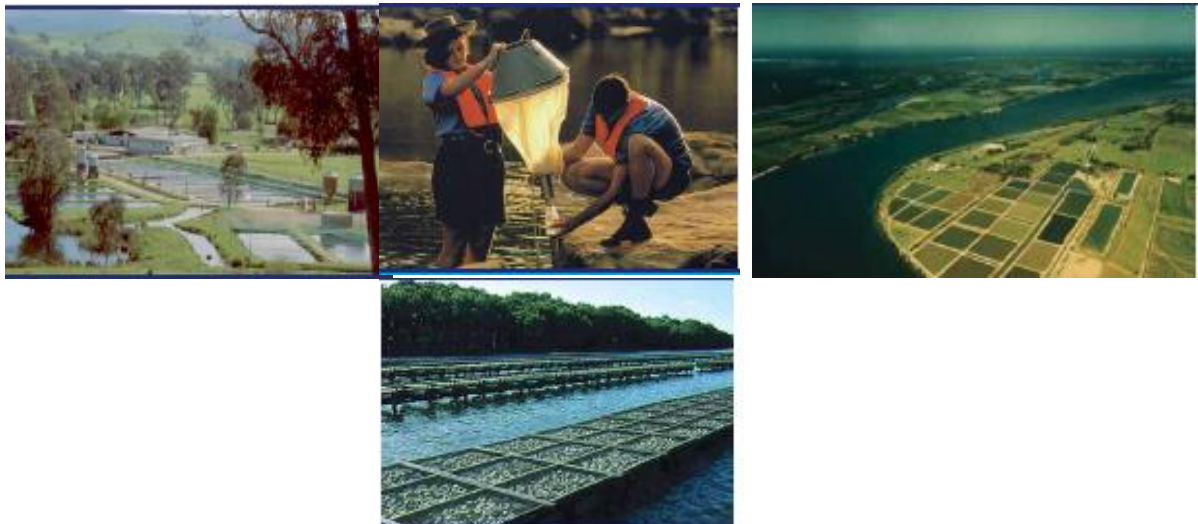


sustainable australian aquaculture: practical solutions to achieving ESD

Final Report - FRDC Project No. 2001/257

December 2002

Anthony Forster, David C Smith and Richard McLoughlin



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**Australian Aquaculture – Practical Solutions to the Triple Bottom line – A
National Workshop**

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December 2002

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NON-TECHNICAL SUMMARY

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| 2001/257 Australian Aquaculture – Practical Solutions to the Triple Bottom line – A National Workshop |
|--|

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Objectives:

1. To identify practical solutions to ESD which will enable aquaculture to develop in a sustainable and cost effective manner.
2. To develop an action plan that achieves a) standard auditing and reporting protocols for environmental performance of aquaculture operations within an ESD framework and b) adapts the existing SCFA ESD framework to incorporate the requirements of aquaculture operations.

Non Technical Summary

| |
|--------------------------|
| OUTCOMES ACHIEVED |
|--------------------------|

The workshop brought together a wide range of stakeholders to identify and consider key issues associated with achieving ecologically sustainable development in the aquaculture industry at a national, state, regional and enterprise level.

Several key outcomes were achieved:

- Agreement that the National ESD Framework be adopted as a conceptual framework for aquaculture,
- Identification of a process to develop the framework within the FRDC ESD Reporting and Assessment sub-program, and,
- Support to develop guidelines in consultation with Environment Australia in regards to aquaculture management and issues of national environmental significance.

Federal and state legislation is increasingly demanding more stringent environmental controls on aquaculture activities and place the onus of proof for demonstrating environmental performance on the industry. In addition, regulation for and approval of aquaculture activities is increasingly directed through state EPAs. There is thus a regulatory imperative to defining ESD sustainability indicators for the aquaculture industry.

Public perception of the industry as environmentally unsustainable, although not always substantiated by scientific fact, can have a detrimental affect on aquaculture development through objections to individual aquaculture planning applications.

To address these two issues, there is a clear need to identify the issues related to various aquaculture sectors and develop protocols and frameworks through which organisations can demonstrate their compliance with environmental objectives. What is required is a national framework and standards for assessing the environmental performance of aquaculture. Additionally, industry needs to be equipped with practical tools and solutions for dealing with these issues.

The then Standing Committee on Fisheries and Aquaculture (SCFA), now the Australian Fisheries Managers Forum, adopted an ESD framework for fisheries in 1998 and a FRDC/SCFA-funded project has undertaken a number of case studies using this framework. To date the focus of these case studies has predominantly been on wild fisheries. This approach needs to be expanded to a broader range of stakeholders involved in aquaculture and fine-tuned to ensure it is appropriate for all aquaculture systems and sectors.

The workshop program involved leading representatives from the aquaculture industry, indigenous communities, non-government organisations, science and government. The workshop was attended by 106 delegates.

The presentations covered a range of perspectives from many leading industry, government and non-government organisations. It brought to the front a number of key issues and challenges facing the implementation of ESD across the aquaculture industry and highlighted a range of pathways to achieve ESD at a business, regional or National level.

The break-out group sessions identified key issues facing each of seven aquaculture industry sectors and provided feedback on strategies to address those issues along with suggested performance indicators. Many of these issues were consistent across sectors and provided a firm basis for identifying and prioritisation key issues at the national level.

The group discussion focussed on the drivers / needs to establish a framework for implementing ESD at the National level. Through this discussion there was widespread support to review the existing ESD Framework for the wild capture sector, in order to develop an equivalent framework for aquaculture. A process for reviewing the ESD framework was subsequently developed within the FRDC ESD subprogram.

A summary of the key workshop outcomes were developed by the ESD Workshop

Drafting Group after the workshop was concluded. In summary, the key outcomes include:

- Agreement that the National ESD Framework be adopted as a conceptual framework for aquaculture,
- Identification of a process to develop the framework within the FRDC ESD Reporting and Assessment sub-program, and,
- Support to develop guidelines in consultation with Environment Australia in regards to aquaculture management and issues of national environmental significance.

A comprehensive two-set CD ROM has been developed that includes video and audio coverage of the entire workshop event including: presentations, breakout groups, group discussion, gallery of images and a PDF version of the written proceedings.

KEYWORDS:

Ecological Sustainable Development, Aquaculture.

Acknowledgments

Many people contributed to the organisation of the workshop including Richard McLoughlin, David C Smith, Anthony Forster, Simon Bennison, Louis Vorstermans, Diane Mahon, Rick Fletcher, Greg Paust, Patrick Hone and Peter Dundas-Smith. Gallery Production produced the two-set CD ROM record of the event.

FINAL REPORT

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| 2002/257 Australian aquaculture – Practical Solutions to the Triple Bottom line – A National Workshop |
|--|

Background

In recent years there has been increasing “community” concern regarding the supposed negative impacts of aquaculture on the environment. This has developed into a major national issue that threatens to impede the continued development of the aquaculture industry in Australia. We have also seen jurisdictional issues with Environment Protection Authorities or their equivalent showing increasing interest in the management of aquaculture. In Victoria, for example, development of the marine aquaculture in particular has been constrained by concern regarding impacts. Indeed, Victoria’s peak conservation body, the Victorian National Parks Association, has made their opposition to coastal aquaculture quite clear. In addition, some members of the community have used the planning process to stymie specific aquaculture initiatives.

The subject of environmental impacts of aquaculture has been the subject of numerous national and international fora, such as the 2nd and 3rd World Fisheries Congress, WAS meetings, AquaFest (2000) and the recent Prawn Farming Conference held in Brisbane in 2000. A major FAO-sponsored international conference was also held in 2000 that resulted in the ‘Bangkok Declaration on Aquaculture Development’. This conference dealt explicitly with a range of issues on the sustainability of aquaculture from a global perspective. There is also the FAO Guidelines for sustainable aquaculture development and sector Codes of Practice. There have also been a number of scientific studies on specific environmental issues in Australia. However, despite the above there are few guidelines, tools or management frameworks available to the industry to address this issue within an Australian context.

Management of Australia’s aquaculture industries is more complicated than that for commercial and recreational fisheries by the fact that a range of agencies are involved, directly or indirectly. For example, environmental impacts will be governed by local planning authorities and State Environment Agencies.

What is required is a national framework and standards for assessing the environmental performance of aquaculture. Additionally, industry needs to be equipped with practical tools and solutions for dealing with these issues.

The Standing Committee on Fisheries and Aquaculture (SCFA) adopted an ESD framework for fisheries in 1998 and a FRDC/SCFA-funded project has undertaken a number of case studies using this framework. An extremely successful national workshop on ESD and Fisheries was held in Geelong in March 2000. This workshop tended to focus on wild fisheries although some aspects of aquaculture were covered. To date the focus of SCFA framework case studies has been on wild fisheries. This

approach needs to be expanded to a broader range of stakeholders involved in aquaculture and fine-tuned to ensure it is appropriate for all aquaculture systems and sectors.

To effectively implement ESD in aquaculture will require a partnership between all stakeholders to develop a coordinated industry-wide approach. This workshop will be the first step in bringing together the stakeholders in one forum to identify issues and develop practical solutions to address them.

A national steering committee will be established to ensure that all relevant groups and stakeholders are aware of the workshop and have input into its structure and outcomes. The committee will include representatives from FRDC, ESD Sub-program, NAC, WWF, CRC Finfish, AFFA, SCFA Aquaculture Committee, and VAC. Other agencies/industries such as other RDCs and EA will be apprised of the workshop and their input sought. It is anticipated that Victorian EPA and local government will be involved at the local organising committee level.

Need

Federal and state legislation is increasingly demanding more stringent environmental controls on aquaculture activities and place the onus of proof for demonstrating environmental performance on the industry. In addition, regulation for and approval of aquaculture activities is increasingly directed through state EPAs. There is thus a regulatory imperative to defining the ESD sustainability indicators for the aquaculture industry.

Public perception of the industry as environmentally unsustainable is often not substantiated by scientific fact, but can have a detrimental affect on aquaculture development through objections to individual aquaculture planning applications. A negative public perception can also enhance the influence of uninformed pressure groups on Government policy development. This is a constraint to future development of the whole industry.

To address these two issues, there is a clear need to identify the issues related to various aquaculture sectors and develop protocols and frameworks through which organisations can demonstrate their compliance with environmental objectives. What is required is a national framework and standards for assessing the environmental performance of aquaculture. Additionally, industry needs to be equipped with practical tools and solutions for dealing with these issues.

The Standing Committee on Fisheries and Aquaculture (SCFA) adopted an ESD framework for fisheries in 1998 and a FRDC/SCFA-funded project has undertaken a number of case studies using this framework. To date the focus of SCFA framework case studies has been on wild fisheries. This approach needs to be expanded to a broader range of stakeholders involved in aquaculture and fine-tuned to ensure it is appropriate for all aquaculture systems and sectors.

In addition, internationally benchmarked environmental management systems (such

as ISO 14000) are options that should be explored to implement ESD frameworks and have already been developed for aquaculture sectors in other parts of the world (Gavine *et al* 1996, Boyd, 1999).

Advantages for the aquaculture industry in adopting the principles of ESD and documenting environmental performance include:

- (1) Improved public perception of the industry;
- (2) Reduction in waste and improved efficiency at site level;
- (3) A competitive advantage in the market place if accreditation is used as a branding tool; and
- (4) Ability to effectively engage new Government policies (such as Tradeable Emissions Policies).

This workshop was the first step in bringing together the stakeholders to identify issues and develop practical solutions that will allow the Australian aquaculture industry to continue to develop in a sustainable manner.

Objectives

1. To identify practical solutions to ESD which will enable aquaculture to develop in a sustainable and cost effective manner.
2. To develop an action plan that achieves a) standard auditing and reporting protocols for environmental performance of aquaculture operations within an ESD framework and b) adapts the existing SCFA ESD framework to incorporate the requirements of aquaculture operations.

Methods

The workshop was held on 15 – 17 July 2002 at Eden on the Park Hotel, Melbourne and was attended by 106 delegates representing; industry, non-government organisations, researchers and State and Commonwealth Government. The workshop was convened with the assistance of a Local Organising Committee and the National Organising Committee. The State Organising Committee membership is shown in appendix 2. Membership of the National Organising Committee is shown in appendix 3.

To ensure wide-spread industry participation at the workshop, airfares and accommodation were provided for eleven aquaculture industry representatives, based on nominations provided by the National Aquaculture Council. Further subsidies were extended to representatives of key non-government organisations to assist them in attending and presenting at the workshop.

The workshop was organised to reflect a number of progressive “step-wise” sessions or themes including; (1) *Setting the Scene*, (2) *Experiences and Solutions* and (3) *Synthesis and Outcomes*.

Presentations

A total of 23 presentations were given over a two-day period. Presentations in the 1st session framed the key strategic issues facing industry, government and non-government organisations on a global or national level. This session also dealt explicitly with the core drivers of ESD and issues for aquaculture development from a policy and planning context at the international, national and state level.

The 2nd session focussed on industry experiences in the adoption of ESD and a mix of anecdotal and research-based views on understanding community attitudes to aquaculture and ESD. This session also included a series of short presentations covering a wide range of issues, experiences and solutions including international case studies on various accreditation models studies.

The final session enabled key issues to be synthesised and agreed where possible.

Discussion was focussed on the present national ESD reporting framework and whether it is appropriate for all aquaculture systems and sectors, and what, if any changes are required to address the needs of the various aquaculture sectors.

Break-out Groups

Associated with each presentation session, delegates participated in break-out groups. Break-out groups were defined by the national organising committee using a 'production systems approach' that aimed to include the variety of species, farming environments and climates throughout Australia. Four broad systems categories: *marine offshore, marine onshore, inland ponds and enclosed systems* were identified with a total of seven sectors. The break-out groups were each chaired by a facilitator (Table 1).

The use of break-out groups within the workshop program proved a valuable means of obtaining feedback from all delegates while affording the ability to focus on issues pertinent to each industry sector.

Table 1. Production systems / sector break-out groups, species & facilitators.

| Group | System definition | Example Species | Facilitator |
|-------|---------------------------------------|---|----------------|
| | <i>Marine Offshore</i> | | |
| 1 | Cages | Salmon, Southern Bluefin Tuna, Kingfish | Vicki Wadley |
| 2 | Longlines/Intertidal | Mussels, Oysters | Bruce Zippel |
| | <i>Marine Onshore (inc estuarine)</i> | | |
| 3 | Ponds | Prawns | Adam Body |
| 4 | Tanks | Abalone | Peter Rankin |
| | <i>Inland Ponds (mainly fresh)</i> | | |
| 5 | Static Ponds | Yabbies, redclaw, marron | Simon Bennison |
| 6 | Flow Through Ponds | Salmonids, silver perch | Edward Meggitt |
| | <i>Enclosed Systems</i> | | |
| 7 | Recirculation & Hatcheries | Murray cod, Barramundi | Geoff Gooley |

At the end of the first session, break-out groups were convened and facilitators asked each group the following question:

“After considering the economic, social and ecological issues raised this morning, what are the key sustainability issues, both real and perceived, that relate to your farming sector?”

Results/Discussion

The workshop successfully achieved widespread stakeholder awareness of ESD in aquaculture, identification of key issues and enabled significant progress toward the justification and development of a National ESD framework for aquaculture.

The workshop program involved leading representatives from the aquaculture industry, indigenous communities, non-government organisations, science and government. The workshop was attended by 106 delegates (Appendix 5).

Each break-out group identified their key issues and suggested approaches to address those issues, often in the form of statements. Key issues and statements are collated in table 2. Shading was later used to identify similar issues that could be grouped into general issues that might be considered at a national level. At the end of the 2nd session the same groups were asked to identify strategies & solutions to address

issues, identify key environmental performance indicators and provide feedback on the current national ESD framework. For a complete description of breakout group reports please refer to the Workshop Proceedings contained in the CD ROM. Many of these issues were consistent across sectors and provided a firm basis for identifying and prioritisation key issues at the national level.

The presentations covered a range of perspectives from many leading industry, government and non-government organisations. It brought to the front a number of key issues and challenges facing the implementation of ESD across the aquaculture industry and highlighted a range of pathways to achieve ESD at a business, regional or National level.

The group discussion focussed on the drivers / needs to establish a framework for implementing ESD at the National level. Through this discussion there was widespread support to review the existing ESD Framework for the wild capture sector, in order to develop an equivalent framework for aquaculture. A process for reviewing the ESD framework was subsequently developed within the FRDC ESD subprogram.

A summary of the key workshop outcomes was developed by the ESD Workshop drafting group after the workshop was concluded (see below). The key outcomes from this meeting are shown as Table 3.

A comprehensive two-set CD ROM has been developed that includes video and audio coverage of the entire workshop event including: presentations, breakout groups, group discussion, gallery of images and a PDF version of the written proceedings.

Progressing the outcomes of the workshop

The outcomes of this workshop was used as a guide to progress national adoption of an ESD model for the aquaculture industry. It was agreed that a drafting group convene to develop the workshop proceedings.

ESD Workshop Drafting Group Composition

Simon Bennison (Chair)

Anthony Forster

Greg Paust

Matthew Dadswell

Carina Cartwright

Louis Vorstermans

Bob Richards

Rick Fletcher

Patrick Hone

ESD Reference Groups

Soon after the workshop, the existing ESD Reference Group met to discuss the need for amendments to the existing framework for the purposes of aquaculture.

There was discussion about the need for a separate Aquaculture ESD Reference

Group to be responsible for developing the ESD process that address aquaculture issues. It was generally accepted that a reference group include significant representation by the industry. It was also recognised that the considerable expertise and achievements of the existing reference group be incorporated where possible into the new aquaculture reference group. It was suggested that there be representation from the National Aquaculture Council (representing 7 industry sector groups), non-government organisations, indigenous communities, technical experts, Government and, the retail sector (eg. Woolworths / Coles / fish markets).

It was also suggested that the likely pathway for Government consideration of a revised ESD framework for aquaculture, would include the Aquaculture Committee, the Australian Fisheries Managers Forum and the appropriate Standing Committee forum.

Table 2. Summary of Key Issues and Statements for Each Break-out Group

| | Marine offshore | Long-lines/ Intertidal | Marine onshore Ponds | Marine onshore Tanks | Inland static ponds | Inland flow through ponds | Recirculation & Hatchery |
|---|---|---|---|---|--|---|---|
| 1 | Ecological constraints to growth | Water Quality | Economic viability is a precursor to being green, conversely ESD regulations can make industry non-competitive | Determine Best Practice: Benchmark current environment performance by sector | Water Quality | Effect of meeting ESD on Economic Competitiveness | Unique capacity for bio-security. |
| 2 | Feed – reliance on wild stocks. FCR – energy efficiency | Habitat Flora & Fauna | Scale of Aquaculture operation to afford ESD. Economic benefit of aquaculture vs. other industry sectors with greater environmental impact. | Effluent Discharge Water quality continuous improvement | Effluent Discharge | Nutrient loads | Consumer market product acceptance / resistance |
| 3 | Community perceptions and confidence. Visual impact | Translocation: Genetics Health | Simplified Process for Planning approvals ie. Governments to coordinate process (linkage management & governance) | Waste mitigation through settlement ponds: understand & enhance biological processes. | Translocation and Biosecurity issues. | Resource Access | Lack of adequate guidelines for ESD and Investors |
| 4 | Consumer confidence | Resource access. Planning issues eg. cultural and land based amenity. | National strategic plan for development | Stock escape, particularly genetic improved stock and management | Location (site selection) and site access | Public Perception | Lack of success stories ie need to promote and validate |
| 5 | Cost of ESD-capacity to pay | Communication Education | Use ESD Reporting framework, Industry planning imperative with respect to ESD. | Simplified Process for Planning approvals ie. Governments to coordinate process | Culture change needed for industry to adopt EMS eg. some complacency | Disease Management | Resource use efficiency i.e. water re-use. |
| 6 | Resource access/security & capital intensive industry. | Economic Viability enables ESD. Compliance issues. | Establish ESD performance measures. Use national conceptual framework. | Public perception ie. need to sell the industry | Documentation of ESD performance & 3 rd party audit | Documentation of ESD Performance | Good capacity to integrate with other systems |

Table 3. Summary of Key Workshop Outcomes

| |
|---|
| Outcome 1. |
| The National ESD Framework be adopted as a conceptual framework for aquaculture. |
| Outcome 2. |
| The development of the ESD Framework for aquaculture be included within the current FRDC ESD reporting and assessment Sub-program. |
| Outcome 3. |
| An Aquaculture ESD Reference Group be constituted with expertise from the existing ESD Reference Group and include increased representation from the aquaculture industry. |
| Outcome 4. |
| The Aquaculture ESD Reference Group identify / clarify the possible applications of the ESD Framework to industry, government and non-government organisations. |
| Outcome 5. |
| Environment Australia to engage with industry to develop guidelines that provide greater certainty for the community and aquaculture proponents concerning the management of aquaculture proposals that may trigger issues of national environmental significance. |

Appendix 1: Intellectual Property

The intellectual property developed in this project is shared between FRDC and the applicants. FRDC was acknowledged in all publications resulting from the project.

Appendix 2:**State Organising Group**

Richard McLoughlin
David Smith
Anthony Forster
Louis Vorstermans
Geoff Gooley
Hugh Meggitt
Chris Gindidis

Fisheries Victoria
Marine and Freshwater Resources Institute
Fisheries Victoria
Victorian Aquaculture Council
Marine and Freshwater Resources Institute
Victorian Trout Association
Seafood Industry Victoria

Appendix 3:**National Organising Group**

| | |
|-----------------------------------|--|
| Richard McLoughlin | Fisheries Victoria |
| Simon Bennison | Aquaculture Council of Western Australia |
| Bruce Zippel | National Aquaculture Council |
| Greg Paust | Aquaculture Committee |
| John Volkman | CRC Finfish program |
| Peter Dundas-Smith / Patrick Hone | Fisheries Research & Development Corporation |
| Mathew Dadswell | Dept. Agriculture Forestry & Fisheries Australia |
| Louis Vorstermans | Victorian Aquaculture Council |
| Tony Bigwood | Environment Australia |
| David Smith | Marine and Freshwater Resources Institute |
| Margaret Moore | World Wildlife Foundation |
| Anthony Forster | Fisheries Victoria |

Appendix 4: Workshop Programme

Sunday 14th July 2002

5.00pm Registration

6.30 Cocktail Party

Monday 15th July 2002

8.00 Registration

8.30 Opening Address Minister Candy Broad

8.50 Welcome and introduction Richard McLoughlin

| <i>Session 1 Setting the scene</i> | | <i>Chair Richard McLoughlin</i> |
|------------------------------------|--|---------------------------------|
|------------------------------------|--|---------------------------------|

9.00 International perspective / overview

Mike Phillips

9.20 State Government perspective

Nick Rayns

9.40 Aquaculture industry perspective

Brian Jeffriess

10.0 Its not easy being green

- an NGO odyssey into aquaculture regulation

Peter Marchant/Michelle Grady

10.20 An Environment Protection Agency perspective

David Campin

10.40 National ESD reporting framework

Dr Rick Fletcher

11.00 Morning tea

11.30 Break-out Groups – Identifying key issues

1.00 Lunch

| <i>Session 2 Experiences and Solutions</i> | | <i>Chair Louis Vorstermans</i> |
|--|--|--------------------------------|
|--|--|--------------------------------|

2.00 EMS in the WA Aquaculture Industry

Simon Bennison/Brett McCallum

2.20 National EA assessment guidelines

Tony Bigwood

2.40 Prawn farming and ESD

Martin Breen

3.00 Establishing a land-based abalone farm
- dealing with perceptions

Steve Rodis

3.20 Aquaculture environmental monitoring in Tasmania
- a review of the last decade

Gwen Fenton

3.40 Tea

4.00 Dealing with community perceptions

Margaret Moore

4.20 Counting the benefits & meeting the costs
- ESD in freshwater aquaculture

Edward Meggitt

4.40 Integrated planning and decision support systems

Drew Tyre

5.00 Socio-economic issues

Dr Melanie Fisher

5.20 Close

7.00 Workshop dinner

Tuesday 16th July

8.30 Recap of Day 1

Richard McLoughlin & Peter Dundas Smith

| | |
|---|----------------------------------|
| <i>Session 2 Experiences and Solutions (Contd)</i> | <i>Chair Bruce Zipple</i> |
|---|----------------------------------|

8.50 Environmental research for aquaculture ESD
in Australia and internationally.

John Volkman

9.10 Triple bottom line & Tasmanian salmonid industry

Owen Carington Smith

9.30 Marine Stewardship Accreditation for aquaculture

Duncan Leadbitter

9.50 Environmental accreditation for Tuna farming

Jean Cannon

10.10 Environmental health and aquatic animal health

Eva-Maria Bernoth

10.30 Morning tea

11.00 BMP certification for the Shrimp farming sector

Jason Clay

11.30 Break-out groups – Synthesis and consistency of approach toward a National
ESD framework

1.00 Lunch

1.45 Group reports

Chair Greg Paust

2.45 Afternoon Tea

| | |
|---|--|
| <i>3.15 Session 3 Synthesis and Outcomes</i> | <i>Chair Peter Dundas-Smith</i> |
|---|--|

4.45 Conclusions

Richard McLoughlin

5.00 Close

Appendix 5: Workshop Delegates

| Name | Organisation |
|----------------------------|---|
| Dr Peter Appleford | Dept of Natural Resources & Environment, Fisheries |
| Mr Simon Bennison | Aquaculture Council of Western Australia |
| Mr Tony Bigwood | Environment Australia |
| Mr Adam Body | Territory Aquaculture Development Advisory Committee |
| Mr Graeme Bowley | NSW Fisheries |
| Mr Phillip Boxall | Inland Fisheries Service |
| Mr Martin Breen | Australian Prawn Farmers Association |
| Mr Kevin Brown | Dept of Natural Resources & Environment, Fisheries |
| Mr Glenn Browne | NSW Farmers Association |
| Mr Andrew Buckley | Agriculture, Fisheries and Forestry - Australia |
| Mr Murray Burns | Dept of Natural Resources and Environment |
| Professor Colin Buxton | Tasmanian Aquaculture & Fisheries Institute |
| Ms Karen Campbell | Seafood Services Australia |
| Mr Dave Campin | Queensland Environmental Protection Agency |
| Ms Jean Cannon | Jean Cannon Consulting |
| Mr Owen Carington Smith | Tasmanian Salmonid Growers' Association |
| Ms Carina Cartwright | PIRSA Aquaculture |
| Professor Anthony Cheshire | SARDI Aquatic Sciences |
| Dr Jean Chesson | Bureau of Rural Sciences |
| Mr Stuart Chilcott | Inland Fisheries Service |
| Ms Robin Clark | Department of Fisheries - WA |
| Mrs Anne Clarke | Qld Dept of Primary Industries, QLD Fisheries Service |
| Dr Jason Clay | World Wildlife Fund - US |
| Dr Adrian Collins | Queensland Department of Primary Industry |
| Dr Christine Crawford | Tasmanian Aquaculture & Fisheries Institute |
| Mr Matthew Dadswell | Agriculture, Fisheries and Forestry - Australia |
| Mr Dexter Davies | Aquaculture Development Council |
| Dr Michael Deering | PIRSA Aquaculture |
| Ms Deborah Dewey | Bureau of Rural Sciences |
| Mr Peter Dundas-Smith | Fisheries Research & Development Corporation |
| Mr Kevin Elland | Aquatic Veterinary Consultant |
| Mrs Ruth Farley-Nelson | Hobart College |
| Ms Gwen Fenton | Dept of Primary Industries Water & Environment |
| Mr Peter Finglas | Department of Primary Industries (QLD) |
| Dr Melanie Fisher | Bureau of Rural Sciences |
| Dr Rick Fletcher | ESD Reporting & Assessment |
| Mr Wes Ford | Dept of Primary Industries, Water & Environment |
| Mr Anthony Forster | Dept of Natural Resources & Environment, Fisheries |
| Mr Wayne Fulton | MAFRI |
| Ms Fiona Gavine | MAFRI |
| Mr Ray Gilby | Dept of Natural Resources and Environment |
| Mr Tim Gippel | NSW Fisheries |

| | |
|-----------------------|---|
| Mr Eli Goldbaum | |
| Mr Geoff Gooley | MAFRI |
| Mr Marcel Green | NSW Fisheries |
| Mr Neil Hickman | MAFRI |
| Mr Geoff Hill | South Gippsland Shire Council |
| Dr Patrick Hone | Fisheries Research and Development Corporation |
| Mr Stephen Hood | MG Kailis Group |
| Mr Glenn Hurry | Dept Agriculture Fisheries & Forestry - Australia |
| Mr Brian Jeffriess | Tuna Boat Owners Association |
| Mr Rob Jolly | Dept of Natural Resources and Environment |
| Ms Jolene Key | (NZ) Ministry of Fisheries, Science Group |
| Dr Martin Kumar | SARDI |
| Mr Peter Lawson | Dept of Natural Resources & Environment, Fisheries |
| Mr Duncan Leadbitter | Marine Stewardship Council |
| Dr Chan Lee | Department of Fisheries - WA |
| Mr Dan Lees | Ministry of Fisheries New Zealand |
| Dr Brett Light | Environmental Protection Authority |
| Mr Andy Longmore | MAFRI |
| Dr Stephen Madigan | Sardi Aquatic Sciences |
| Mr Peter Marchant | Conservation Council of SA |
| Mr Brett McCallum | Pearl Producers Association |
| Mr Lachlan McKinnon | MAFRI |
| Mr Richard McLoughlin | Dept of Natural Resources & Environment, Fisheries |
| Mr Edward Meggitt | Goulburn River Trout |
| Mr John Mercer | Fisheries Victoria (MAFRI) |
| Dr Graham Mitchell | Foursight Associates P/L |
| Mr Ross Monash | Recfish Australia |
| Ms Margaret Moore | World Wildlife Fund for Nature |
| Mr Craig Murdoch | Dept of Natural Resources and Environment |
| Miss Kath Nash | Dept of Infrastructure Planning & Environment |
| Ms Cassandra Nelson | NSW Fisheries |
| Mr David Newton | Fisheries Research & Development Corporation |
| Mr Ian Nightingale | PIRSA Aquaculture |
| Ms Philippa Noble | Dept of Natural Resources and Environment |
| Dr Paul Palmer | Queensland Department of Primary Industries |
| Mr Greg Paust | Department of Fisheries - W.A. |
| Dr James Penn | Department of Fisheries |
| Mr Peter Peterson | Queensland Fisheries Service |
| Mr Michael Phillips | Network of Aquaculture Centres in Asia-Pacific |
| Dr Nigel Preston | CSIRO Marine Research |
| Mr Peter Rankin | Victorian Fisheries Co - Management Council |
| Mr Peter Rawlinson | Dept of Natural Resources & Environment |
| Mr Alan Ray | Dept of Natural Resources and Environment |
| Dr Nick Rayns | NSW Fisheries |
| Mr Robert Richards | Australian Barramundi Culture Pty Ltd |
| Mr Chris Robertson | Qld Dept of Primary Industries, QLD Fisheries Service |
| Mr John Robertson | Queensland Department of Primary Industries |
| Mr Steve Rodis | Great Southern Waters |
| Dr Peter Rothlisberg | CSIRO Marine Research |

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|--------------------------|--|
| Mr Derek Shields | Aquenal Pty Ltd |
| Dr David Smith | Marine & Freshwater Resources Institute |
| Mr Kevin Smyth | Pacific Reef Fisheries (Aust) P/L |
| Mr Scott Speed | Kingett Mitchell Ltd |
| Ms Audrey Thors | Advisory Council on Aquaculture |
| Dr Drew Tyre | CSIRO Marine Research |
| Dr Sarah Varian | (NZ) Ministry of Fisheries, Science Group |
| Dr John Volkman | CSIRO Marine Research |
| Mr Louis Vorstermans | The Victorian Aquaculture Council Inc. |
| Dr Vicki Wadley | Tasmanian Salmonid Growers' Association |
| Ms Fiona Wellby | Aquafin CRC |
| Mr John Willmer | New Zealand Seafood Industry Council Ltd |
| Mr Robert Wood | Alpine & Narangi Trout |
| Mr Carl Young | Queensland Aquaculture Industries Federation |
| Mr Bruce Zippel | National Aquaculture Council |
| 106 People Listed | |