gain the required catch history to enter restricted fisheries. Mr McAvoy, Manager of the Heritage and Natural Resources Division, Department of Aboriginal Affairs, explained the problems encountered by fishermen on the south coast of NSW with specific reference to the abalone and beach haul fisheries:

My role has been mainly prompted by concerns of Aboriginal commercial fishermen and Aboriginal people, including the Aboriginal Land Council, who are concerned regarding fisheries policies and administration in respect of abalone. The commercial fishermen's problems are that under the previous Act there were provisions for a general purpose licence.

⁹ D Chapman (1996). “Importance of Fish and Fisheries to Aboriginal Communities”, *Developing and Sustaining World Fisheries Resources*, 2nd World Fisheries Conference, Hancock, D A, Smith, D C, Grant, A, Beumer, J P (Eds), p 317

The fishermen of the south coast, who are the main people affected or the people who have been communicating with me in the main, all had general purpose licences, which would allow them to go and fish in a manner which was more akin to the traditional use of the ocean.

What has happened is that, as a result, they did not have large enough catches to find a measurable quantity that would be sufficient for their catch history to allow them to participate in the new regime. These people, who have effectively been practising an extension of the traditional fisheries practices, have now been excluded from the industry and they have seen this coming as the implementation of the Act has come on.

There have been representations through Government on an agency to agency basis, requesting that some assurance be given to the Aboriginal people that provision would be available for them to participate in the industry.

There was a meeting in March 1996 between the Director of Fisheries, myself, and the south coast Aboriginal fishermen at Batemans Bay. Apart from some general discussion, the most recent contact I have had in relation to this matter was a call from an Aboriginal fisherman, commercial fisherman on the south coast, approximately three weeks to a month ago, to the effect that he had now lost his ability to participate in beach hauling, or was about to, and he had lost his ability to fish for abalone and rock lobster. Beach hauling is the main source of income for those commercial fishermen.¹⁰

Conflict between the Department and indigenous fishers has been particularly evident in the abalone industry. The high price and the full participation in the industry has led to conflicts between indigenous fishers, who regard fishing for abalone as part of their right, and commercial abalone fishers, who regard this activity as poaching. Mr Chapman, commented on the perceived inequities in the current management of the south coast abalone fishery:

¹⁰ Evidence of Mr McAvoy, 12 May 1997, pp 66-67

In the space of approximately 15 years, Aboriginal abalone divers went from a situation where we were the only people fishing for abalone to having our traditional practices outlawed. Our current status under the current regulatory scheme is the same as any other recreational diver. We are limited to 10 abalone per diver per day while the average license holder is entitled to 9t per diver per year.¹¹

In the absence of any formal legislative mechanism to reconcile disputes over the validity of native fishing rights, Indigenous claimants have turned to litigation rather than mediation in order to solve disputes. Justice Kirby in his judgment on the NSW court of appeal case in *Masson v. Tritton* ((1994) 34 NSWLR 572), stated that he believed that the law in Australia recognises some form of native title or traditional right of indigenous peoples in fish. The claim for native title in this case failed however because the standard of proof was not satisfied. There are at least two other cases in NSW, at Wellington and Byron Bay, in which the native title of waters is being contested. George Kailis, as Vice Chairman of the West Australian Fishing Industry Council, currently Chairman of the Native Title Committee, indicated that the legal avenues of settling resource access issues can create division and are not the ideal way to achieve a mutual recognition of the rights to marine resources.

Mr Kailis stated:

A litigious approach to discussions on the context of indigenous fishing rights has not advanced the mutual understanding. To many commercial fishers the proliferation of massive exclusive possession claims by indigenous groups with the express aim of overriding established commercial rights and activities of fishers gives rise to concern.¹²

The Department's submission assess the present strategy for dealing with indigenous issues and comments on areas that can be improved:

¹¹ D Chapman (1996). "Importance of Fish and Fisheries to Aboriginal Communities", *Developing and Sustaining World Fisheries Resources*, 2nd World Fisheries Conference, Hancock, D A, Smith, D C, Grant, A, Beumer, J P (Eds), p 318

¹² G Kailis, (1996). *Sea Changes*, Article by George Kailis, Vice Chairman West Australian Fishing Industry Council, p 4

....the Department has generally treated all fishers equally, and no special consideration has been given to indigenous groups. While equitable this approach has had mixed results, and as a result NSW fisheries has recently internally reviewed its approach to indigenous issues. This review has identified a range of ideas for improving the way NSW Fisheries addresses indigenous concerns, and suggests in particular an approach based on improved understanding, consultation and communication between user groups. Such an approach could include opportunities for dialogue, conflict resolution, and the development of partnerships between all users about resource allocation issues.¹³

Indigenous representatives have indicated that they would like to play a more integral role in the management of fisheries and shift away from the perception that the interests of indigenous people and others are in conflict over resources. Mr McAvoy explained:

What needs to happen in terms of fisheries is that there needs to be perhaps an attitudinal change both in recognition of the changed circumstances within which we are operating, but secondly, I would like to get away from this idea that to do it would be good for Aboriginal people and maybe to the detriment of the Department or the industry.

The place that I would like to get to is where the Department and industry sees the involvement of Aboriginal people and participation in management as a positive thing that contributes substantially to an ecologically sustainable industry, that the experimental knowledge that Aboriginal people have, the nature of their relationship to the ocean and seas and rivers and natural landscape, is such that they can bring a perspective to the management structures that is lacking and is valuable, generally speaking.¹⁴

¹³ Submission 42, NSW Fisheries, p 34

¹⁴ Evidence of Mr McAvoy, 12 May 1997, p 72

10.3 NSW Indigenous Fishing Strategy

Steps taken by NSW Fisheries to provide a greater level of indigenous participation in fisheries management include the call for Aboriginal representation on several of the Management Advisory Committees and the employment of two Aboriginal fisheries officers and a further two Aboriginal liaison officers. In order to improve the recognition of indigenous rights, interests and needs, NSW Fisheries has created an Indigenous Policy Unit headed by an Indigenous Policy Officer:

The indigenous policy officer is responsible for ensuring improved understanding of indigenous rights needs and interests in relation to fisheries, improved accommodation of these needs in management, and coordination of sectional approaches to indigenous concerns.

The ultimate goal is the development of a policy which addresses indigenous issues consistently and sensitively.¹⁵

In 1996, the Commonwealth Department of Primary Industries and Energy invited submissions from each State and Territory for the development of an Aboriginal and Torres Strait Islander Fishing Strategy. NSW Fisheries submitted an indigenous Fisheries Strategy as a draft proposal. Subsequent to this, a refined proposal is in the process of being developed through a series of workshops. As funding becomes available it is expected that a steering committee will be established to provide a forum for discussions with the Department of Aboriginal Affairs, the NSW State Aboriginal Land Council and the State Office of the Aboriginal and Torres Strait Islander Commission.

The indigenous Fisheries Strategy proposed for NSW Fisheries emphasises community involvement and responsibility and the transfer of management skills. The strategy will be directed by a Steering Committee responsible to NSW Fisheries and will be managed internally by the NSW Fisheries' Indigenous Policy Team composed of representatives from policy, management, legal and field services. The implementation of the strategy will be dependent on a community based management structure.

The Community Management Committee will act as a locally based structure for overseeing the process on that level, and

¹⁵ *The NSW Fisherman* 1997 vol 3 No 4, p 28

for creating a local management plan outlining community aims resources and preferred strategies. This approach aims to facilitate community responsibility and control, and to encourage community commitment to the process. NSW Fisheries staff will play an important role in providing expert advice on management mechanisms.

The end result of these efforts will be, firstly a local strategy that can be used as a model for other areas and fisheries and secondly an outline of issues to be addressed in a State wide policy.¹⁶

Other initiatives being pursued by NSW Fisheries include:

1. Indigenous Employment
 - Employment of an Indigenous Community Consultant (to assist with the development of the Indigenous Fisheries strategy)
 - Employment of an Aboriginal Liaison Officer at Jervis Bay Marine Park
 - Employment of an Aboriginal Liaison Officer at Solitary Islands Marine Park
 - Employment of additional indigenous persons as fisheries officers (there are currently three Aboriginal officers)
 - Development of an indigenous employment strategy for the Department.
2. Representative and Advisory Bodies
 - Appointment of an indigenous representative to the Saltwater recreational fishing review committee
 - Aboriginal representatives on Management advisory Committees for commercial fisheries.

¹⁶ NSW Fisheries (20/3/97), *Draft Indigenous Fisheries Project Proposal*, NSW Fisheries.

3. Research

- The relevance of indigenous traditional ecological knowledge to fisheries research is being recognised by the Department. Mechanisms for the collection and integration of this knowledge into fisheries research will be explored as part of the indigenous fisheries strategy.
- Consideration is also being given to the collection of data on the indigenous and ethnic background of NSW fisheries clients with the aim of improving the cultural sensitivity of service positions.

Indigenous groups have indicated that, as an outcome of the review process, they would like to see a management system which recognises the contribution that the indigenous communities can make to the sustainable management of stocks. To effect a management regime which provides equity to indigenous users within a sustainable framework, fisheries management must focus on the benefits that can be derived from incorporating indigenous practices with current management strategies.

George Kailis, former Vice Chairman of the West Australian Fishing Industry Council and present Chairman of the Native Title Committee stated:

There are commonalities of interest between commercial fishers and indigenous groups. Both groups have an interest in the further development of Australian law to recognise private interest and property rights in fisheries, whether these are held by individuals or communities. Where these rights are lost to third parties through government intervention fair compensation should ensue. In relation to resource management both groups have an interest in convincing government to move away from heavy handed command and control bureaucratic systems to those allowing a greater degree of local management. At times it appears that government has a stake in conflict between user groups as it justifies extensive intervention of the state.¹⁷

¹⁷ G Kailis (1996). *Sea Changes*, Article written by the Vice Chairman of the Western Australian Fishing Industry Council, p 6

Mr McAvoy indicated that community licenses would provide a means of regulating existing practices that are causing conflict between indigenous communities and NSW Fisheries:

In other States there is provision for Aboriginal community licences, which I think would be a fairly basic first step. The form that they may take would vary from what is going on in other States, but it is a form of licensing which allows people to fish outside the recreational bag limits in a manner that would provide for community sustenance, and some barter and trade, without going into sale. I think that is what is happening anyway. That is what has happened since time immemorial.¹⁸

The Standing Committee recognises the special needs of indigenous fishers and the social and environmental benefits to be derived through providing for traditional “circular” multi-species fishing methods. The Standing Committee considers that laws and policies should not unnecessarily restrict or inhibit traditional indigenous fishing, including seasonal, geographic or species-specific practices. This will require the *Fisheries Management Act 1994* to be amended to accommodate the following activities:

- recreational fishing by indigenous persons;
- non-commercial / traditional fishing on behalf of a whole indigenous community; and
- commercial fishing by indigenous persons.

Accordingly, the Standing Committee recommends:

Recommendation 29

That Aboriginal community licences be introduced and that “general purpose licences” be developed to accommodate the indigenous fishing methods of the Aboriginal commercial fishers in the assessment of catch history.

NSW Fisheries should review catch history requirements for indigenous fishers who have been excluded under current restricted fisheries regulations.

¹⁸ Evidence of Mr McAvoy, 12 May 1997, p 72

Recommendation 30

That NSW Fisheries establish an Indigenous Resource Management Committee as a priority. This committee should be constituted under the *Fisheries Management Act 1994*. The Indigenous Resource Management Committee should have representation from the following stakeholders:

- **NSW Aboriginal Land Council;**
- **Department of Aboriginal Affairs;**
- **Aboriginal and Torres Strait Islander Commission (NSW);**
- **Indigenous commercial fishers;**
- **Indigenous recreational fishers;**
- **NSW Fisheries; and**
- **Nature Conservation Council.**

The Committee should aim to progress indigenous access to fisheries and provide representation to RACAC (see Recommendations 31 and 32).

Statement of Dissent by The Hon Jenny Gardiner MLC and The Hon Dr Brian Pezzutti MLC

The Liberal and National Party Members noted that, just before this report was completed, the Minister for Fisheries, Mr Bob Martin, introduced to the NSW Parliament a Fisheries Management Amendment Bill, which was relevant to some of the terms of reference in this inquiry.

The Standing Committee on State Development decided to proceed with the tabling of this report at this time, rather than delaying the report so as to take into account this latest development.

Members of the Standing Committee will, however, take a keen interest in the issues raised in the new proposed legislation and its passage through Parliament, especially in the Legislative Council.

CHAPTER 4 Implementation of the Act

The Liberal and National Party Members recommend the following changes to section 4.5 and the recommendations because:

- a) the Act is written for state wide implementation and fisheries sustainability is not for the benefit of a few
- b) there is no evidence given to support it.

In section **4.3.2 Dissatisfaction with *Progressive Implementation***, insert the following, after the evidence of Mr Young, two paragraphs that appeared in '*From Red Tape to Results - International Perspectives on Regulatory Reform*', 20 and 21 June 1995 Sydney, presented by the New South Wales Government, in collaboration with the Commonwealth Industry Commission and the New Zealand Ministry of Commerce:

An excellent example of 'market-based' regulatory solutions is the new fisheries management system for New South Wales. Under the old system the fish resource was protected by restricted access to the industry through licensing the number of participants, by strict controls on the equipment that could be used, imposing size limits on fish and by seasonal and area closures. This approach was cumbersome and unduly restrictive on fishers. By controlling their use of technology it limited potential to increase efficiency. The system was also ineffective in protecting the fish resource from over exploitation. Fishers who wished to expand their catch simply fished more.

Under the new system created in the Fisheries Management Act 1994 fishers will receive shares which entitle them to a certain proportion of the fish available. The shares will be tradeable. Now fishers who wish to increase the size of their catch beyond their share entitlement will have to bid for additional shares in the fish stock. This will provide much more effective protection against overfishing, as it is now in the commercial interests of fishers to protect the value of their shares by reporting to the authorities anyone suspect of catching more than their shares entitled to them to catch. Previously all fishers had an incentive to catch as many fish as possible before their competitor did so.

4.5 Comment

The Standing Committee is concerned that the Share Management Fisheries Review Committee undertook only very limited, and possibly selective, consultation before reporting to the Minister. The Standing Committee views this as a serious shortcoming and considers that it accounts for much of the stakeholder suspicion surrounding the Review Committee's report and recommendations. The Standing Committee also considers that the "progressive implementation path" will not necessarily lead to the implementation of share management in all fisheries, despite the Review Committee writing that it "did not consider not implementing SMF as an option".¹

¹ SMF Review Committee Report, p 4

After considering the voluminous evidence before it, the Standing Committee believes share management to be the appropriate fisheries management outcome for New South Wales. *It is obvious that, in spite of the "review", the Minister is isolated in his attempt to pervert the intention of the Act by way of so-called "progressive" implementation.*

Recommendation 2A

The Committee recommends that share managed fisheries be implemented forthwith.

CHAPTER 5 Fisheries Management and Resource Allocation in NSW

Recommendation 10A

That a proportion of sales tax on recreational fishing equipment be used to establish a trust under the control of the Board of Trustees so as to fund recommendations 12 and 13.

Recommendation 11A

That:

- *surveys* be undertaken by NSW Fisheries to estimate (1) how many hours per month they spend fishing and (2) what percentage of this time is spent fishing warm freshwater, alpine freshwater, estuarine, ocean beach and deep sea. The survey form should make it clear that this information will be used to allocate funds to these fishery types;
- the information from (1) be used, in conjunction with research funded through the trust, to determine average recreational catches per unit

of effort with a view to estimating the recreational catch in each defined fishery; and

- the information derived from (2) be used to allocate revenue to research and management programs relating to fisheries with the greatest recreational effort.

Recommendation 12A

That the recreational fishing trust fund research into the effectiveness of present recreational fish size and bag limits, new methods to control recreational catches and the size and extent of black market fishing activity with a view to refining mechanisms to manage non-commercial fishing effort.

Recommendation 13A

That the Government amend Part 3 of the *Fisheries Management Act 1994* to provide for a recreational share holding in share management fisheries, based on the recreational component of the catch for each fishery, with management and community contributions for such share holdings to be drawn from the aforementioned trust.

Recommendation 14A

That the Government amend the restricted fishery regulations to provide for a recreational allocation of TAC for restricted fisheries based on the recreational component of the catch for each fishery, with any consequential financial contributions to be drawn from the recreational fishing trust.

Recommendation 14B

Contribution and management fees in recommendations 13 and 14 be set by the Independent Pricing and Regulation Tribunal (IPART).

Recommendation 17A

That the Government release its Coastal Policy without further delay.

The Liberal and National Party Members of the Standing Committee note that, as this report was about to go to press, the NSW Government released its so-called Coastal Policy. We find that new policy inadequate in its coverage of the issues raised in the Standing Committee's report on Coastal Review dated September 1991 and raised by witnesses during this inquiry into Fisheries Management and Resource Allocation.

Recommendation 20A

That NSW Fisheries, in consultation with the National Parks and Wildlife Service, conduct an extensive research survey to identify key areas of habitat along the New South Wales coast for *possible* classification as Marine Parks.

CHAPTER 7 Inland Habitat Management

Recommendation 24B

That a water inquiry be completed before the corporatisation of the Snowy-Hydro Scheme.

Recommendation 23A

That the department of Land and Water Conservation expedite its river bank willow eradication programme with the financial and non-financial support of the programme's beneficiaries, including funds raised *from the recreational fishing Trust*.

WITNESSES AT HEARINGS

DATE APPEARED	NO	WITNESS NAME, POSITION AND ORGANISATION (IF APPLICABLE)
Tuesday 28 January 1997	1	John Ronald Smythe, Secretary, Abalone Industry Association of NSW
	2	Dennis George Luobikis, Abalone Diver, Unconsolidated Divers
	3	Michael Frederick Bamford, President, NSW Cultured Mussel Growers Association
	4	Barry John Robson, Assistant Branch Seretary - Central NSW Branch, Maritime Union of Australia
	5	John Frederick Garret, Assistant Branch Secretary - Central NSW Branch, Maritime Union of Australia
	6	Neil John Kelly, Director, N & M Kelly, Ironnet Pty Ltd & Southland Fish Supplies
	7	Stephen Joseph Buckless, Managerr, N & M Kelly, Ironnet Pty Ltd & Southland Fish Supplies
	8	Lachlan Marshall, Managing Director, Presmint Pty Ltd
	9	Lauritz Neil Thomsen, Owner/Operator, South East Trawl Boat
Thursday 30 January 1997	10	Angus Colin Broad, Solicitor & Spokesman, South East Coast Trawl Operators
	11	John Edward Gray, Representative, SECTOR
	12	Peter Bell, Representative, SECTOR
	13	Joseph Frank Lavalle
	14	Brett Anthony Bell, Special Constable and Senior Inspector, NSW RSPCA Investigations Department
	15	Russell Massey, Commercial Fisher
	16	Shirley Massey, Commercial Fisher
	17	Danny Chapman, Representative, Aboriginal Fishing Group
	18	Robert Cleve Jessop, Professional Fisherman, Aboriginal Fishing Group

Appendix One

DATE APPEARED	NO	WITNESS NAME, POSITION AND ORGANISATION (IF APPLICABLE)
	19	Kenneth William Jessop, Professional Fisherman, Aboriginal Fishing Group
	20	Ronald Andrew Jessop, Representative, Aboriginal Fishing Group
	21	John Brierley, Beach Hauler, Aboriginal Fishing Group
	22	Ronald James Nye, Representative, Aboriginal Fishing Group
	23	David Andrew Nye, Professional Fisherman, Aboriginal Fishing Group
	24	Newton Thomas Carriage, , Aboriginal Fishing Group
	25	Leonard William (Sonny) Butler, Professional Fisherman
	26	Oleh Volodymir Harasymiw, Representative, Four Ports Management Committee
	27	Graeme Stanley Byrnes, Manager, Alan A Byrnes & Sons
	28	Elaine Garvey, Secretary, Recreational Fishing Advisory Council - Region 7
	29	Gregory David Wignall, Treasurer, Recreational Fishing Advisory Council - Region 7
	30	Stafford Dixon, Executive, Recreational Fishing Advisory Council - Region 7
	31	James Richard Walker, Executive Director, Recreational Fishing Advisory Council - Region 7
	32	Anthony Papaconstuntinos, Joint National Secretary, Maritime Union of Australia
	33	Ronald Phillip Snape, Delegate, Commercial Fishing Advisory Council
	34	Anthony Salvatori Campisi, Professional Fisherman
	35	John Roberts, Commercial Fisherman
Wednesday 19 February 1997	36	John Leslie Smith, President, NSW Recreational Fishing Federation
	37	Charles Keith Jones, Treasurer, NSW Recreational Fishers
	38	John Horsch, Secretary, NSW Recreational Fishing Federation

DATE APPEARED	NO	WITNESS NAME, POSITION AND ORGANISATION (IF APPLICABLE)
	39	Graeme John Hillyard, Secretary , United Commercial Fishermen's Association of NSW
	40	Gary Howard, President, Upper Hawkesbury Commercial Fishermen's Association
	41	Donald Mckenzie Moore, Director/Manager, Newcastle Marine Brokerage
	42	Jeffrey William Jansson, Manager - Environment, Lake Macquarie City Council
Thursday 20 February 1997	43	Calvin Terry, President, NSW Silver Perch Growers Association
	44	Graeme Darbyshir, Executive Officer, Clarence Professional Fishermens Association Inc
	45	Robert Toyer, Vice Chairman, Clarence Professional Fishermens Association Inc
	46	John Wilfred Wait, Professional Fisherman
	47	George Ross Miller, Professional Fisherman
	48	Graham Kevin Owen, Professional Fisherman/Boat Owner
	49	Russell Allan Kerr, Professional Fisherman/Boat Owner
	50	Thomas Michael Cashel, Representative, Grafton District Anglers Club
Friday 21 February 1997	51	Peter George Parker, Representative, NSW Recreational Fishing Advisory Council - Zone 1
	52	Arthur Sedic Malin, Commercial Fisherman
	53	Kenneth John Smith, Fisherman
	54	Margaret Greenway, Senior Lecturer in Environmental Engineering, Griffith University
	55	David John Pont, Student
	56	Kevin William Jones, Secretary, Byron Bay Services Deep Sea Fishing Club
	57	Jack Lavis, Commercial Fisherman

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DATE APPEARED	NO	WITNESS NAME, POSITION AND ORGANISATION (IF APPLICABLE)
	58	Barbara Thomasine Radley, Commercial Fisherman & Regional Industry Convenor
	59	Robert John Radley, Professional Fisherman
	60	William John Gallagher, Commercial Fisherman
	61	Mark Frost, Representative, Club Fish Australia Deep Sea Fishing Club
	62	Veronica Ann Hoskisson, Hon Secretary, Cook Island Community Consultative Committee
	63	Bruce William Graham, Representative, Cook Island Community Consultative Committee
Monday 24 March 1997	64	Barry Marcus Jonassen, Representative, NSW Institute of Freshwater Anglers
	65	Michael Paul McManus, Technical Officer, Transgrid
	66	Paul Edwin Leete, Chairman, Snowy River Alliance
	67	Christopher Maurice Gosse Hole, Representative, Snowy River Alliance
	68	Stuart Alexander Hood, Chairman, Snowy Genoa Catchment Management Committee
Tuesday 25 March 1997	69	Howard John Davison, Representative, Inland Commercial Fishermen
	70	Jane Roberts, Senior Research Scientist & Project Leader, River and Wetlands Programme, CSIRO - Land and Water
	71	Michael Bales, Manager - South West Region, Environment Protection Authority
	72	Gary Whytcross, Director - Western Regions, Environment Protection Authority - NSW
Wednesday 2 April 1997	73	Jesmond Sammut, Lecturer, University of NSW
	74	Warwick Jeffery Fletcher, Director of Research, NSW Fisheries
	75	John Hamlyn Harris, Principal Fisheries Scientist, NSW Fisheries

DATE APPEARED	NO	WITNESS NAME, POSITION AND ORGANISATION (IF APPLICABLE)
	76	Neil Lesley Andrew, Principal Fisheries Scientist, Commercial Shellfish Section, NSW Fisheries
	77	Gary William Henry, Supervisor - Recreational Fish Research, NSW Fisheries
	78	John Cecil Naughton, Senior Fisheries Officer, Northern Metropolitan Zone, NSW Fisheries
	79	Jeffrey Samuel Angel, Director, Total Environment Centre Inc
	80	Patrick Joseph Murray, Scientist, Taren Point Wetland Group
	81	Richard Copeland Roberts, President, Oyster Farmers' Association of NSW Ltd
	82	Roger Clarke, Deputy President, Oyster Farmers' Association of NSW Ltd
	83	Terry Maloney, Secretary, South West Anglers' Association
Thursday 3 April 1997	84	Michael Denis Young, Senior Principal Research Officer, Commonwealth Scientific and Industrial Research Organisation
	85	David William Brewer, Abalone Diver & Representative, Consolidated Divers Group Inc
	86	Anthony John Adams, Abalone Diver & Delegate, ABNAC
	87	Neville Albert Whiffen
	88	David Harrigan, President, Anglers Action Group - Sydney North Side
	89	Howie Vaughan Cooke, Artist & Marine Conservationist, Secretary - Oceans Campaigner, OceanS
	90	David John Andrewartha
	91	Duncan Leadbetter, Executive Director, Oceanwatch
	92	Philip John March, Chairman, Oceanwatch
Friday 4 April 1997	93	Paul Alfred Crew, Chief Executive Officer, Australian Animal Health Council

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DATE APPEARED	NO	WITNESS NAME, POSITION AND ORGANISATION (IF APPLICABLE)
	94	Stewart James Roland, Fisheries Scientist, Grafton Research Centre
	95	Brett Fraser Miners, Department of Land and Water Conservation
	96	John Dunphy, President, Australian Fishing Tackle Association (AFTA) Inc NSW
	97	Gregory Charles Numa, Australian Fishing Tackle Association (AFTA) Inc NSW
Monday 14 April 1997	98	Jeffrey Alfred Maris
	99	Patricia Ann Maris
	100	Gary James Colliton, Senior Vice President, Institute of Freshwater Anglers - NSW
	101	Darryl Livingstone Grey, Principal Fisheries Manager - Conservation Division, NSW Fisheries
	102	Robert Howard, Commercial Fisherman
	103	John Joseph Roach, President, The Fish Merchants Association
	104	Sam Deuchar Gordon, Executive Officer, The Fish Merchants Association
	105	Anthony James Harrison, Fisheries Consultant
Monday 5 May 1997	106	Richard Andrew Stevens, Managing Director, Australian Fish Management Authority
	107	John Andrew Connor, Executive Officer, Nature Conservation Council
	108	Leon Zann, Head, Environmental Resources Management Program, School of Resource Science and Management, Southern Cross University
	109	Michael Geary, Manager, Coastal and Flood Plain Riverine Resources, Department of Land and Water Conservation
	110	Geoffrey Wright, Acting Director Water Resources, Department of Land and Water Conservation

DATE APPEARED	NO	WITNESS NAME, POSITION AND ORGANISATION (IF APPLICABLE)
	111	Steve Harrison, National Secretary, Australian Workers' Union
	112	David Harrigan, President, Anglers' Action Group (Sydney Northside) Inc
Monday 12 May 1997	113	Geoffrey Lawrence Allan, Research Scientist, Fisheries Research Institute Cronulla
	114	Philip John Gibbs, Principal Research Officer, Coastal Conservation and Research, Fisheries Research Institute Cronulla
	115	Steven James Kennelly, Principal Research Scientist, Fisheries Research Institute Cronulla
	116	Gary Leon Sturgess, Policy Adviser, Sturgess Australia
	117	Robert Edward Kearney, Head, Department of Resource, Environmental and Heritage Sciences, Faculty of Applied Science, University of Canberra
	118	Anthony Logan McAvoy, Manager, Heritage and Natural Resources Division, Department of Aboriginal Affairs
	119	Barry John Robson, Assistant Branch Seretary - Central NSW Branch, Maritime Union of Australia
	120	Jeffrey Paul McClenaughan, Master, Fisheries Research Vessel "Kapala", Maritime Union of Australia
	121	Terence Brian Simpson Gorman, Independent Fisheries Consultant and Scientist, c/- Maritime Union of Australia
Monday 19 May 1997	122	John Glaister, Director of Fisheries, NSW Fisheries
	123	Paul O'Connor, Director, Fisheries Management, NSW Fisheries
	124	Steve Dunn, Manager, Policy, NSW Fisheries
Monday 26 May 1997	125	John Glaister, Director of Fisheries, NSW Fisheries
	126	Paul O'Connor, Director, Fisheries Management, NSW Fisheries
	127	Steve Dunn, Manager, Policy, NSW Fisheries

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DATE APPEARED	NO	WITNESS NAME, POSITION AND ORGANISATION (IF APPLICABLE)
Monday 16 June 1997	128	Richard Copeland Roberts
	129	Mr Roger Clarke, President, Oyster Farmers' Association of NSW Ltd
	130	John Glaister, Director of Fisheries, NSW Fisheries
	131	Paul O'Connor, Director, Fisheries Management, NSW Fisheries
	132	Steve Dunn, Manager, Policy, NSW Fisheries
	133	John Henry Diplock, Principal Fisheries Manager, Commercial, NSW Fisheries
Monday 7 July 1997	134	John Glaister, Director of Fisheries, NSW Fisheries
	135	Paul O'Connor, Director, Fisheries Management, NSW Fisheries
	136	Steve Dunn, Manager, Policy, NSW Fisheries
	137	John Henry Diplock, Principal Fisheries Manager, Commercial, NSW Fisheries
Monday 28 July 1997	138	Dianna Watkins, Fisheries Manager - Commercial, NSW Fisheries
	139	Laurie Paul Derwent, Fisheries Manager - Oysters, NSW Fisheries
	140	Anthony Schofield McDowell, Computer Consultant, Pioneer Computing
	141	Keith Walter Sewell, Commercial Fisherman

NB: Some witnesses appeared on more than one occasion.

SUBMISSIONS TO THE INQUIRY

ID	SUBMITTEE'S NAME, POSITION AND ORGANISATION (IF APPLICABLE)
001	Mr Stuart Cribb
002	Mr Charles V Yealland
003	Mr Ron Snape, Acting Chairman, CFAC (Commercial Fishing Advisory Council)
004	Dr M D Young, Senior Research Officer, CSIRO, Division of Wildlife and Ecology
005	Mr Alan D MacIntyre, Secretary, Camden Haven Protection Society Inc
006	Mr Jeffrey A Maris
007	Mr A Drury
008	Mr Dene Moore, Tourism Manager - Eurobodalla Coast , South Coast NSW Regional Tourist Organisation Inc
009	Mr Jeff Jansson, Manager Environment, Lake Macquarie City Council
010	Mr Michael Rolfe, President, The Vaucluse Progress Association
011	Mr Donald McKenzie Moore, Managing Director, Newcastle Marine Brokerage
012	Mr Don Cameron, Habitat Monitor - Region 4 South, Transitional Commercial Fishermans Council
013	Mrs Elaine Garvey, Secretary, Recreational Fishing Advisory Council Region 7
014	Mr K P Wedesweiler
015	Mr John O'Donnell
016	Mr Colin Mansell
017	Mr David Harrigan, President, Anglers Action Group (Sydney Northside) Inc
018	Mr Graeme Hillyard, Secretary, United Commercial Fishermen's Association of NSW (NSWUCFA)
018a	Mr Gary Howard, Treasurer, NSWUCFA
019	Mr R W Hyde
020	Mrs Kathleen Bell
021	Mr Keith Sewell

Appendix Two

ID	SUBMITTEE'S NAME, POSITION AND ORGANISATION (IF APPLICABLE)
022	Mr Graeme Darbyshir, Executive officer, Clarence Professional Fishermen's Association Inc
023	Mr Will Sneesby
024	Mr Graham Owen, Jentam Pty Ltd
025	Mr S W Ryder, President, The North & North West Amateur Fishermen's Association
026	Ms Elizabeth Brodbeck, Assistant Secretary, New England Trout Acclimatisation Society
027	Mr Dennis Hirst
028	Mr Gary Colliton, Senior Vice President, Institute of Freshwater Anglers NSW
029	Mr John Dunphy, President, Australian Fishing Tackle Association (AFTA) Inc NSW
030	Mr John Wait
031	Mr Jim Tobin
032	Mr David Andrewartha
033	Mr Russell Massey
034	Mr Colin R Campbell
035	Mr Howie Davison, Inland Commercial Fishermen's Representative,
036	Mr Calvin J Terry, President, NSW Silver Perch Growers' Association
037	Mr M J Preston
038	Mr Terry Maloney, Secretary, South-West Anglers' Association
039	Mr Bill Gray, Executive Officer, Concerned Anglers Group Inc, Lake Macquarie District
040	Mr Andrew Green, Deputy Chair, Congo Area Association
041	Mr Eric Slight, Administration Manager, Tweed & Coolangatta Tourism Inc
042	Dr John Glaister, Director of Fisheries, NSW Fisheries
043	Mr Dave Brewer, The Consolidated Divers Group Inc
044	Mr Barrie J Bamford, Secretary, Jervis Bay Mariculture Association Inc
045	Mr Frank Powell

ID	SUBMITTEE'S NAME, POSITION AND ORGANISATION (IF APPLICABLE)
046	Ms Ronni Hoskisson, Hon Sec, Cook Island Community Consultative Committee
047	Mr Howie Cook, Secretary - Oceans Campaigner, The Dolphin Society
048	Mr John Chalmers
049	Mr Anthony John Adams, Abnac Delegate
050	Mr Angus Colin Broad, South East Coast Trawl Operators (SECTOR)
051	Mr Frank Druery, President, Concerned Anglers Group Inc, South Lake Macquarie
052	Mr Robert Allen
053	Mr Gary L Sturgess, Sturgess Australia
054	Mr David Pont
055	Mr Trevor Burns
056	Ms Pat Murray, Group Co-ordinator, Taren Point Wetland Group
057	Mr B Dooley, Executive Officer, Lake Illawarra Authority
058	Mr Graeme Byrnes, Manager, Alan A Byrnes and Sons
059	Ms Barbara Fitzgibbon, Acting Secretary, Kingscliff Ratepayers' & Progress Assoc Inc
060	Mr Gordon Winter, President, ACT Sport & Recreational Fishing Council Inc
061	Mr G L Cornish
062	Mr N L Jarman
062a	Mr J Hewitt
063	Mr W Norman
064	Mr John Collison
065	Mr Michael Kennedy, Director, Humane Society International Inc
066	Mr John L Smith, President, NSW Recreational Fishing Federation
066a	Mr John Horsch, Secretary, NSW Recreational Fishing Federation
067	Mr Oleh Harasymiw
068	Mr Ron Snape, Acting Chairman, CFAC (Commercial Fishing Advisory Council)

Appendix Two

ID	SUBMITTEE'S NAME, POSITION AND ORGANISATION (IF APPLICABLE)
069	Mrs Barbara Radley
070	Mr Tom Cashel
071	Mr Neville Whiffen
072	Mr Charles Keith Jones, Treasurer, NSW Recreational Fishing Federation
073	Mr Phil March, Chairman, Oceanwatch
074	Mr Jeff Angel, Director, Total Environment Centre Inc
075	Ms Shura Cunningham
076	Mr O H Darmanin ASA
077	Mr M E O'Donnell
078	Ms Liz Evans, Executive Officer, Australian Prawn Fishing Association Inc
079	Ms Kate Piper, President, Fingal Head Dune Care & Reafforestation Group
080	Mr Sam Gordon, Executive Officer, Master Fish Merchants' Association of NSW
081	Professor Leon P Zann, Head, Environmental Resources Management Program, School of Resource Science & Management, Southern Cross University
082	Ms Mary Harwood, Assistant Secretary, Fisheries and Aquaculture Branch, Commonwealth Department of Primary Industries and Energy
083	Mr G S Collet
084	Mr Tony McDowell, Pioneer Computing
085	Dr John Glaister, Director of Fisheries, NSW Fisheries
086	Mr Richard Roberts, President, Oyster Farmers' Association of NSW LTD

NB: Some Submitters may have put in more than one submission or submitted with more than one group.

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