

# Evaluating the Performance of Australia's Fisheries and Aquaculture



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Fisheries Research and  
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A Report to the Fisheries R&D Corporation - Resource Working Group

Project 2014-235

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### Acknowledgements

This 2014 study is the second Performance & Use (P&U) study undertaken by the FRDC's Resource Working Group. The initial study was in 2009 (FRDC 2006/071.20).

Both the 2009 and 2014 P&U studies were conducted as Delphi processes across a broad Expert Group representative of the 4 sectors of the Fishing and Aquaculture Industry – commercial wild catch, aquaculture, recreational, and Indigenous customary.

The same consulting team has undertaken both studies, enabling greater consistency across the data and related assessments. The team comprised Ewan Colquhoun from Ridge Partners, and Deborah Archbold from Deborah Wilson Consulting Services.

All expert responses and study material has been provided and documented on a confidential basis and will be held by the consulting team.

## Glossary of Terms

### ARRANGEMENTS, CONTROLS AND VALUES

These are baseline performance categories developed by this project for all fisheries and aquaculture. They are defined in the box on page 7 of the Executive Summary.

### BEST USE.

Marine and terrestrial resource allocation and management to achieve full potential in generating maximum outcomes and benefits for the community. Incorporates benefits derived by all stakeholders from both active and passive use of fisheries and aquaculture. The focus for this study is the maximisation of active use for community benefit.

### ECONOMIC RENT.

The difference between the price of a good produced using a natural resource and the unit cost of turning that natural resource into the good. In this study the natural resource is the fishery and the good is the landed or released fish. Economic rent is an economic measure and does not refer to rents or license fees for resource use). (*EconSearch, 2008*).

### ECONOMIC IMPACT

An indicative estimate of the aggregate economic value of fishery outcomes. Components include economic rent,

direct (i.e. fishing, aquaculture or seafood related) downstream impacts, indirect (i.e. non fishing activity multipliers such as vessel insurance) downstream impacts, and estimates of Indigenous customary and illegal value (defined more fully in the document).

### EPBC

Environmental Protection and Biodiversity Conservation Act, 1999, Commonwealth of Australia. This is the Australian Government's central piece of environmental legislation.

### EXPERT GROUP

A panel of approximately 84 individuals (mostly Australian based) who have longstanding and comprehensive expertise in managing, operating, and analysing fisheries and aquaculture and the outcomes and benefits they create for regional and national communities. *Fishery Managers* on the Panel are agency officers responsible for managing access to and use of marine fisheries on behalf of the community. *Technical Experts* bring advanced knowledge, skills or experience in the science, technology, viability or sustainability of marine resource use and management, and in human interaction with the resource and its inputs, products and services. *Licenceholders* are or represent active fishers with rights of access to the aquatic resource, either for commercial (including aquaculture), recreational, or Indigenous customary outcomes.

### Compact Framework

This project has developed a Compact Assessment Framework (see Appendix 3).

The Compact Framework is a tool to assess fishery and aquaculture performance and use against standardised national environmental, economic and social values.

The framework has been developed based on expert feedback and enables quantifiable assessments (on a 10-point scale) of individual or groups of fisheries. Assessment is based on 12 high level variables, and a finalised set of 30 detailed criteria that are subsets of the high level variables.

The 2009 Study produced the initial framework, which was refined and simplified in the 2014 Study.

By definition, fishers of unreported or illegal catch have no rights and are not represented on the Panel. *Stakeholders* on the Panel included non-government organisations, industry bodies and project Work Group members.

### GROSS OPERATING SURPLUS GOS

Gross operating surplus is a measure of operating surplus accruing to all enterprises. It is the excess of gross output over the sum of intermediate consumption, household income and taxes less subsidies on production and imports. Gross Operating Surplus does not include a value for owner/operator wages, unpaid family work, or depreciation.

### GROSS VALUE OF PRODUCTION GVP

The value of the total annual catch for individual fisheries, fishing sectors or the fishing industry as a whole, and is measured in dollar terms. GVP, generally reported on an annual basis, is the quantity of catch for the year multiplied by the average monthly landed beach prices.

### IUU FISHING

Marine fishing activity that is either illegal, unregulated or unreported.

### NRIFS (2003)

The National Recreational and Indigenous Fishing Survey, July 2003, FRDC Project No. 99/158.

### PERFORMANCE GAP

The difference between outcomes derived from managing fisheries and aquaculture to their best use to generate the greatest benefit to the community, compared to outcomes and benefits from current use and management.

### USER SECTORS IN FISHING & AQUACULTURE INDUSTRY

The commercial sector undertakes activities directed to a financial return from the sale of seafood and non-edible aquatic products. Activities are commercial wild-catch, aquaculture, and post-harvest (i.e., processing, handling and retailing).

The recreational sector undertakes activities that create personal enjoyment and recreation from use of aquatic resources. It includes fish stocking activities and commercial enterprises associated with the sector such as fish tour operators, charter operators and fishing guides, and fish-out activities from public or private impoundments.

The Indigenous customary fishing sector comprises Aboriginal and Torres Strait Islander communities that fish to satisfy personal, communal, domestic, ceremonial and/or educational needs inherent to their cultural life. Many Indigenous communities and individuals also participate in commercial and recreational fishing.



### Purpose

This project offers stakeholders an *'Estimate of the benefits arising from managing fisheries to their best use and managing that use in such a way as to generate the greatest benefit to the community, then comparing those benefits against current outcomes'*.

## 1. Executive Summary

Are Australian fisheries and aquaculture achieving best performance and use? What is the trend in performance overall, and by sector across wild catch commercial, recreational, Indigenous customary and aquaculture?

In 2014 this FRDC project completed its second evaluation of fisheries and aquaculture, following the first study in 2009. Using a consistent Delphi research methodology across environmental, economic and social issues, in 2014 58 experts assessed 41 separate fisheries and aquaculture.

The reality is that issues and priorities driving fisheries and aquaculture resources are complex and dynamic – accordingly assessments of performance and use must also change over time. The Delphi methodology builds our understanding via a cost-effective and systematic process to interrogate national and local issues across all fisheries and aquaculture. Experts' responses focus our qualitative understanding on the main issues and priorities, to then guide both policy development platforms and fisheries management. In turn, we are better able to draw guarded quantitative conclusions about performance and use of each and every sector.

This report summarises the Delphi approach, the refinements adopted to improve the scope and scale of assessments to include economic activity from all sectors,

the headline outcomes, and the early trends in performance and use over the 5 years since 2009.

1. Overall, the fishery and aquaculture performance ratings by experts in **2014 (5.6), were almost the same as in 2009 (5.8)** on a 10-point scale where 10 is Best Use. Taking in context, experts believe fishery performance has improved marginally overall in line with the community's greater public awareness and rising expectations of fishery performance over the last 5 years. Best Use and Performance changes with time, and in five years' time the expectation will likely nudge higher again.
2. Fishers, farmers, license holders, fishery managers, technical experts, and other **stakeholders want to understand, improve and defend Fishery Performance**. This is very evident from the consistently strong and ongoing level of voluntary engagement provided to the project by the many participating experts. Opportunity exists to leverage this motivation with clear and more detailed analyses that each fishery can then employ to improve its local performance.
3. Australian fisheries and aquaculture are very diverse activities. But their performance assessment framework must be concise and straight forward, horizontally across users and



### Variables and Criteria

Fisheries are assessed across four high level variables: Management, Environment, Economic, and Social & Engagement. Each variable is grounded in three Assessment Framework Criteria describing its role and application:

Arrangements A term for management approaches in the Framework - includes legislation, regulations, policy settings, management instruments and guidelines.

Controls A term for factors in the Framework that control or influence activities and behaviours - includes fishery input and output controls, industry cost and revenue levels, and tracking changing community views.

Values A term for key attitudes, understanding or expectations represented in the Framework - includes trust and collaboration in industry, promoting best practice, valuing an ecosystem approach to fisheries management, community views and expectations.

vertically from the harvest to the many downstream benefits delivered to consumers and communities. A single national assessment tool is required.

This national **Compact Assessment Framework now exists** as a result of the development work of this project. Further refinements over time will reflect changes in fishery use and the values derived by Australians.

4. The **top priorities for action to improve fishery performance** identified in 2014 are consistent with those identified in 2009. The top 3 are:
  - a. Flexible and strategic approach to management,
  - b. Documented harvest and management strategies,
  - c. Efficient, transparent allocation of shares and associated property rights for all uses.

Across the top 10 actions identified there has been some reordering but limited change in experts' priorities.
5. In the five years since 2009, experts believe **the trend in fishery performance** across high level variables, has changed as follows:
  - Management performance has improved: (+11%),

- Environmental performance has declined: (-16%),
  - Economic performance has declined: (-14%),
  - Social & Engagement performance has declined: (-13%).
6. Caution is urged when interpreting these trends. As noted above (point 1) **Best Use changes over time** subject to public expectations. This trend is based on only two data points (2009 and 2014) from a sample of fisheries. Other external interventions that impact these trends since 2009 include:
    - Global Financial Crises,
    - Media impacts and events related to seafood,
    - Fluctuations and recent decline of the \$A.
  7. The study also considered the Assessment Criteria related to each variable. The data suggests:
    - **Environmental variables rate highest as a performance yardstick** to assess fishery and aquaculture performance. Experts generally believe that the arrangements (6.2 out of 10) and values (6.2) users commit to environmental performance are significantly less than the environmental controls (7.2) currently in place. This is resulting in an underperformance by users against their expectations re environmental performance.

- For **Management**, arrangements (6.1) and values (5.8) also rate highly, but the data suggests a similar (but less severe) underperformance by users in this measure, compared to controls in place (6.6).
  - Experts consider 2014 performances related to **Social & Engagement** are well below (28% less than the average for 2009) that of all key variables.
8. Across all **sectoral performances**, the study finds the following performance scores (out of 10):
- Commercial wild sector 5.8,
  - Recreational sector 4.9,
  - Indigenous Customary sector 3.7,
  - Aquaculture sector 6.0,
  - Overall Score all sectors 5.6.
- Expert's scores suggest that:
- The seafood industry (aquaculture and commercial wild catch sectors) were the best performers,
  - Environmental performances lead all sectors,
  - Social & Engagement performance is a challenge that needs to be addressed across all sectors,
  - The Indigenous customary sector performance is poor, but assessment is constrained by a small sample size.
9. For the 24 wild commercial fisheries assessed in 2014, the **multispecies fisheries underperformed single species** fisheries. The 13 multispecies fisheries average score is 5.0, compared to 5.6 for the 11 single species fisheries.
10. The study estimates an economic Performance Gap, being the difference between current and best use outcomes across all Australian fisheries and aquaculture. This estimate is complex and vital, but needs more work to make it user friendly and directly linked to actions. **For 2014 the total Performance Gap across all sectors is estimated at \$1.001 Bn based on the Gross Operating Surplus measure that incorporates all fishery activity upstream and downstream.** This is a minor change compared with the 2009 result (less than 5%) after adjustment for the addition of the aquaculture sector and other once-off changes in the methodology.



*The Delphi consultation process has been used as a cost-effective, timely and systematic approach to interrogate national and local performance of fisheries and aquaculture.*

## 2. Methodology and Process

The P&U studies aim to “Estimate the benefits arising from managing fisheries to their best use and managing that use in such a way as to generate the greatest benefit to the community, then comparing those benefits against current outcomes.”

To achieve this outcome, the project has:

- Explored experts’ views about best use performance for Australian wild capture fisheries.
- Sought experts’ views on the size of the gap between current and best use performance.

### 2.1 THE DELPHI PROCESS AND METHODOLOGY

Fisheries and aquaculture are complex sectors of a dynamic industry. The performance and use of every fishery or aquaculture farm is driven by variable issues and priorities, new human skills, competitive interventions, and emerging technologies that all change annually, if not weekly. The fundamental challenge for all sectors is to assess trends and inform fishers, investors, fishery managers, and policy developers regarding the choices that will lead to best performance outcomes, today and in the future.

The Delphi research process is a cost-effective, timely and systematic approach to interrogate these matters. It can be applied locally, or at regional or national scale. Based on targeted questions, iterative responses from representative

experts identify the key issues and priorities. As these experts’ opinions are confidential they are not under institutional pressure to bias their opinions. Candid responses provide valuable insight into choices for investment, policy development and fisheries management generally.

Qualitative assessments are vital to the collective and deep understanding of issues, but qualitative scores can lack the impact and easy comparability over time, provided by quantitative assessments. Quantitative based metrics are increasingly demanded by practitioners, investors, managers and media. The project team believes that the limitations of qualitative research can be substantially addressed by selectively quantifying qualitative conclusions, both within and across survey years. The project team acknowledges that converting qualitative findings to quantitative metrics involves the exercise of judgement by the project team. The basis for that assessment is laid out in this report. A key consideration is the need to use consistent and repeatable physical and economic variables.

Reporting on both qualitative assessments of our experts, and on the quantitative assessments of the project team based on those assessments, challenges thinking about fisheries and aquaculture management. Each study deepens our understanding - the results from the 2014 study are far more informative than those of the 2009 study and we expect a 2019 study would leverage shared understanding even further.

*The Delphi consultation process has been consistently applied in 2009 and 2014.*

The Delphi research methodology has been employed to collect expert views in successive rounds of consultation to assemble expert feedback. This methodology has been used consistently across the 2009 and 2014 studies, albeit with the inclusion of aquaculture and a more comprehensive approach in the 2014 study.

The Delphi research method is most valuable for:

- Drawing together expert views to identify commonly held as well as diverse views. This distils expert knowledge and feedback through each round of consultation and is a powerful tool for examining complex topics.
- Considering future scenarios and using expert views and opinions to explore future scenarios.

The Delphi process was chosen as the best approach to identify current expert views – commonly held and diverse – on best use performance for fisheries and aquaculture.

Most of the experts consulted in 2009 also participated in the 2014 study. Apart from raising awareness and greatly streamlining the 2014 study, these repeat engagements also promoted more in-depth understanding of the changes over the 5 year period and the implications for performance and use therefrom.

There are a number of steps in the Delphi process:

*1. Defining the expert group.* An expert panel was developed covering all fishing and aquaculture sectors, for Commonwealth, State and Territory jurisdictions. Experts

were identified by the consulting team, with input from the Resource Working Group and the FRDC, into three expert subgroups: fishery managers, technical experts, and licenceholders and stakeholders (covering industry operators and peak bodies). The starting panel was developed to ensure:

- National and some international coverage of fishing industry experts,
- A balance across constituencies (marine environments, fishery species and fishery scale),
- A balance of views covering each of the four fisher or farmer user subgroups.

A target number of 40 experts was set as the minimum number of expert responses required to participate in every main Delphi round. This target was achieved with consistent levels of participation from subgroups across the consultation rounds.

*2. Initial contact with the expert group.* In 2009 the FRDC issued an official invitation to targeted experts inviting them to participate in the project. However, in 2014, as most experts were already known to the project team and aware of project aims and process, the consulting team initiated contact via an invitation letter sent to each expert. The letter introduced the team, laid out a 3 round engagement scheduled, and requested experts' commitment to 2-3 hours of their time over the duration of the study.

A pilot process was undertaken in 2009 to refine the design of the Delphi process. This pilot process was not considered necessary in 2014 due to existing broad awareness of the study aim and process.

*3. Undertaking the Three Delphi Research Rounds.* The same process was used for each of the three Delphi Rounds - each expert was provided with an information paper covering key topics and questions for consideration. After each round of interviews, a new information paper was prepared based on expert feedback received.

Three P&U assessment data points have now been established – 2003, 2009, and 2014. The 2003 assessments were estimated in 2009.

Figure 1. Expert Participation in Delphi Consultation Rounds

Consultation Completed	Round 1	Round 2	Round 3	Total 2014	2009	2003
Experts engaged at start of study				187	97	97
Fishery Managers	12	11	9	9-12	12-14	12-14
Licenceholders and stakeholders	26	21	13	13-26	20-23	20-23
Technical Experts	19	15	16	15-19	19-20	19-20
Anonymous responses	5	8	5	5-8	0	0
<b>Total experts interviewed</b>	<b>62</b>	<b>55</b>	<b>43</b>	<b>43-62</b>	51-57	51-57
Fisheries ratings provided by experts						
Wild catch commercial				38	25	25
Aquaculture				8	n/a	n/a
Recreational				8	n/a	n/a
Indigenous Customary				4	n/a	n/a
Multi use / other (not defined)				0	13	13
<b>Fishery Ratings provided by Experts</b>				<b>58</b>	<b>38</b>	Estimate
<b>Individual Fisheries rated by Experts</b>				<b>41</b>	<b>29</b>	<b>29</b>

*In 2014, forty-one fisheries were assessed by experts. These included commercial wild catch, aquaculture, recreational and Indigenous customary fisheries.*

The Round 1 paper also summarised the 2009 study, discussed the background and approach relevant to the 2014 research, and identified a dedicated FRDC webpage enabling further reading and progressive responses.

Accessing some data has proved very challenging in both 2009 and 2014. While the level of response from Indigenous customary fishery experts in 2014 was greater than in 2009, the level of Indigenous customary fishing response is still too low. This gap needs to be addressed.

The consulting team leaders conducted the expert interviews for the project. A number of experts provided feedback via a web based survey tool based at the FRDC website. Individual phone interviews were planned and conducted with many experts.

Principles guiding the Delphi process include the following:

- Confidentiality and anonymity for all participants.
- Recording of expert feedback for each round to produce a de-identified research file of expert feedback that can be used for future comparative or benchmark studies.
- Findings in this report are based on expert feedback. The consulting team has analysed and aggregated feedback, however, the information content in this report reflects the views of experts.

Each Delphi Round had a specific investigative focus, with information/Issues Papers collated and released to experts progressively. Fifteen questions were asked as follows:

#### Round 1. Assess Best Use, measure, and related trends

1. Is the framework for assessing fisheries performance in 2009 effective for assessing fisheries performance today?
2. Are the measures for assessing environmental, economic and social & engagement performance of fisheries in 2009 relevant for an assessment in 2014?
3. What changes or trends have occurred in the last 5 years that impact or change our thinking on fisheries performance and best use outcomes?
4. What is your view of the 2009 research?

#### Round 2. Refine the Framework and estimate the Gap

5. Does this Paper cover the main themes you raised?
6. Does the Compact Framework reflect the measures we need?
7. Can you provide ratings on a scale of 1 (worst) to 10 (best) using the framework to assess the performance of fisheries you know well and/or can comment on?
8. What is the gap between current and best use - for each of economic, environmental, and social gaps?
9. What actions are needed to move from current use towards best use?
10. How can we best track this gap across Australian fisheries in the future?

#### Round 3. Confirm the Gap, and Priorities for Action

11. What are your views on the new Compact Framework?
12. What do you think of the estimated Performance Gap of \$1.1Bn? Is it: - About right, or Too high, or Too low?
13. What are your views on the gap assessment process?
14. What are your top five priority actions you believe are necessary to move towards best use outcomes? (based on attached List of Priorities for Action which updates the 2009 priorities),
15. Do you have any other comments or views on this Issues Paper, the process, or the outcomes?

**Fishery Performance Impacts**

(total economic impacts) have been estimated by summing, for all sector uses:

- economic rent accrued to the beach
- direct economic impact of downstream activity (e.g. seafood processing)
- indirect impact of downstream activity (e.g. vessel insurance)
- proxy estimates of direct and indirect economic impacts from customary fishing
- proxy estimates of direct and indirect economic impacts from unreported (i.e. illegal or unregulated) fishing.

**Performance Gaps** have been estimated based on expert feedback and scores related to these impacts.

## 2.2 REACTION TO THE PROJECT

The high level of expert enthusiasm and support evident in 2009 has been carried on to the 2014 study. This was evident across all jurisdictions and fishery resource users.

A great strength of the Delphi process is its ability to capture diversity and depth of opinion across complex issues from diverse, variously informed sources. During this project feedback has been sought and where there is common agreement, this has been highlighted in subsequent issues papers and this report.

The consulting team has ensured there has been no encouragement to experts or a project focus to force experts to come to agreement on any particular issue. Converging or diverging views reflect differing expert perspectives, which are incorporated into the reporting process.

Many experts found the study process and related collection of information and ideas to be a useful resource in their own fields. In 2014 the large number of responses in support of the Compact Framework confirms that most experts feel the P&U framework is now comprehensive, stable, and can operate as an efficient fishery performance assessment tool in to the future.

A number have expressed a desire for the P&U study to now (after 2 studies) begin to deliver more trends and insights regarding fisheries and aquaculture performance and use over time.

Many experts (in 2014, and previously in 2009) commented on the challenges in completing the project, but most were able to find the time to contribute. In Round 3 of 2014, 43 experts participated across the expert groups of technical experts, stakeholders and fisheries managers compared with 55 in Round 2. Due to work commitments at the end of 2014 and the beginning of 2015, a number of experts were unable to participate in this final round. However, the 43 experts who did participate provided good coverage of the expert groups (technical expert, stakeholder and fisheries manager) as well as good regional coverage. Round 3 consultations have delivered a sound result that illustrates convergence in experts' views and differing views on some issues.

The Delphi process uses a judgement sample. That means that participants are selected based on certain criteria, in this case their expertise in fisheries. Judgement samples do not produce results that are subject to the laws of statistical probability – the results are qualitative in nature and increasing the sample size for statistical purposes is not needed. However, it is clear the Delphi consultation process should be scheduled to avoid national holidays wherever possible and ensure optimum engagement for all experts.

*Why has the P&U project moved away from measuring economic impact based on landed GVP?*

*All sectors are now included in the project, including their respective downstream impacts.*

*Existing GVP measures of economic impact are not possible or comparable across users, and do not enable balanced and informed advice re the economic contribution of all fisheries.*

*Gross Operating Surplus has been chosen as the standard measure as it includes all sectors, includes food and non-food economic impacts, includes post-harvest and downstream impacts, is easy to use, and potentially available.*

## 2.3 IMPLICATIONS FOR USING THE RESULTS

These 2014 study results build on and enhance the results from the 2009 study. Each additional study over time adds data points across the multiple criteria in each of the assessment frameworks across all fisheries and aquaculture.

Analyses, issues, conclusions and implications presented in this report draw from a balanced population of fisheries experts, using a consistent approach.

The repeated participation of a core group of experts throughout Delphi rounds and the commitment to confidentiality provides an open environment in which experts can freely put forward views without constraint. Occasional disagreement by experts with some information presented in issues papers has added value and texture to the diversity of responses from the overall process. This report is better informed as a direct result.

The study has used Total Economic Impact as the most appropriate measure to evaluate current and future fishery performance, and therefore to quantify performance gaps. In 2014 all Australian fishing and aquaculture sectors have been included in the P&U assessment.

In 2014 FRDC completed a project (2012-214) that:

- Found there was little credible research in the literature to provide a comprehensive valuation of the recreational and Indigenous customary fisheries, and

- Estimated the recreational fishing sector had a national value of \$333m based on a GVP approach (2013), but made a gross national economic contribution (based on an attributable expenditure approach) of \$2.56 Bn. The bulk of the sector's economic contribution is non-food in nature.

These estimates stand in clear contrast to the estimated commercial fisheries landed GVP of \$2.38 Bn provided by ABARES (Fisheries and Aquaculture Statistics 2013). Clearly this is a comparison of apples and oranges and does not provide a credible basis for assessing, comparing and tracking fisheries' performances over time.

Gross Value of Production (GVP) is a relatively narrow (albeit traditional) valuation method for economic contribution based on landed value of food contribution at beach or pond. It does not readily account for non-food economic impacts (at harvest or downstream) that are derived by recreational or Indigenous customary fishers. Other large recreational industries (e.g. ecotourism, horse racing, golf) do not use the GVP method to value their economic contributions.

Traditional GVP measures of economic impact have a key role in the seafood based sectors, but are not an appropriate measure to assess and compare the overall economic performance (food and non-food) and use of Australian fisheries and aquaculture on an ongoing basis.



With advice from professional economists (Econsearch Pty Ltd) in early 2014 the P&U economic impact methodology has been extended to include the aquaculture sector, ensuring all fisheries (commercial, recreational, Indigenous customary and IUU fisheries) are now assessed across standard criteria. In addition, the economic impact methodology has been standardised (as much as possible) across sectors to include and accrue all economic rents, and upstream and downstream economic impacts.

**Gross Operating Surplus (GOS)** has been chosen as the standard measure of economic impact across sectors as it best accommodates all sectors and is broadly used across other industries and the general economy.

Some jurisdictions are well advanced in calculating GOS and related fishery impact data (e.g. South Australia), while others will need further encouragement to provide this data on a regular basis.

However, this study does not attempt to measure non-economic benefits derived from fishery performance or use. For example, impacts excluded from the study would include such items as social gains flowing from improved welfare outcomes for families, or reduced crime in Indigenous communities due to greater fishery participation and employment.

Estimates derived from this analysis and detailed in this report are indicative only, and should be used with caution. They are informed calculations by the consulting team

based on consistent measures to stimulate expert opinion and response.

A number of key documents have been produced as part of the Delphi research process. Information and Issues Papers for each round of feedback (3 in total) are included as appendices.

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## 2.4 REFINING THE MEANING OF BEST USE

Experts' responses in 2014 Round 1 prompted a review of the definition of best use. The 2009 study established a solid foundation for assessing fishery use, but over the 5 years to 2014 a number of matters have influenced expert's thinking including

- Changes in government, a more complex landscape and less government resources available for fisheries management,
- A focus on reducing red and green tape while improving performance outcomes. This can include increased use of control measures.
- Increased focus on co-management, collaboration and resource sharing.
- Increased focus on accountability of commercial fishers in the fishery, verses macro management.
- Increased third party certification – the market and consumer expectations are driving change. There is a stronger focus on value verses tonnage output.
- Growth in recreational fishing, in particular regarding catch and release fishing.

- More marine parks declared.

The Best Use definition was realigned to more clearly achieve two outcomes: clarify how best use links users to causative impacts across environmental, economic and social issues, and to ensure assessment approaches and tools embrace all users including aquaculture.

Figure 2 presents the new definition. From 2014, all four sectors (three wild catch + aquaculture) are participating directly and individually. Prior measures of recreational, community or social performance are now combined into a single measure - Social & Engagement.

Figure 2. The Definition of Best Use

	Environment	Economy	Society
<i>Use which creates IMPACTS and benefits for:</i>	<ul style="list-style-type: none"> <li>• Marine</li> <li>• Terrestrial</li> <li>• Fishery and aquaculture species</li> </ul>	<ul style="list-style-type: none"> <li>• National &amp; regional</li> <li>• Enterprise, or agency</li> <li>• Supply chains &amp; markets</li> </ul>	Communities own fisheries. They seek recreation, or to following cultural practices
<i>...and is redefined as embracing a number of values and outcomes:</i>	<ul style="list-style-type: none"> <li>• Environmental sustainability,</li> <li>• Economic viability of commercial, recreational or Indigenous customary fishers, or aquafarmers,</li> <li>• Maximising economic value streams for seafood and recreation markets,</li> <li>• Effective management through leadership contributed by users and regulators,</li> <li>• Well defined shares for different users and mechanisms for tradability of these shares,</li> <li>• Social license to operate,</li> <li>• Community expectations as to management of and access to fishery or aquaculture activities,</li> <li>• Indigenous community access to fisheries and aquaculture,</li> <li>• Where fisheries are regionally important, corporate responsibilities cover local employment and reinvestment in community,</li> <li>• Leading industry practices foster indigenous employment, female employment, adoption of new technology, and process improvement,</li> <li>• Government policy of the day.</li> </ul>		
<i>...across activities.</i>	Commercial wild catch fishing, Recreational fishing, Indigenous customary fishing, and Aquaculture farming.		



Performance assessment for the Fishing & Aquaculture Industry must be stakeholder friendly.

Tools developed and the outputs created by the P&U process must be practical and easy to implement, and informative in the hands of stakeholders.

### 3. The Assessment Framework

In response to expert's feedback, the 2014 P&U Study launched and tested a new "Compact Framework". Appendix 3 presents the three elements of the Compact Framework:

1. Wild catch performance and use measures,
2. Aquaculture performance and use measures,
3. Common assessment criteria.

The redesigned Compact Framework now embraces all users in a streamlined and straight forward assessment approach. Importantly the Compact Framework assessment tool is now more flexible, enabling assessors to choose either to assess against the 12 *high level variables*, and / or all *detailed criteria* presented in Appendix 3. The assessment task for the latter is clearly more demanding and time consuming, but the resulting analysis is far more informative to stakeholders.

Section 4.2 identifies suggested design improvements to be considered for the next P&U Study tentatively scheduled for 2019.

#### 3.1 EXPERT FEEDBACK RE THE FRAMEWORK

There was overwhelming support (88%) from experts for the new Compact Framework. Experts valued the following aspects of the Compact Framework's role in assessing

performance. The representative verbatim comments are used to most accurately illustrate each aspect.

##### 3.1.1 A TOOL FOR PERFORMANCE AND CLOSING THE GAP

*'A good tool that may inspire some managers to set quantifiable goals for fisheries and aquaculture'.*

*'An excellent tool that allows a systematic and networked approach to assessing current performance. The Framework a foundational item of conversation for priority setting into the future'.*

*'In general the framework captures the issues and is a useful way for people to get their head around the issues'.*

*'A unique facet is that the Framework is talking about 'now' rather than about history for the fishery'.*

##### 3.1.2 A CONSISTENT APPROACH TO ASSESSING PERFORMANCE

*'The Compact Framework has good potential to streamline and clarify an evaluation framework for wild catch fisheries performance which is an important undertaking. This has been quite disparate in the past and too dependent on individual fishery capability/motivation and jurisdictional capability and intent'.*

##### 3.1.3 ENCOURAGING COMPREHENSIVE ASSESSMENT

*'Many managers, some of whom are 'Experts', still believe that social and economic considerations play little part in fisheries management except in a limited few ecologically sustainable fisheries'.*

*'A more workable Framework that has a focus across environmental, economic and social issues'.*

*'It's a reasonable set of tests for any wild harvest fishery management framework to enable comparison with best practice management. That is, the Compact Framework is probably just as useful during the iterative process of reform/drafting of a management framework as it is in testing the efficacy of an existing framework.'*

*'The Framework generally reflects the contemporary management and business environment for fisheries and the use of a triple bottom line framework is appropriate.'*

#### 3.1.4 HELPING TO QUANTIFY THE GAP

*'The framework is inching towards something that could be used to measure and monitor the gap between current vs best possible performance of Australian fisheries in totality, not just commercial and not just from an economic perspective.'*

*'A good tool that may inspire some managers to set quantifiable goals for selected fisheries and aquaculture.'*

#### 3.1.5 THE PROCESS TO BUILD A COMPACT FRAMEWORK HAS BEEN WORTHWHILE

*'The Compact Framework is much improved and more concise. Actions to close and monitor the gap are realistic. The Compact Framework makes sense. A separate Framework for aquaculture is valuable.'*

*'The higher focus on social issues is consistent with the current environment that the industry operates within.'*

*'It reads well, is easy to follow and not biased to any sector. The Framework can be 'unpacked' for a fishery.'*

*The Common Assessment Criteria (Table D) is very good. It is also good to compare wild catch and aquaculture - a 'perfect' approach.*

#### 3.1.6 SUPPORT FOR IMPLEMENTATION IS ESSENTIAL TO ENSURE ITS USE DELIVERS VALUE

*'Clarity of guidelines that explain the tool will be critical if the issue of subjectivity is to be properly managed and the Framework is ultimately to be defensible in public arena.'*

*'There is a performance gap at industry level but action is needed at fishery level - this needs to be able to be applied and has to be a simple and usable approach.'*

#### 3.1.7 STILL A WAY TO GO FOR THE COMPACT FRAMEWORK TO MEET INDUSTRY'S NEEDS

*'It is an improvement, but still complex. It is hard to squeeze every fishery into the one pro-forma Framework.'*

*'Improved over previous, but still complex, but need to compare State and Commonwealth wild catch fisheries. Closer linkage to FRDC Stock Status reports could refine some of the criteria'*

*'The 'broad areas for action' are not terribly helpful. The proposed 5 yearly comparisons should be fishery by fishery. The 'banding' (of fisheries) is somewhat helpful.'*

*'The system argues for flexibility and minimum regulation on the one hand and seeks mandated actions on the other.'*

*'Clearly more work is needed on understanding 'value' diversity and exploring potential ways to develop a common denominator for broad comparison across fisheries.'*

*Readjustment may be required in the future in favour of intrinsic values at the expense of economic values for the benefit of social harmony and to meet international standards in relation to environmental protection and more importantly human rights.'*

*'Too many measures apply generically. Their weightings are completely unclear. Some of them clearly have a national bias e.g. national aquaculture strategy seems to be a prerequisite but there is no evidence it will achieve anything (it does not yet exist) or why it is required when individual businesses may not be influenced at all by national policy issues'.*

### 3.2 POSSIBLE FRAMEWORK IMPROVEMENTS

In Round 3, experts made additional suggestions that could improve the relevance and performance of the Compact Framework.

#### 3.2.1 DEFINITIONS

*"Marine Environment" - need to be clear this includes all water - tidal and fresh. Perhaps say 'Marine, Estuarine and Aquatic'.*

*Definition of "Best Use" - consider including some context about employment in the industry e.g. best practice approaches, youth employment and succession planning.*

#### 3.2.2 UTILITY AND VALUE OF THE FRAMEWORK

*It can be a struggle to lump all of the issues into one framework versus analysing different jurisdictions.*

*There can be different views and interpretation based on language. For instance, social licence to operate can mean different things to different people.*

*Makes it easier to see the trend and where the performance differences are.*

*It is a pity that some comparability has been lost as the framework has been updated, expanded to aquaculture and streamlined.*

#### 3.2.3 JURISDICTIONS AND FISHERY VS INDUSTRY FOCUS

*'The framework can be used within jurisdictions rather than across jurisdictions'.*

*'To be useful the Framework really needs to be applied at the fishery level and then aggregated if there is a need for some form of national context. 'Grossing up' results may not be helpful with some form of spatial and fisheries discrimination.*

*Use of the framework needs to be set in the context of government jurisdictions- Qld, NSW versus Commonwealth.*

*It is difficult to get around this jurisdictional issue. State jurisdictions have a lack of political will and a lack of funds to fix the issues. They often hide behind the social issues and the lack of the right attention/ action causes decline.*

*It can be a struggle to lump all of the issues into one framework versus analysing different jurisdictions.*

*While fishers want to be treated fairly, it is still a business. The government does not support corner stores that might not be viable or family farms that are not viable however some fishers expect to have that support.*

*Why is one jurisdiction (the Commonwealth) separated from the other jurisdictions? There's a reasonable amount of catch from that jurisdiction but it's neither the largest nor the smallest so it seems unbalanced to highlight it. Commonwealth also has recreational and Indigenous fishing issues but is not unique in scale or issues to other jurisdictions.*

## 4. Performance Assessments 2014

### 4.1 FISHERIES ASSESSED BY EXPERTS

In 2014, 58 experts provided performance ratings across 41 individual fisheries. Twenty-six experts assessed their chosen fishery at *High Level* only (per Figure 3); 28 assessed against *Detailed Criteria* (per Appendix 3), and 4 assessed at both using the high level variables and the detailed criteria.

Figure 3. High Level Variables in the Compact Framework

ASSESSMENT CRITERIA			
	Arrangements	Controls	Values
1. Management	x	x	x
2. Environmental	x	x	x
3. Economic	x	x	x
4. Social & Engagement	x	x	x

Figures 4 & 5 show these fisheries by sector and jurisdiction.

Figure 4. Expert Assessments by Sector and Jurisdiction

	WILD CATCH				AQUA	TOTAL
	Comm'l.	Recrea'l	Indigen's	Total		
NSW	8	1	1	10	2	12
VIC	0	1	0	1	0	1
QLD	2	4	0	6	0	6
TAS	4	1	1	6	0	6
SA	2	0	0	2	2	2
WA	7	1	0	8	3	11
NT	2	0	0	2	1	3
C'WLTH	13	0	2	15	0	15
Total	38	8	4	50	8	58

Figure 5. All Fisheries Assessed in 2014

	FISHERY	SECTOR	Fisheries Responses		
			Fisheries	Responses	
1	NSW Abalone	Wild	All 3 sectors	3	3
2	NSW Clarence R. Estuary Prawn	Wild	Commercial	1	1
3	NSW Commercial Fisheries	Wild	Commercial	1	1
4	NSW Estuary General	Wild	Commercial	1	1
5	NSW Rock Lobster	Wild	Commercial	1	2
6	NSW Sydney Rock Oyster	Aqua	Commercial	1	1
7	NSW Sea Mullet	Wild	Commercial	1	1
8	NSW Snapper line & trap	Wild	Commercial	1	1
9	NSW Oyster	Aqua	Commercial	1	1
10	VIC Snapper	Wild	Recreational	1	1
11	QLD Coral Reef Line	Wild	Recreational	1	1
12	QLD East Coast Inshore Finfish	Wild	Commercial	1	1
13	QLD Inshore Finfish	Wild	Recreational	1	1
14	QLD Otter Trawl	Wild	Commercial	1	1
15	QLD Ocean Beach	Wild	Recreational	1	1
16	TAS Abalone	Wild	All 3 sectors	3	3
17	TAS Southern Rock Lobster	Wild	Commercial	1	3
18	SA Abalone Western Zone	Wild	Commercial	1	1
19	SA Southern Bluefin Tuna	Aqua	Commercial	1	2
20	SA Spencer Gulf Prawn	Wild	Commercial	1	1
21	WA Cone Bay Barramundi	Aqua	Commercial	1	1
22	WA Estuarine Fisheries	Wild	Commercial	1	1
23	WA Demersal Scale fish	Wild	Commercial	1	1
24	WA Pearl Oyster	Aqua	Commercial	1	2
25	WA West Coast Rock Lobster	Wild	Recreational	1	1
26	WA Western Rock Lobster	Wild	Commercial	1	5
27	NT Mud Crab	Wild	Commercial	1	1
28	NT Pearl Oyster	Aqua	Commercial	1	1
29	NT Wild Barramundi	Wild	Commercial	1	1
30	C'WLTH South Eastern Trawl	Wild	Commercial	1	1
31	C'WLTH Southern Bluefin Tuna	Wild	Commercial	1	3
32	C'WLTH Northern Prawn	Wild	Commercial	1	4
33	C'WLTH SESS	Wild	Commercial	1	2
34	C'WLTH Small Pelagic Fishery	Wild	Commercial	1	2
35	C'WLTH Eastern Tuna & Billfish	Wild	Commercial	1	1
36	GBRMP Recreational Fishery	Wild	Recreational	1	1
37	Indigenous Customary Fisheries	Wild	Indigenous	1	2
	Total Responses			41	58



Experts have now rated Australian Fisheries in 2009 and in 2014. 2003 ratings were estimated based on 2009 feedback.

The 2014 study has engaged more experts than before, more fisheries than before, and now includes all fishers and fishing and aquafarming sectors.

2014 Performance ratings (5.6) are in line with 2009 (5.8).

Experts believe there have been strong gains in Fishery Management in the last 5 years.

## 4.2 OVERALL RESULTS - ALL FISHERIES

The combination of both *High Level* ratings and *Detailed Criteria* ratings provide an overall performance score for each sector. Overall, the fishery and aquaculture performance ratings by experts in **2014 (5.6)** are approximately the same as in **2009 (5.8)**, and well above **2003 (2.8)**.

However this comparison is a little biased as the assessment framework has been updated in 2014 to include the aquaculture sector.

The wild catch commercial sector is the only sector to be fully and uniformly assessed in both 2009 and 2014. The sector scored 5.9 in 2014, and 6.0 in 2009, meaning that experts see minimal change in their performance in the last 5 years. The recreational sector was not fully assessed across uniform criteria in 2009 and 2014.

The following pages present detailed analyses of both the *high level* ratings and *detailed criteria* ratings by sector, by jurisdiction and by year. The Compact Framework (see Appendix 3) illustrates both the high level variables and detailed assessment criteria. Wild fisheries are assessed across 30 detailed criteria, and aquaculture farms across 27.

### 4.2.1 HIGH LEVEL RATINGS

Experts believe that aggregate fishery performances against the 12 high level variables have improved significantly in the decade since 2003, doubling from a score of 2.8 to 5.6. They

believe there has been little change in the last 5 years (5.8 down to 5.6, a decline of 3%).

High level variables are analysed in two ways: as trends over time, and across key variables in 2014.

### 4.2.2 HIGH LEVEL TRENDS 2003-2014

Analysis of high level fishery performance variables from 2003 - 2014 suggests large positive impacts have been achieved by industry since 2003.

Since 2009, the expert's performance responses suggest:

- Management performance has improved: (+11%),
- Environmental performance has declined: (-16%),
- Economic performance has declined: (-14%),
- Social & Engagement performance declined: (-13%).

Figure 6 shows trends with average scores over time.

Figure 6. High Level Performances 2003-2014

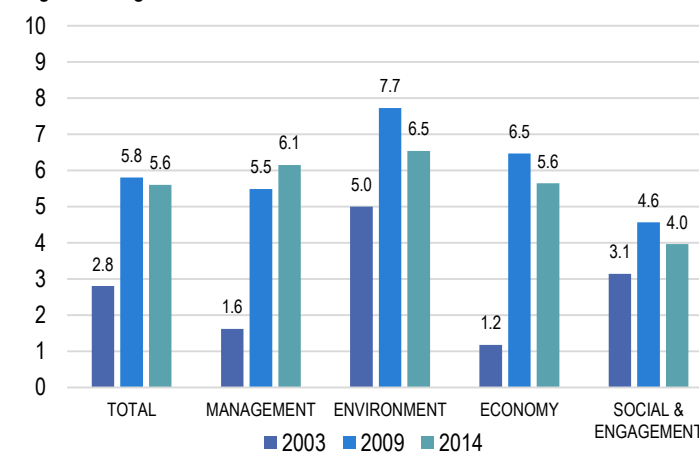


Figure 7 summarises the Overall Performance of Australian fisheries and aquaculture based on the responses from experts in 2009 (for 2009, and estimated for 2003 in hindsight), and in 2014. For 2014 the annual data is presented as well as the sectoral data.

Figure 7. Overall Performance & Use Scores since 2003

Score out of 10	Management	Environment	Economy	Social <sup>1</sup> & Engag'nt	Total
<b>2003</b>	<b>1.6</b>	<b>5.0</b>	<b>1.2</b>	<b>3.1</b>	<b>2.8</b>
<b>2009</b>	<b>5.5</b>	<b>7.7</b>	<b>6.5</b>	<b>4.6</b>	<b>5.8</b>
<b>2014</b>	<b>6.1</b>	<b>6.5</b>	<b>5.6</b>	<b>4.0</b>	<b>5.6</b>
Wild Commercial	6.6	6.8	5.9	4.1	5.9
Recreational	5.2	5.8	4.7	3.7	4.9
Indigenous Customary	4.0	4.7	3.6	2.5	3.7
Aquaculture	6.1	7.1	6.5	4.2	6.1

# Note 1: The Social & Engagement measure has been refined based on feedback from experts over the last 5 years. Experts' feedback identified the central role played by human engagement, education and training in the performance of fisheries and aquaculture. Previously in 2003/2009 this measure was referred to as Social, and referred to recreational or community impacts.

But caution is recommended - these scores and related trends should be carefully considered and interpreted in context. For example, experts' views regarding a number of recent external issues will have had a significant impact on these ratings, including three examples:

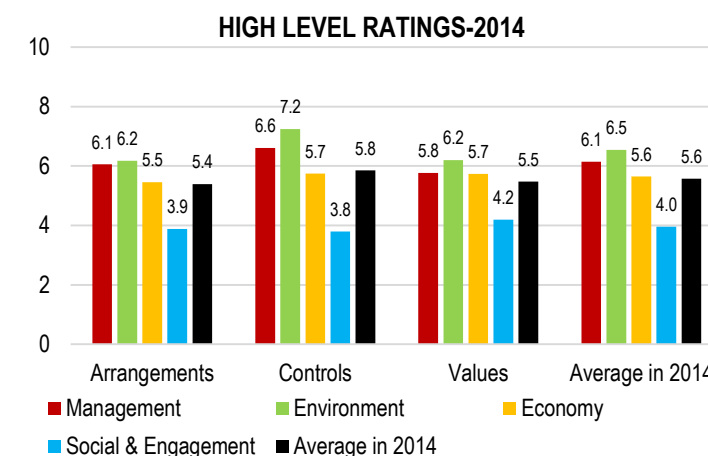
- Global Financial Crises,
- Media impacts and events related to seafood,
- Fluctuations and recent decline of the \$A.

Community expectations and views on environmental performance have also changed significantly since 2003.

#### 4.2.3 KEY VARIABLES IN 2014

Analyses of high level performances for 2014 are presented in Figure 8. Note that colour coding is used consistently for the detailed analysis here and throughout the report.

Figure 8. High Level Performance 2014 by Key Variables



The data suggests that:

- Environmental variables rate highest as a performance yardstick to assess performance. It also suggests that experts generally believe that the arrangements (6.2) and values (6.2) users commit to environmental performance are substantially less than the environmental controls (7.2) currently in place. This is resulting in an underperformance by users against their expectations re environmental performance.



- Management arrangements (6.1) and values (5.8) also rate highly, but the data suggests a similar (but less severe) underperformance by users in this measure, compared to controls in place (6.6).
- Experts consider 2014 performances related to Social & Engagement are well below (28% less than the average for 2014) that of all key variables.

In 2014 experts provided some useful feedback and insights regarding the high level variables, as follows verbatim:

#### FEEDBACK REGARDING MANAGEMENT

*'Somehow we need to be able to articulate stock-wide not state-specific assessment and management. Getting States to this place will be difficult - but there are efficiencies for their arrangements and definitely improvements for industry,*

*'There needs to be transparency and clarity of management operations with clear ongoing arrangements that have a 10-20-year horizon rather than a 1-3-year horizon for people to decide to go or stay in the industry'.*

*'We need feedback loops to ensure we have the resources for repair and reporting and stock assessment.*

*'Harvest strategy discussions must include decision rules, not just strategies to harvest'.*

*'Commercial fisheries should demonstrate high levels of compliance'.*

*'The suggestion that co-management is necessary is an assumption. For instance, it is not what the people of the Torres Strait want. In other words -- as pointed out in the text -- fishery specific issues will mean that not all of the measures can, will or should apply to every fishery.*

*'Better understanding of recreational and customary fishers' needs. The needs of recreational and customary fishers seem to be add-ons, not truly incorporated'.*

#### FEEDBACK REGARDING ECONOMICS

*'Economic benefit from fisheries – need to split this into two steps:*

- *Whether economic benefit is being maximised. This is best measured as either economic rent or gross state product (or proxies like aggregate lease price).*
- *The second step is whether this provides a benefit to the community.*

*They're different things because some of our fisheries generate economic rent but these do not provide community benefit because the rent is paid to private firms not based in Australia. The measure of community benefit is the proportion of the rent (net of subsidy) that is retained by the community'.*

#### FEEDBACK REGARDING ENVIRONMENTAL

*'Very little discussion of climate change although some reference to changing environmental conditions. Climate change and acidification is one of the most significant risks and uncertainties to future productivity and resilience of marine ecosystems and dependent fisheries. Make it clear where these issues are being picked up i.e. separate fisheries climate change strategic planning/performance framework'.*

*'Include the impacts of the now very large fishery-enhancements (i.e. artificial reefs, FADS) that are being used by several fisheries agencies'.*

*'Under Controls the Framework needs something similar to the Management Section regarding "Effective measures to monitor, limit and control impacts on the environment".'*

*'Habitat impacts – this is still too reactive. It is land based activities, not fishers that have had the major impacts on habitats. For example, more seagrass is lost because of turbidity and muds from terrestrial impacts than from trawling'.*

*'Practices and gear to minimise impact on environment - examples need to include something like "Use of gear appropriate to the marine habitat".'*

*'Impact on endangered species - we need to be proactive here. TEDS and closures mean we should be able to demonstrate, as an example, minimal impact on turtles and dugongs, but there is no data. Need rigorous processes and reporting timeframes to demonstrate we are the "good guys".'*

*'Ecosystems – need more measureable metrics e.g. are the limits and/or targets for TEPS interactions and other ecosystem objectives (such as total biomass limits) within the harvest strategy to protect ecosystem function?'*

#### FEEDBACK RE SOCIAL

*'If there are more socially focused or "political" elements to the Compact Framework criteria then the basis for these should be clear - particularly if they are diverging from regulatory objectives'.*

*'Social licence to operate is a can of worms as usual. We supply food. Other food suppliers like farmers never get the same level of scrutiny because they work principally on private lands. Nevertheless, these farmers and urban dwellers etc. all impact on the public resources of wild fisheries and biodiversity. Need to include a Social Obligation for all community to NOT adversely impact on wild fisheries and biodiversity and/ or repair etc. Need to update to SOCIAL OBLIGATION - a community wide issue requiring multiple actions and behaviour changes, legislation and so on'.*

#### 4.2.4 SECTORAL PERFORMANCES IN 2014

As noted in Figure 7, the Overall Performance (5.6) draws on responses for both the *high level variables* (12 variables) and *detailed criteria* (34 criteria) responses. The sectoral average scores in 2014 are:

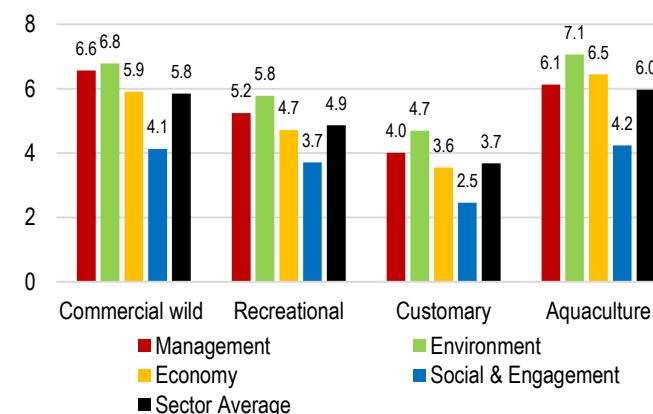
- Commercial wild sector 5.9,
- Recreational sector 4.9,
- Indigenous Customary sector 3.7,
- Aquaculture sector 6.1,

Expert's scores for these Overall Performances suggest:

- The seafood industry were the best performers,
- Environmental performances lead all sectors,
- Social & Engagement issues are a joint challenge,
- Indigenous customary fishery's best performance was in environmental management.

Figure 9 presents only the high level ratings for all sectors.

Figure 9. 2014 High Level Performance by Sector 2014





Analysis of all responses (high level variables and detailed criteria) is most informative when conducted sector by sector.

### 4.3 WILD CATCH COMMERCIAL SECTOR

Thirty-eight experts assessed commercial wild harvest fisheries in 2014, with an **average performance of 5.9**. This is marginally below 2009 (6.0), and much improved on 2003 (2.8).

Due to the progressive development of the performance assessment framework since its inception in 2009, it is not possible to accurately drill down into sectoral trend data for the three years – 2003, 2009, or 2014. For the 2003 and 2009 years the high level ratings have been dominated by commercial wild catch responses. The development of a stable Compact Framework (Part A Wild Catch Framework) in 2014 with expert's input will enable detailed trend comparison from 2014 onwards.

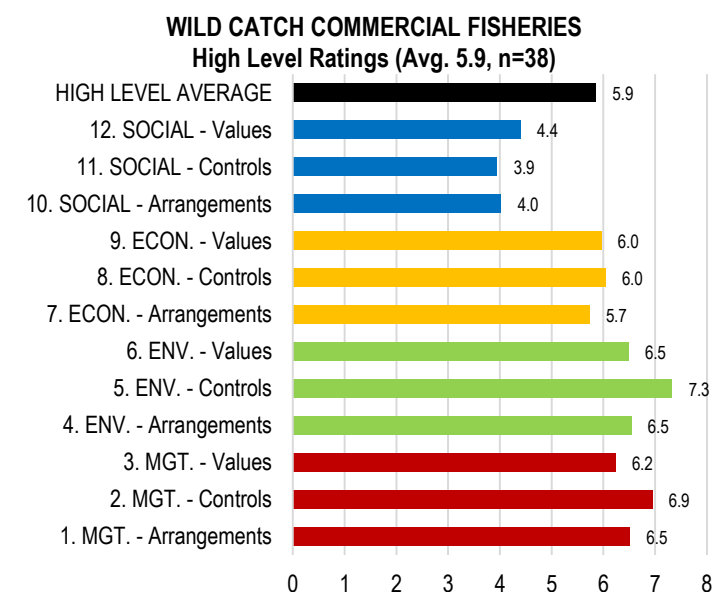
In 2014, as presented in Figure 10, experts believe the sector's best performance has been in Environmental matters. The wild catch commercial sector's average high level variable scores in 2014 are:

- **Sector Performance average**                      **5.9**
- Management performance                      6.6
- Environmental performance                      6.8
- Economic performance                      5.9
- Social & Engagement performance              4.1.

*Experts rated the Commercial wild catch Sector at 5.9 in 2014, marginally below the 2009 result of 6.0.*

*They consider the sector's Social & Engagement performance (4.1) to be relatively poor.*

Figure 10. Commercial Wild Fisheries 2014



The high level analysis confirms that experts believe:

- The sector's Environmental and Management performances are strong relative to the average across all variables,
- The sector's performance in Social & Engagement measures is well below performance in all other areas,
- Environmental controls (7.3) in place set a relatively high performance yardstick, which users are potentially underperforming against.

Eighteen of the expert responses for the sector (out of a total response of 38) were based on assessments of detailed criteria in the Compact Framework. These 18 detailed assessments averaged 5.6, slightly below the overall sector average of 5.9. Appendix 3 lists 30 detailed assessment criteria that are now part of the Compact Framework agreed at the close the 2014 study.

The research team had hoped to be able to undertake trend comparison of the detailed criteria scores over the period 2003 - 2014. As noted above, the streamlining of the assessment criteria for wild fisheries (down from 44 criteria to 30) has meant this analysis is not able to support meaningful analysis and interpretation at depth.

However, the analysis of scores for detailed criteria in 2014 does provide further valuable insights for the sector. These data are presented in Figure 11, and suggest a number of points:

- The sector's average score (black bar) for the detailed criteria assessments is 5.6, slightly less than the overall score for the sector (5.9). This is of little note - perhaps experts who chose the detailed assessment approach are slightly harder markers than their high level assessment colleagues.
- Experts consider Management scores to be relatively uniform in the range of 5.0-6.6. Best performances are achieved for mandatory licensing, clear input/output controls, IUU

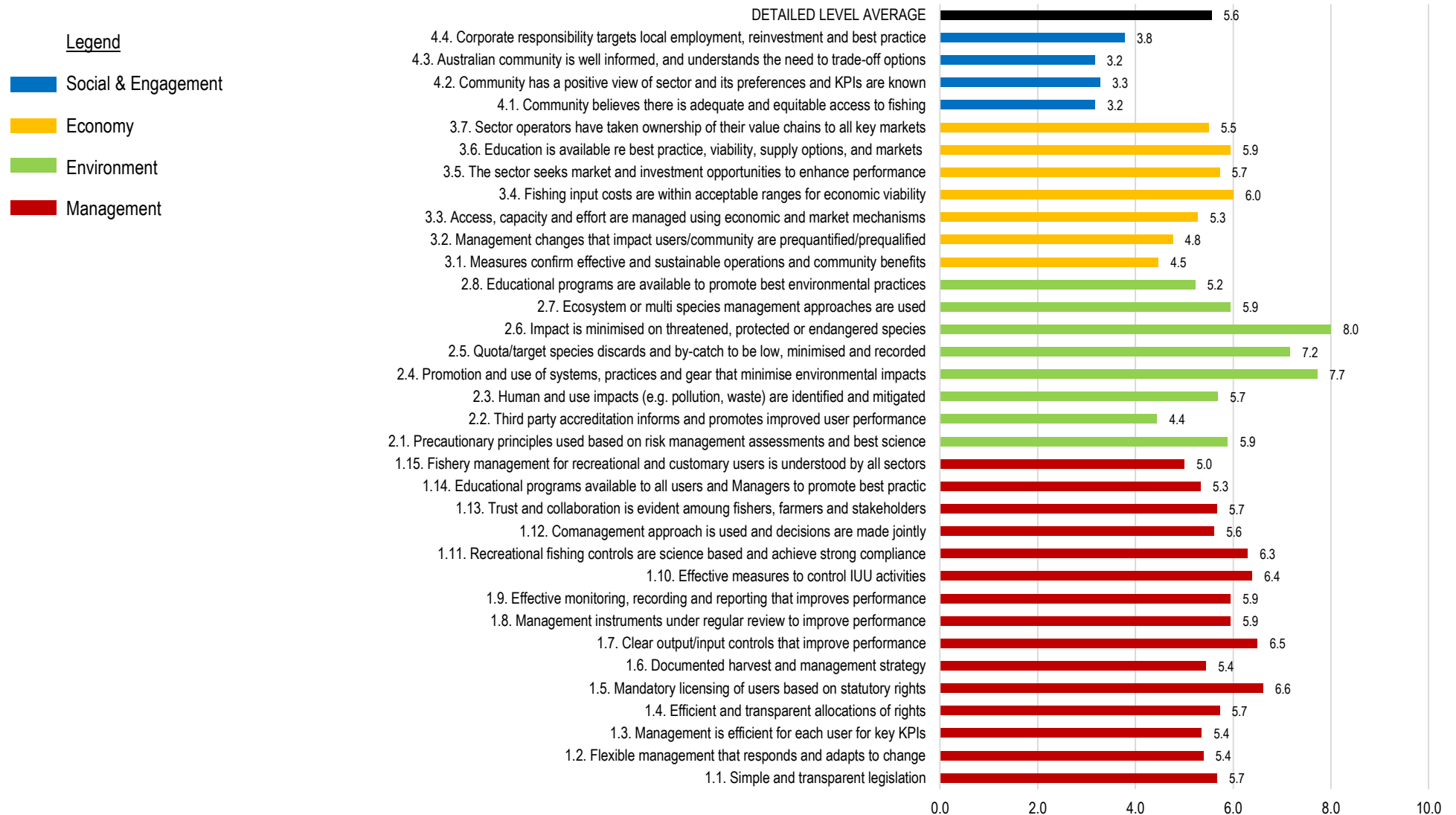
controls and the use of science in controls for the recreational sector.

- Experts registered a wide range of scores for the sector's Environmental performance, ranging from 4.4 to 8.0. Best performances were achieved in minimizing impacts on threatened, protected and endangered species; in use of gear and systems that are "environmentally friendly", and in management of discards and by-catch. The worst performance for the sector relates to the use of 3<sup>rd</sup> party accreditation to enhance performance.
- Experts have scored the sector's economic average performance at 5.4, well below the overall average for the sector (5.9). The worst performances relate to measures that confirm operational sustainability and prequalify changes and related benefits to the community.
- Experts have marked down all Social & Engagement performance measures for the sector. The average of 3.3 is well below the overall sector average of 5.9.

Detailed criteria ratings given by experts covered 34 criteria in the following chart. This set of 34 was reduced further to 30 criteria when the Compact Framework was finalised in Round 3 of consultation with experts.

Figure 11. Detailed analysis of Commercial Wild Fishery Performance 2014

**WILD CATCH COMMERCIAL FISHERIES**  
**Detailed Level Ratings (Avg. 5.6, n=18)**





*Experts rated the Recreational Sector at 4.9 in 2014, marginally below the 2009 result of 5.0.*

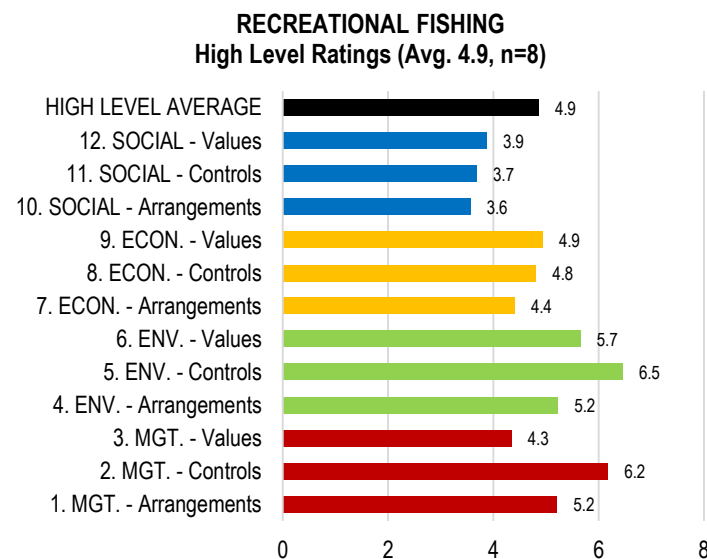
*It performs poorly against Social & Engagement (4.1) criteria.*

#### 4.4 RECREATIONAL SECTOR

Eight experts assessed recreational wild fisheries in 2014. With an **average performance of 4.9**. This is marginally below 2009 (5.0). Estimates of the sector's performance for 2003 were not included in the 2009 study.

Data is not available for this sector to drill down and analyse sectoral trends for the three years – 2003, 2009, or 2014. The development of a stable Compact Framework (Part A Wild catch Framework) in 2014 with expert's input will enable detailed trend comparison from 2014 onwards.

Figure 12. Recreational Wild Fisheries 2014



In 2014, as presented in Figure 12, experts believe the sectors best performance has been in Environmental

matters. The recreational sector's average high level scores in 2014 are:

- **Sector Performance average** **4.9**
- Management performance 5.2
- Environmental performance 5.8
- Economic performance 4.7
- Social & Engagement performance 3.7.

The high level analysis confirms that experts believe:

- The sector's Environmental performance (5.8) is strong relative to the overall score for the sector (4.9),
- The sector's performance in Social & Engagement measures (3.7) is well below its performance in all other areas,
- Controls set regarding Environmental (6.5) and Management performance (6.2) set a relatively high performance yardstick, which users are potentially underperforming against.

Four of the eight expert responses for the Recreational sector were based on the detailed criteria assessment. The average score for these detailed responses was 4.8, close to the overall average for the sector (4.9). Figure 13 presents the assessment scores from these detailed criteria.

The relatively small sample size (4) mitigates against further detailed interpretation of the data in this figure. The broad analyses above are more accurate.

Figure 13. Detailed analysis of Recreational Fishery Performance 2014





*The Indigenous customary Sector provided only a small number of responses.*

*Experts rated the sector at 3.7 in 2014, with no response recorded in 2009.*

*It performs poorly against Social & Engagement (2.5) criteria.*

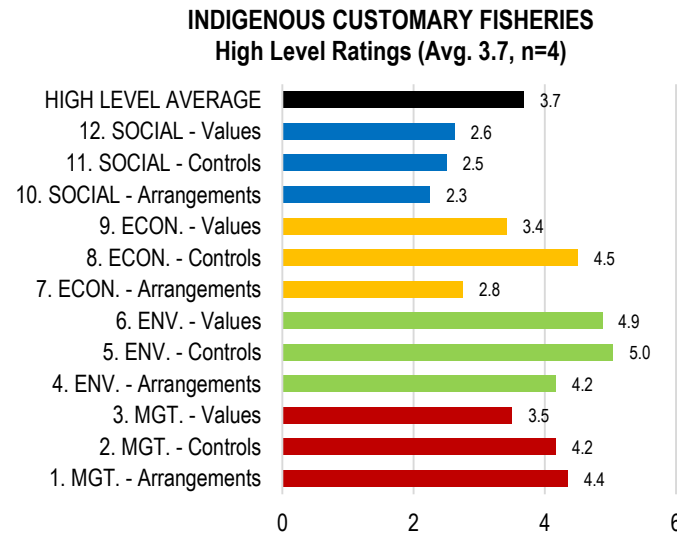
#### 4.5 INDIGENOUS CUSTOMARY SECTOR

Four experts scored the performance of Indigenous customary wild fisheries in 2014, with an **average performance of 3.7.**

Three responses were based on the detailed criteria framework (Figure 15). The large variance between the high level score (3.7) and the detailed criteria score (4.7), suggests the sample is too small to interpret accurately.

The sector did not adequately participate in the project in 2009 and therefore prior year comparisons cannot be drawn. The new stable Compact Framework (Part A Wild catch Framework) will enable detailed trend comparison from 2014 onwards.

Figure 14. Indigenous Customary Wild Fisheries 2014



In 2014 (per Figure 14), experts believe the sectors best performance has been in Environmental matters. The Indigenous customary sector's average high level scores in 2014 are:

- **Sector Performance average** **3.7,**
- Management performance 4.0,
- Environmental performance 4.7,
- Economic performance 3.6,
- Social & Engagement performance 2.5.

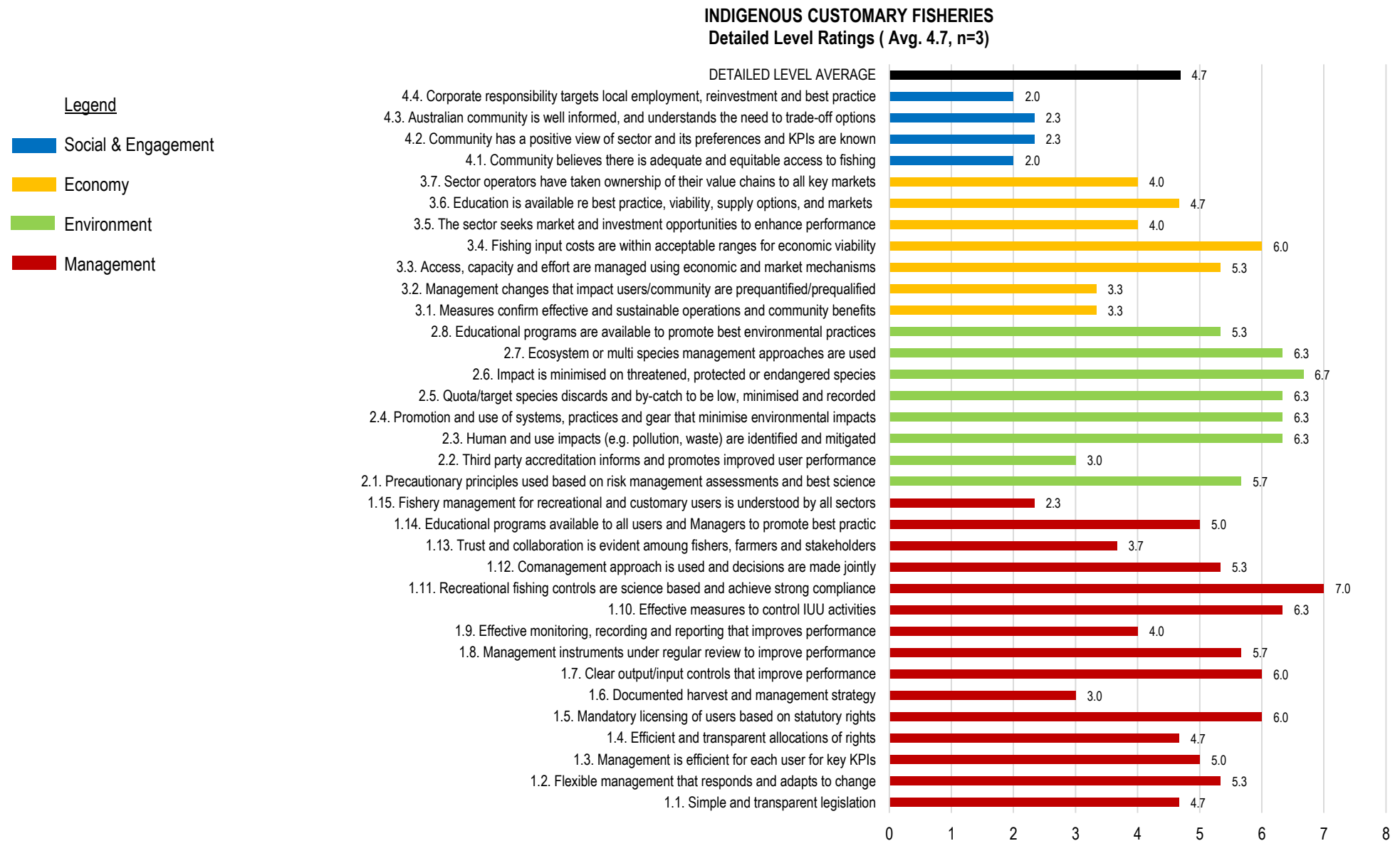
The small sample size mitigates against over-interpretation of these average performance scores. Indicative results suggest that experts believe:

- The sector's average Environmental performance (4.7) is strong, with robust controls (5.0), and linked to a commitment to environmental values (4.9),
- Management performance across values, controls and arrangements appears cohesive and aligned,
- Economic performance is poorly aligned with significant divergence in controls and arrangements,
- Social & Engagement performance (2.5) is poor relative to the sector score (3.7), and also compared to the same measure across all sectors (4.0 or higher).

Figure 15 data highlights a large value range for the detailed criteria scores recorded by experts. This is likely to be a function of generally lower awareness of the sector's performance and the small sample size.



Figure 15. Detailed analysis of Indigenous Customary Fishery Performance 2014





*2014 is the first time the Aquaculture Sector has participated in the P&U Project.*

*Experts rated the sector performance at 6.1.*

*They consider the sector's Social & Engagement performance (4.2) to be relatively poor.*

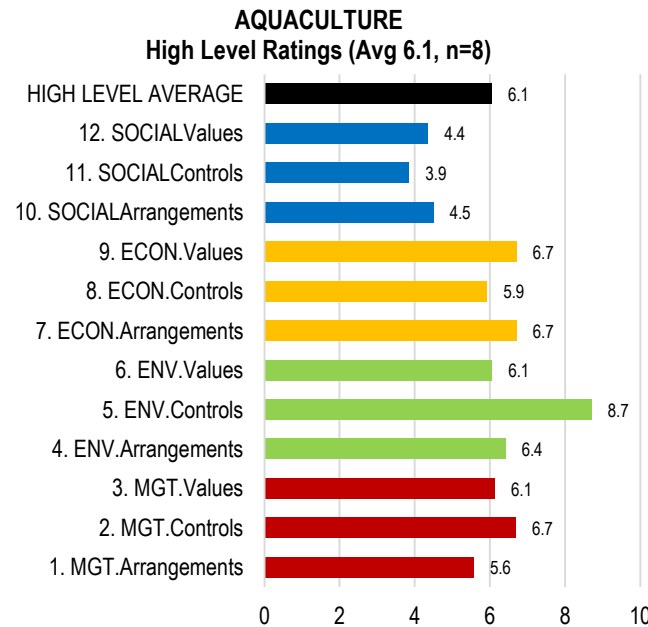
## 4.6 AQUACULTURE SECTOR

Eight experts scored the performance of aquaculture fisheries in 2014, with an **average performance of 6.1**.

Seven of these responses drew on both high level variables and the detailed criteria framework (Figure 17) with an average score of 5.5, a similar result to the overall score (6.1).

The sector did not participate in the project in 2009 and therefore prior year comparisons cannot be drawn. The new stable Compact Framework (Part B Aquaculture Framework) will enable detailed trend comparison from 2014 onwards.

Figure 16. Aquaculture Fisheries 2014



In 2014 (per Figure 16), experts believe the sectors best performance has been in Environmental matters. The aquaculture sector's average high level scores in 2014 are:

- **Sector Performance average** **6.1**,
- Management performance 6.1,
- Environmental performance 7.1,
- Economic performance 6.5,
- Social & Engagement performance 4.2.

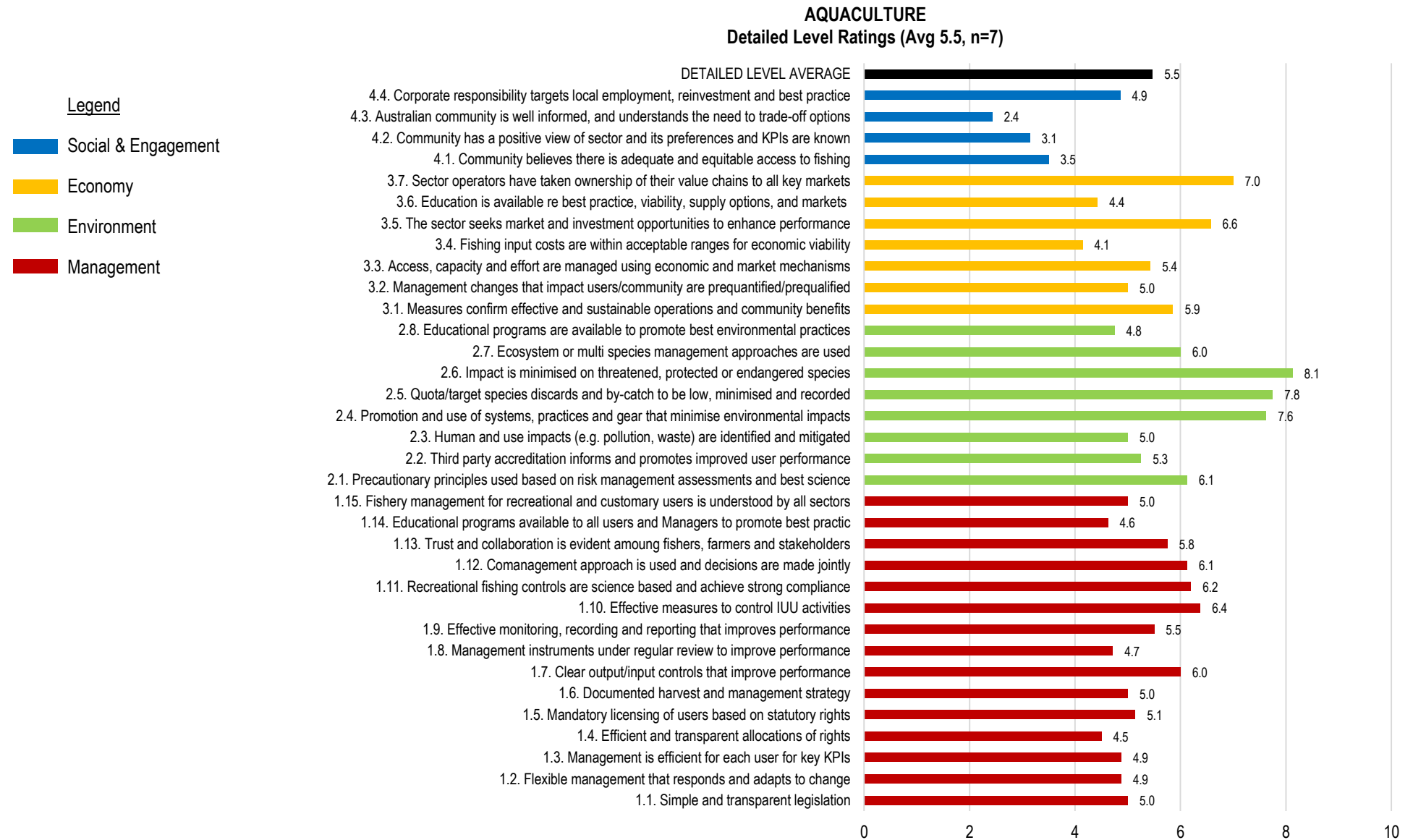
The high level analysis confirms that experts believe:

- Environmental performance (7.1) is strong relative to the overall sector score (6.1),
- Performance in Management (6.1) and Economic areas (6.1) are both relatively strong outcomes,
- The underperformance is for Social & Engagement measures (4.2), well below overall performance,
- The sector has set high Environmental controls (8.7) as a yardstick, which users are potentially underperforming against in the performance of environmental arrangements (6.4) and values (6.1).

Figure 17 presents the expert's assessment scores from detailed criteria. The main data points suggest

- Strong Environmental controls assisted by focus on site specific, regulated controls.
- Proponents are strongly motivated to manage supply chains and seek investment opportunities, but this is yet to deliver viable economic returns.
- Social & Engagement performance is poor.

Figure 17. Detailed analysis of Aquaculture Fishery Performance 2014





## 5. Leveraging Fishery Performance

This project aims to inform and support Australian fisheries and aquaculture to improve their individual and collective performance over time.

A fishery's long term performance is driven by many diverse issues and motivations. Users, managers, customers and communities have complex needs, so optimal performance measures for seafood, recreation and customary use vary markedly from site to site, and fishery to fishery.

Performance improvements in each fishery in Australia will come from the users, managers, experts and community stakeholders for that fishery. Local leadership, motivation, capacity and other local factors will be the primary agents for performance change over time and determine how leaders select actions to boost performance. This flexible, ground up approach means that one size does not fit all.

But the common theme across all individual fisheries is that performance management must be solidly based on progressive measurement of performance over time.

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### 5.1 FLEXIBLE PERFORMANCE MANAGEMENT TOOL

Starting in 2009 the Delphi experts have now established a custom built Australian platform that enables effective and timely fisheries performance assessment and review, in two parts:

- The **Compact Framework** (see Appendix 3) is a stable common assessment platform for all users. It is endorsed by experts and provides a guide for each and all fisheries to assess their performance in a common and directly comparable way, mirroring global trends. Users and stakeholders in each fishery will select their variables and criteria for further action and determine how and what interventions and investments they make locally to improve their fishery's performance.
- The **Performance and Use data sets** have to date, (and hereafter) analysed and reported to users, the FRDC and all stakeholders. At its simplest form, this data set enables each fishery to assess its specific performance status and risks, against itself over time, against a cohort of like fisheries, against users in the same jurisdiction, or against all other fisheries nationally. At its most strategic view, the data set may be linked to and complement the new FRDC/ABARES Fishery Status reporting system. The bottom line is that fishery performance is increasingly critical to the industry's survival and prosperity, and the ready access by users to all performance data is a core element in pursuit of this journey. Communication of fishery performance, internally and externally, is the final step in driving performance over time.

Fisheries and aquaculture performance is increasingly complex, and public. Commercial fisheries have long been measured by their harvest tonnage and landed GVP.

Tonnage and GVP are fundamental performance measures and must be continued, but they fall short when measuring non-food benefits accruing for all users, or informing communities sufficiently to secure their long term support for resource access.

The P&U's Compact Framework and datasets provide the much needed flexibility and broader scope to understand the complex risks and opportunities industry faces. It also provides a credible and contemporary base to frame industry' conversation with all users and stakeholders.

## 5.2 TOP LINE LEARNINGS FROM THE 2014 DATA

Figures 18 and 19 illustrate the performance management challenge. The first observation is the diversity of average performance scores for the 41 Australian fisheries that experts (58) assessed in 2014. The figures also identify the user of each fishery or aquaculture resource.

The distribution in Figure 18 also confirms that experts fundamentally believe that the use of any fishery can be improved, even optimised. The evidence for this claim is that each use has a large range of current performance outcomes around the population mean (5.6):

- Commercial wild fishery scores in the states and NT range from 1.6 to 9.1 (75% of possible score range). This large range suggests that this sector should be segmented further to drill down into data that

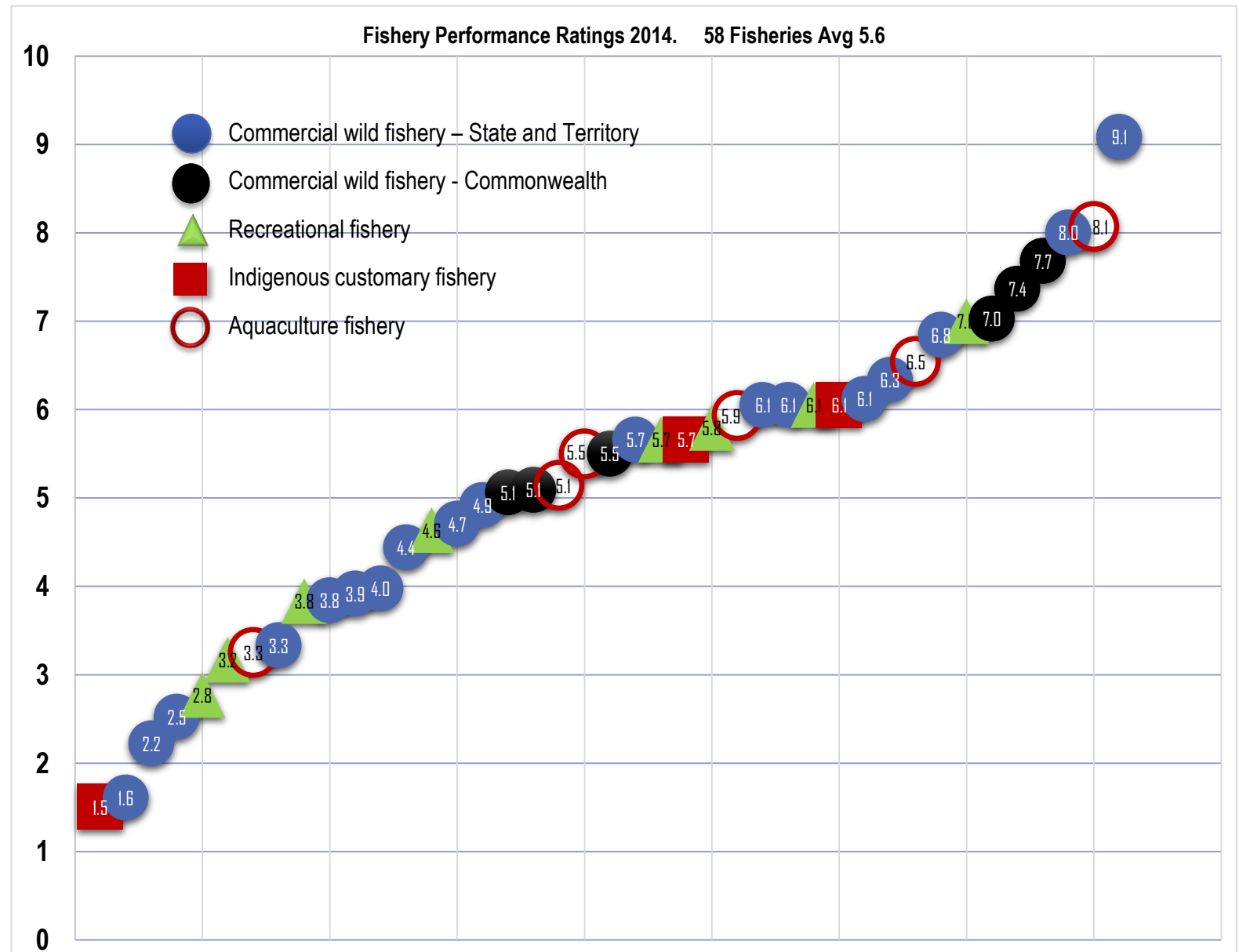
better informs and assists fisheries to measure, manage and boost performance.

- Commonwealth fisheries range from 5.1 to 7.7 (26% of possible score range). These fisheries are all close to or well above the national performance average (5.6).
- Recreational fisheries also exhibit a wide range from 2.8 to 7.0 (42% of possible score range), in line with this very diverse sector. The number of expert responses is low and at risk of not adequately representing this inherent diversity. Segmentation of the data in the sector would also assist all users to measure, manage and boost performance.
- Indigenous customary fisheries range from 1.5 to 6.1 (46% of possible score range). The small number of responses received from experts for this sector points to a fundamental lack of engagement of this sector in the P&U process and potentially a lack of awareness of performance (against these criteria) issues. This must be addressed first to ensure there is credible data to guide decisions seeking to boost performance.
- Aquaculture fisheries range from 3.3 to 8.1 (48% of possible score range). 2014 was the first year this sector participated in the project. Eight experts assessed six aquaculture fisheries, not including farmed salmon or prawns. This sample is too small to adequately score and represent what will likely become Australia's largest commercial seafood production sector.

Figure 18. Fishery Performance Distribution Profile 2014

The rating data across all 58 assessments shows a range of performances from 1.5 to 9.1.

All four sectors demonstrate fisheries broadly spread across most of the performance range.



*Single species commercial wild fisheries (5.6) rated higher overall performances than multispecies fisheries (5.0).*

*Experts believe multispecies fishery underperformance is most acute for Environmental Controls, Economic Values and Social & Engagement variables.*

*This analysis will be very informative in the future if it is conducted across a larger sample size.*

### 5.3 SINGLE V MULTISPECIES FISHERIES

Figure 19 compares single and multispecies commercial wild fisheries in 2014. Of the 58 expert responses, 38 were commercial wild catch fisheries across 24 individual fisheries, as follows:

- 11 single species fisheries: NSW Abalone, NSW Rock lobster, NSW Sea mullet, NSW Snapper line & trap, NT wild Barramundi, NT Mud crab, SA Abalone western zone, TAS Southern Rock lobster, TAS Abalone, WA Western Rock lobster, CWLTH Southern Bluefin tuna,
- 13 multispecies fisheries: NSW Clarence River Estuary prawn, NSW Commercial fisheries, NSW Estuary general, QLD East coast inshore finfish, QLD Otter trawl, SA Spencer Gulf prawn, WA Demersal scalefish, WA Estuarine, CWLTH ETBF, CWLTH Northern Prawn, CWLTH SE Trawl, CWLTH small pelagic, CWLTH SESS,

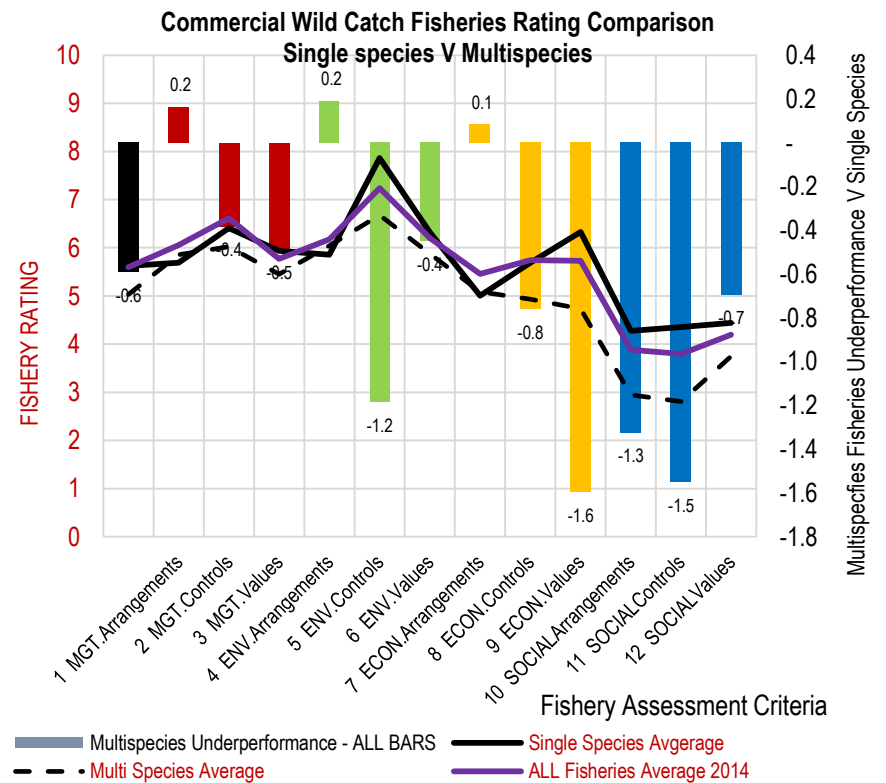
These figures illustrate experts' views that:

- Single species fisheries outperform multispecies overall by ~0.6 points on a 10-point scale (Bars on RHScale),
- Multispecies fisheries marginally outperform single species in a few areas, e.g. for three "Arrangement" variables,
- Multispecies' underperformance is greatest in Environmental controls, Economic Values, Social Arrangements, and Social Controls. These

underperformance gaps are compounded further as they occur for low scoring variables, as shown by the lines on the LHScale.

- The 2014 analysis is informative but is subject to (and sensitive to) the classification of fisheries as single or multispecies, (e.g. classifying Northern Prawn Fishery as multispecies). In future the analysis will be very informative if it is conducted over a larger sample size.

Figure 19. Comparison of Single and Multispecies Performances





*This project estimates changes in net economic impact from fishing and related downstream activity for commercial, recreational, Indigenous customary, aquaculture users, and IUU fishers.*

*This includes impacts from inputs to fishing (e.g. economic rent), to employment in processing, recreational, Indigenous or IUU fisheries.*

*Gross Operating Surplus is used to measure these impacts. GOS is a net impact measure and is more comprehensive than the gross landed GVP measure of economic impact.*

## 6. Estimating the Performance Gap

### 6.1 BACKGROUND

This project seeks to boost Australian fishery performance. Inherent in this challenge is the need to understand best use and to track its variance from best use (i.e. the gap to 10/10).

The estimate of the gap between current and best use outcomes is not based on scientific analysis; rather it is a qualitative and quantitative assessment of the economic impact gap that combines expert ratings with economic estimates of sector Gross Operating Surplus. This section provides an overview of the approach and expert views.

Figure 20 summarises the seven steps undertaken in 2014 to estimate the economic impact gap presented below. This sequential process has been improved and streamlined in 2014 (using 2012 data) compared to the 2009 (using 2007 data) calculations. The aquaculture sector has been added in the 2014 study thereby enabling more accurate estimate of downstream seafood economic impacts.

Downstream economic impacts have also been included from 2014 for Recreational and Indigenous customary fisheries. A standard widely-used economic measure (Gross Operating Surplus) has been adopted as the most accurate economic approach that enables direct comparison for the 2 commercial sectors, both at harvest and along value chains, and with the two non-commercial sectors. The GOS approach

gives us a stable, standardised framework for P&U assessment and comparison of fisheries into the future.

Figure 20. Steps to estimate the Performance Gap

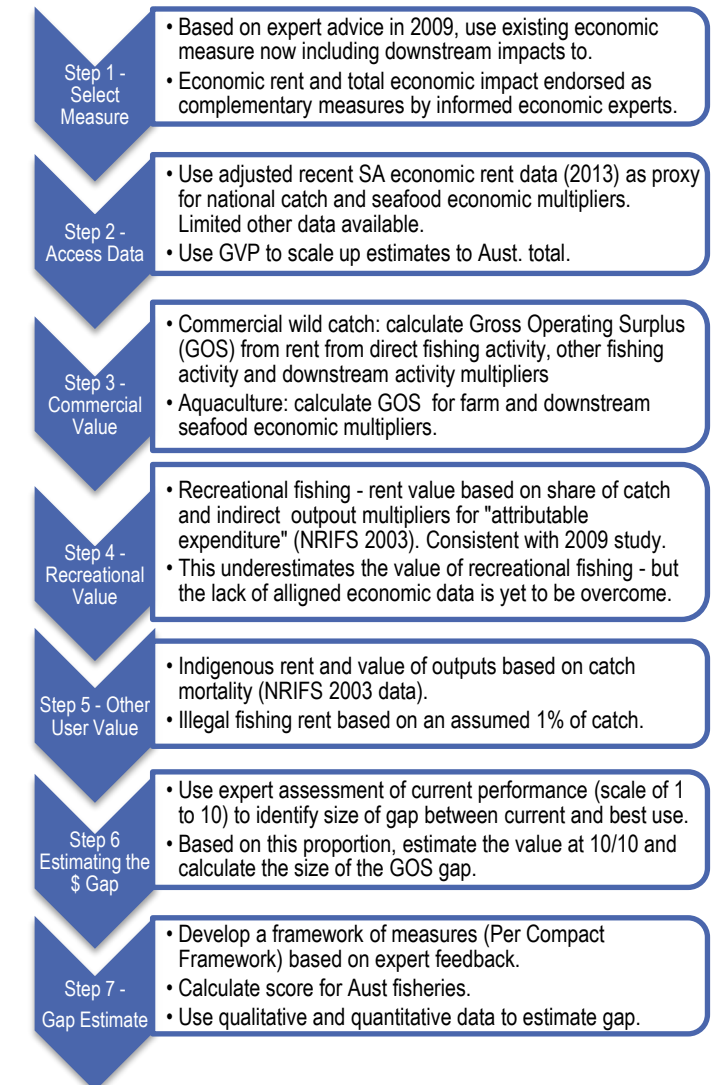




Figure 21. Estimated Value of the Performance Gap 2009

A key fishery performance metric over time is the estimated value of the Performance Gap.

In **2009** the Performance Gap was estimated at \$416 million.

But this estimate did not include the aquaculture sector, nor many downstream economic impacts from other sectors.

In **2014** we have improved the methodology to include all sectors, and all downstream impacts, using a standard economic measure - Gross Operating Surplus.

The 2009 gap adjusted to 2014 is \$597 million.

ECONOMIC PERFORMANCE			P&U Study #1 2009 - Wild Catch Only							Rating	Gap <sup>1</sup>	Adj.
Australian Fisheries - all Users - C'with, State & Territory			2002-03	2003-04	2004-05	2005-06	2006-07	Avg 02-07				
<b>A. COMMERCIAL WILD CATCH</b>	Beach Catch weight (ABARES)	tonnes	214,848	230,350	236,299	196,624	185,925	212,809				
	Beach GVP (ABARES)	\$ million	1,652	1,492	1,491	1,431	1,429	1,499				
	1. Economic Rent - Direct Fishing Activities <sup>2</sup>	\$ million	243	112	168	146	244	182		97	97	
		\$/kg	1.13	0.48	0.71	0.74	1.31	0.88				
	2. Operating Surplus - Direct Fishing Activities <sup>2</sup>	\$ million	393	370	339	357	291	350			116	
		\$/kg	1.83	1.61	1.43	1.82	1.56	1.65				
	Gross Operating Surplus (GOS) from Fishing Activities	\$ million	637	482	506	503	534	532				
		\$/kg	2.96	2.09	2.14	2.56	2.87	2.53				
	Gross Operating Surplus from Downstream Activities	%	22.4%	19.4%	19.4%	19.4%	20.3%	20.2%				
	3. Operating Surplus - Downstream Activities	\$ million	556	546	531	506	476	523		158	190	
	<b>Economic Impact - Commercial Wild Catch</b>	<b>\$ million</b>	<b>1,192</b>	<b>1,028</b>	<b>1,037</b>	<b>1,009</b>	<b>1,010</b>	<b>1,055</b>	<b>6.0</b>	<b>255</b>	<b>404</b>	
		\$/kg	5.55	4.46	4.39	5.13	5.43	4.99				
<b>B. AQUACULTURE</b>	Pondside Catch weight (ABARES)	tonnes	44,183	49,096	48,014	54,569	59,663	51,105				
	Pondside GVP (ABARES)	\$ million	709	713	634	744	793	719				
	1. Operating Surplus - Onfarm Activities	\$ million	231	162	145	219	198	191				
	2. Operating Surplus - Downstream Activities		292	305	302	283	347	306				
	<b>Economic Impact - Aquaculture</b>	<b>\$ million</b>	<b>524</b>	<b>467</b>	<b>446</b>	<b>502</b>	<b>545</b>	<b>497</b>				
		\$/kg										
<b>C. RECREATIONAL FISHING</b>	Catch Mortality (NRIFS 2003 <sup>3</sup> )	tonnes	31,500	31,500	31,500	31,500	31,500	31,500				
	Economic Impact from Downstream Activities (NRIFS 2003 <sup>4</sup> )	\$ million	1,855	1,855	1,855	1,855	1,855	1,855				
	Ridge Partners <sup>5</sup> estimate	%	22.4%	19.4%	19.4%	19.4%	20.3%	20.2%				
	<b>Economic Impact - Recreational</b>	<b>\$ million</b>	<b>415</b>	<b>361</b>	<b>360</b>	<b>359</b>	<b>377</b>	<b>374</b>	<b>5.0</b>	<b>158</b>	<b>189</b>	
		Estimated \$/kg	13.16	11.45	11.43	11.41	11.98	11.88				
<b>D. CUSTOMARY FISHING</b>	Catch Mortality (NRIFS 2000, p86, p121 <sup>6</sup> )	tonnes	315	315	315	315	315	315				
	<b>Economic Impact - Customary<sup>7</sup></b>	<b>\$ million</b>	<b>1.7</b>	<b>1.4</b>	<b>1.4</b>	<b>1.6</b>	<b>1.7</b>	<b>1.6</b>	<b>7.0</b>	<b>0.3</b>	<b>0.5</b>	
		Estimated \$/kg	5.55	4.46	4.39	5.13	5.43	4.99				
<b>E. IUU FISHERIES</b>	Catch Mortality <sup>8</sup>	tonnes	2,148	2,304	2,363	1,966	1,859	2,128				
	<b>Economic Impact - Unreported</b>	<b>\$ million</b>	<b>11.9</b>	<b>10.3</b>	<b>10.4</b>	<b>10.1</b>	<b>10.1</b>	<b>10.6</b>	<b>6.0</b>	<b>2.6</b>	<b>4.0</b>	
		Estimated \$/kg	5.55	4.46	4.39	5.13	5.43	4.99				
<b>F. TOTAL ECONOMIC IMPACT</b>		<b>\$ million</b>	<b>2,145</b>	<b>1,867</b>	<b>1,855</b>	<b>1,883</b>	<b>1,944</b>	<b>1,939</b>				
	Total tonnes based on estimated harvest and mortality for all users		292,994	313,565	318,491	284,974	279,262	297,857				
<b>ECONOMIC PERFORMANCE GAP</b>		<b>Gap as % of Est. Economic Impact</b>						<b>31%</b>	<b>5.8</b>	<b>416</b>	<b>597</b>	

Figure 22. Estimated Value of the Performance Gap 2014

ECONOMIC PERFORMANCE			P&U Study #2. 2014 - All Fisheries								
Australian Fisheries - all Users - C'with, State & Territory			2007-08	2008-09	2009-10	2010-11	2011-12	Avg 07-12	Rating <sup>1</sup>	Gap <sup>1</sup>	
<b>A. COMMERCIAL WILD CATCH</b>	Beach Catch weight (ABARES)	tonnes	181,668	172,433	171,512	164,180	157,505	169,460			
	Beach GVP (ABARES)	\$ million	1,382	1,392	1,344	1,316	1,302	1,347			
	1. Economic Rent - Direct Fishing Activities <sup>2</sup>	\$ million	141	184	99	64	158	129		66	
		\$/kg	0.78	1.07	0.57	0.39	1.01	0.76			
	2. Operating Surplus - Direct Fishing Activities <sup>2</sup>	\$ million	322	315	323	308	224	298		93	
		\$/kg	1.77	1.83	1.88	1.88	1.42	1.76			
	Gross Operating Surplus (GOS) from Fishing Activities	\$ million	463	499	422	372	382	428			
		\$/kg	2.55	2.89	2.46	2.27	2.43	2.52			
	Gross Operating Surplus from Downstream Activities	%	19.7%	20.6%	20.5%	20.6%	20.7%	20.4%			
	3. Operating Surplus - Downstream Activities	\$ million	506	609	664	660	621	612		257	
<b>Economic Impact - Commercial Wild Catch</b>	<b>\$ million</b>	<b>970</b>	<b>1,108</b>	<b>1,086</b>	<b>1,033</b>	<b>1,004</b>	<b>1,040</b>	<b>5.9</b>	<b>415</b>		
	\$/kg	5.34	6.43	6.33	6.29	6.37	6.15				
<b>B. AQUACULTURE</b>	Pondside Catch weight (ABARES)	tonnes	64,137	69,572	73,829	76,671	84,605	73,763			
	Pondside GVP (ABARES)	\$ million	870	861	878	954	1,054	923			
	1. Operating Surplus - Onfarm Activities	\$ million	310	192	78	293	324	237		128	
	2. Operating Surplus - Downstream Activities		315	380	482	391	455			180	
	<b>Economic Impact - Aquaculture</b>	<b>\$ million</b>	<b>625</b>	<b>572</b>	<b>560</b>	<b>683</b>	<b>780</b>	<b>644</b>	<b>6.1</b>	<b>308</b>	
	\$/kg	9.75	8.23	7.58	8.91	9.21	8.74				
<b>C. RECREATIONAL FISHING</b>	Catch Mortality (NRIFS 2003 <sup>3</sup> )	tonnes	31,500	31,500	31,500	31,500	31,500	31,500			
	Economic Impact from Downstream Activities (NRIFS 2003 <sup>4</sup> )	\$ million	2,560	2,560	2,560	2,560	2,560	2,560			
	Ridge Partners <sup>5</sup> estimate	estimate	19.7%	20.6%	20.5%	20.6%	20.7%	20.4%			
	<b>Economic Impact - Recreational</b>	<b>\$ million</b>	<b>505</b>	<b>528</b>	<b>524</b>	<b>527</b>	<b>529</b>	<b>523</b>	<b>4.9</b>	<b>272</b>	
	Estimated \$/kg	16.04	16.76	16.62	16.74	16.80	16.59				
<b>D. CUSTOMARY FISHING</b>	Catch Mortality (NRIFS 2000, p86, p121 <sup>6</sup> )	tonnes	315	315	315	315	315	315			
	<b>Economic Impact - Customary<sup>7</sup></b>	<b>\$ million</b>	<b>1.7</b>	<b>2.0</b>	<b>2.0</b>	<b>2.0</b>	<b>2.0</b>	<b>1.9</b>	<b>3.7</b>	<b>1.3</b>	
		Estimated \$/kg	5.34	6.43	6.33	6.29	6.37	6.15			
<b>E. IUU FISHERIES</b>	Catch Mortality <sup>8</sup>	tonnes	1,817	1,724	1,715	1,642	1,575	1,695			
	<b>Economic Impact - Unreported</b>	<b>\$ million</b>	<b>9.7</b>	<b>11.1</b>	<b>10.9</b>	<b>10.3</b>	<b>10.0</b>	<b>10.4</b>	<b>5.9</b>	<b>4.2</b>	
		Estimated \$/kg	5.34	6.43	6.33	6.29	6.37	6.15			
<b>F. TOTAL ECONOMIC IMPACT</b>		<b>\$ million</b>	<b>2,112</b>	<b>2,222</b>	<b>2,182</b>	<b>2,256</b>	<b>2,324</b>	<b>2,219</b>			
	Total tonnes based on estimated harvest and mortality for all users		279,437	275,544	278,871	274,308	275,500	276,732			
<b>ECONOMIC PERFORMANCE GAP</b>			<b>Gap as % of Est. Economic Impact</b>					<b>43%</b>	<b>5.6</b>	<b>1,001</b>	

## Notes:

- 1 Performance scores and gap estimates are drawn from expert advice 1 (low) to 10 (high). Gap is the underperformance score out of 10, as a proportion of the last year rent or value.
- 2 SA Fisheries used as a proxy estimate for all Australian fisheries. (EconSearch 2013)
- 3 Estimate for all recreational species - NRIFS 2003, p86.
- 4 2009 - NRIFS \$1.85Bn. 2014 - FRDC Recreational Fishery Valuation C'ttee Mar2014 ~\$2.56Bn.
- 5 Assumes annual Recreational downstream economic impacts per dollar from "Attributable Expenditure" is equivalent to the Operating Surplus impacts from Direct Wild Catch Commercial sector. There is limited research data to guide this estimate.
- 6 Same as 2009 study
- 7 Assumes annual Indigenous customary fishing rents and impacts are at same rate per kilo of catch as for Commercial sector. There is no research data to guide this estimate.
- 8 Based on advice from selected experts, assumes illegal catch is 1% of national commercial catch, and annual rents and impacts are at same rate per kilo as for Commercial sector. There is no data to guide this estimate.

Experts think the change in the performance gap trend from 2009-2014 across all sectors is relatively small.

In 2014 the net economic contribution (resource rent + operating surplus) of the industry is \$2.324 Bn.

This is a net economic impact figure across all sectors upstream and downstream. It should not be confused with the gross GVP landed value of the commercial wild catch and aquaculture sectors of \$2.3 Bn.

### 6.2 2014 PERFORMANCE GAP & TREND

The data on the previous page confirms that **the estimated gap in 2014 is \$1Bn.** (\$1.001Bn). This figure aggregates the estimated performance gaps across all sectors, as summarised in Figure 23.

The figure shows the total estimated nominal Performance Gap has increased by \$404m in the last 5 years (\$597m to \$1,001m). \$308m of this amount is due to aquaculture joining the project, and a further \$80m arises from the inclusion of recreational fishing's downstream impacts. These are one-off impacts on the gap calculations in 2014. So the net change to the gap due to fishery performance changes between 2009 and 2014 is relatively small. (Estimated ~<\$50m).

The all-sector increase in GOS (including these one-off changes) is a large gain from \$1.4Bn to \$2.3Bn. But the experts' performance ratings for all fisheries have declined marginally over the period (down 3.4% from 5.8 to 5.6) so a relatively small change in the gap is as expected.

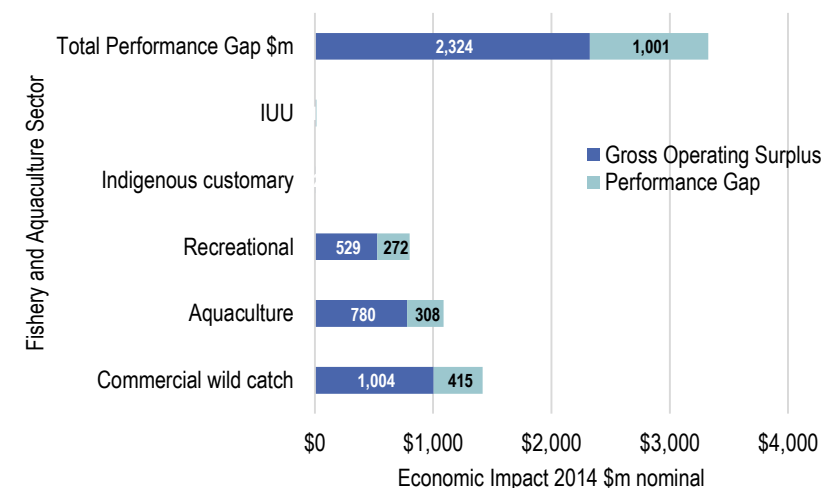
- The size (~\$1Bn) and performance (5.9-6.0) of the Commercial wild catch sector is relatively stable,
- Recreational Fishing's economic contribution has increased (\$377m to \$529m.) but experts see the performance falling marginally from 5.0 to 4.9.
- There is minimal change in Indigenous Customary or IUU sectors.

Figure 23. Trends in the estimated Performance Gap

Summary of Economic Impacts and Performance Gap										
AS MILLION	2009 Study			2009 update to 2014			2014 Study			
	Impact	Rating	Gap	Impact	Rating	Gap	Impact	Rating	Gap	
Based on Impacts in 2006-7 and 2011-12 data										
<b>A. Commercial Wild Fishing</b>										
Economic Rent	243		97	244		97	158		66	
Other Fishing Activity				291		116	224		93	
Commercial wild Downstream	396		158	476		190	621		257	
<b>Total - Commercial wild catch Sector</b>	<b>639</b>	<b>6.0</b>	<b>255</b>	<b>1,010</b>	<b>6.0</b>	<b>404</b>	<b>1,004</b>	<b>5.9</b>	<b>415</b>	
<b>B. Aquaculture</b>										
On-farm Activity							324		128	
Aqua Downstream Activity							455		180	
<b>Total for Sector</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>780</b>	<b>6.1</b>	<b>308</b>	
<b>Total Commercial Fisheries</b>	<b>639</b>		<b>255</b>	<b>1,010</b>		<b>404</b>	<b>1,783</b>		<b>723</b>	
<b>C. Recreational Fishing</b>										
	315	5.0	158	377	5.0	189	529	4.9	272	
<b>D. Customary Fishing</b>										
	1.1	7.0	0.3	1.7	7.0	0.5	2.0	3.7	1.3	
<b>E. IUU Fishing</b>										
	6.4	6.0	2.6	10.1	6.0	4.0	10.0	5.9	4.2	
<b>Total All Fisheries</b>	<b>962</b>	<b>5.8</b>	<b>416</b>	<b>1,399</b>	<b>5.8</b>	<b>597</b>	<b>2,324</b>	<b>5.6</b>	<b>1,001</b>	
Gap as % of Economic Impact			21%				43%	43%		

The estimated Performance Gap (i.e. underperformance) for all fisheries and each sector is shown in Figure 26, relative to sectoral value.

Figure 24. Estimated GOS and Performance Gap, by Sector 2014



*30% of experts think the estimated gap of \$1 Bn is about right, suggesting a range from \$900m – \$1,110m.*

*And those experts who think it is too high are offset by a similar number who think it is too low.*

*Experts' detailed responses are revealing and generally very supportive.*

*But they also confirm that some individuals still have a narrow view and are thinking of the value forgone (i.e. the performance gap) in terms of landed seafood GVP impacts only. This project has to cover all sectors and therefore must take a more comprehensive GOS approach across all users, food and non-food values, and economic impacts, upstream and downstream.*

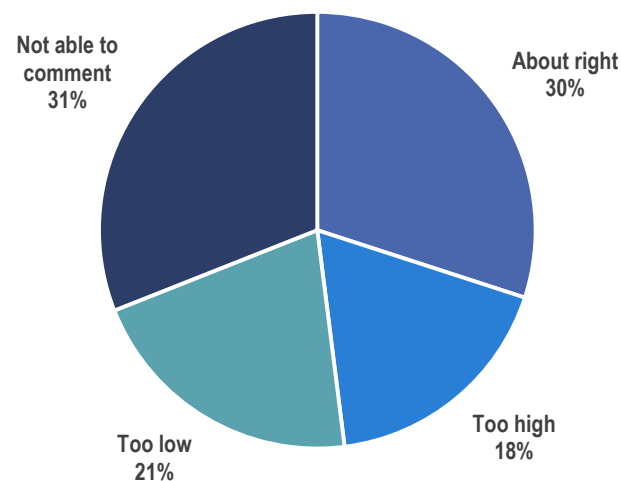
## 6.3 EXPERTS' FEEDBACK

### 6.3.1 FEEDBACK ABOUT THE 2014 GAP

Experts were asked to comment on the estimated Performance Gap of \$1.001 Bn. Nearly a third of experts (30%) thought it was about right, 18% thought it was too high and 21% thought it was too low.

The remaining third (31%) of experts participating in the final round felt they were not able to provide an informed assessment on the size of the Performance Gap.

Figure 25. Experts' Views of the \$1.0 Bn Gap



Analysis of experts' responses provides a range of valuable insights and performance boosting

implications. The range and depth of feedback is an asset to the project driven by the Delphi approach. In the following pages the project team decided to present representative verbatim comments from experts' as these are more informative than any air-brushed summary that will lose the fundamental thoughts given.

#### EXPERTS WHO SAID THE GAP ESTIMATE WAS TOO HIGH, COMMENTED THAT:

*'A bit too high when viewed as a proportion of GVP. It is difficult to accept that the fisheries are only realising about half of their potential performance. However, when viewed as a mechanism to measure performance over time it is very useful. I think that the decline in performance compared to 2009 is reasonable, given the more difficult environment, both economically and community.'*

*'In monetary terms I don't think if the industry were to achieve a score of 10 for everything that the GVP would double. .... as a tool for assessment of the industry performance I think it provides a good comparison with the 2009 result. The lower 2014 value seems consistent with the more challenging environment, with a high dollar, increased costs and more community scrutiny.'*

*'Seems too high - but I am still struggling overall with the complexity. On reflection, there seems to be a few things at play affecting performance:*

- *Stock/resource/fisheries management. This is in the sphere of regulators and is different to, and should not be confused with, "fisheries allocation". We could do this better - more cost effective, less complex, more flexible etc.*
- *Fisheries allocation. This is (generally) in the sphere of regulators and is different to "fisheries management". This is the really hard bit and continues to drive costs, complexity and uncertainty.*
- *Industry performance... This is principally in the sphere of industry, but regulators need to remove costs to optimise fisher returns. We require industry leadership, at all levels but this has not been able to be achieved as the fisheries allocation issue (above) drives fisher behaviour'.*

*'Seems very high at nearly 50% of the GVP over all sectors. I'd have thought the aquaculture would be about right, Indigenous very difficult to value, and wild catch perhaps more like 30% of a gap.'*

*'Aquaculture gap looks too high. This is a competitive sector without constraints on production and firms have greater control of production. I find it hard to believe there's this much money on the table. This gap is not consistent with the inability of so many aquaculture operations to expand (e.g. native scalefish, mussels) or the most increase in profit of large salmon producers despite large increase in production/ revenue.'*

*'It is a bit high. The total estimated value for the industry is \$2.3bn to \$2.4bn. A gap of \$1.1bn is high. Most wild catch is quota managed. Consequently, the gap is a bit high as it represents half the value of production.'*

*'Recreational impact incorporates downstream multipliers that aren't used for the other sectors. As a result, this swamps the gap estimate with an inconsistent/not-entirely-believable measure.'*

#### EXPERTS WHO THOUGHT THE GAP ESTIMATE WAS ABOUT RIGHT SAID:

*'One of the major challenges for the commercial sector remains the utilisation of undervalued species and production waste. Together with harvesting waste, i.e., high grading, results in the equivalent of one fish being consumed for every three that are caught. So, looking at the gap from this perspective alone a gap of \$418m would seem reasonable. The problem is that there would be few if any managers who would see this as a management issue. And this is where the Framework could be useful.'*

*'It would be helpful to have a relatively straightforward explanation of how the figure is derived.'*

*'It is probably high at present but may be correct when the project is completed and implementation of the Framework commences.'*

*'The dollar value is subjective but is useful in comparing fisheries. The recreational values are far too low but that is understandable given the lack of data.'*

*'Couldn't see an issue - the team has used an expert to calculate the gap. The method looks reasonable.'*

*'Recreational fisheries have been valued at \$3.2bn. There is suboptimal performance on recreational fishing and the recreational fishing gap could be \$1.1bn on its own - the overall gap is likely to be an underestimate.'*

*'Intuitively the gap (or at least % value) feels in the right ballpark. I hesitate to put too much faith in an exact number however. More significant is the relative makeup of the gap between sectors and categories.'*

*'Another way of looking at it is through the results of R&D in selected fisheries. The aforementioned relocation of Southern Rock Lobster project resulted in a conservative GVP increase of 10%. Another 10% was added to Western Rock Lobster through a post-harvest handling project. Value adding Sardines (Australia's largest fishery) for human consumption has significant potential to increase the GVP. The removal of catch limits on the northern NSW trawl fishery has potential to increase GVP, make more fish available for consumption and reduce operating costs. These examples are only the tip of the iceberg but serve as anecdotal evidence of the size of the performance gap. However, managers need to start to drive these innovations and not leave it all up to researchers. A starting point is to set one or two performance gap targets in selected fisheries.'*

*'The gap is okay. The gap is not really a hard dollar amount but it is indicative. The actual dollar amount doesn't matter - it is a process for indicating that there is a gap.'*

#### EXPERTS WHO THOUGHT THE GAP ESTIMATE WAS TOO LOW MADE SAID:

*'The estimated gap is too low because:*

- The survey was biased towards data rich and better managed fisheries.*
- The recreational and indigenous benefit is obviously hard to measure. The attempt made was good but I doubt it captures all the performance gap because it's still so driven by tonnes rather than by utility.*
- There's a bias of the survey by asking people involved in the fishery to self-assess. People are reluctant to score their performance poorly.*
- There were some important omissions. Australia's largest seafood industry in Atlantic salmon wasn't scored. And subsidies are not well understood. Aquaculture tends to ignore the subsidy of free seabed allocations as they only pay the marginal cost of management, EIS etc. Export of economic rent in quota fisheries is another significant issue.'*

*'Whilst the commercial, recreational and aquaculture assessments may be about right (although still exposed to the issue of unknown unknowns and hence possible undervaluation), I would regard the gap analysis for indigenous fisheries to be grossly undervalued given the breadth of return to community those fisheries may make and the implications through the economy that may have.'*

*'The estimate is only taking into account known economic equations - not the effect of greater community support or promotion of the industry and the benefits that that might deliver to the industry and therefore the performance gap that exists in that or the environmental quarter.'*

*'A bit lower than expected - the economy has had an impact on the industry and there is also a tougher focus on conservation and green issues. The gap might be about \$1.6bn or \$1.8bn.'*

*'Not sure because we still have different values placed on Australia's fisheries for which a lot more work needs to be done, if possible, to put \$'s on those values. We could put a value on the health benefits for Indigenous cultural fishers but what about spiritual values, social connection, and governance?'*

*'Wild catch looks too low. Economic rent is only ~ 10% of GVP which looks very odd for wild catch. One sign of this is that most significant Australian fisheries operate by quota systems, and most quota systems have lease payments 20 to 60% of GVP. Gap is greatest for Economic Rent, not Operating Surplus because this responds most to changes in management - easier to make changes here than in business operations which are generally pretty tight. You can see the evidence for this in changes in the NPF or WRL over the last few years - huge increases in Economic Rent through simple changes to management processes.'*

#### EXPERTS WHO DID NOT KNOW OR COULD NOT COMMENT ON THE GAP ESTIMATE SAID:

*'No idea -- and nor does anyone else even if they say they do. Inclusion of aquaculture is also misleading -- just because its fish doesn't make it a fishery. They are farmers. As stated previously using SA data as a national surrogate is completely misleading.'*

*'It is hard to tell - the gap is not unrealistic. Having more sector information and information about the process would make it more transparent. This would be useful for future comparisons. Transparency is the main thing.'*

*'You need to explain why the gap in 2014 is not equal to the gap in 2009 - need a clear explanation rather than something complex.'*

*'I'm not sure about the actual qualitative value as I feel the assessment itself is very subjective. However, the result certainly points to the fact that most people in the field feel there is genuine room for significant improvement. I do not know whether the gap estimate is right but the industry is worth about \$2.2bn.'*

*'The gap size is not surprising given the inefficiencies in the industry.'*

*'I do not have enough feel for this figure across all fisheries to judge whether it appears appropriate. Many different perspectives on it so hard to say.'*

*'I daresay there is some useful analysis behind the figures, and this is essential information for industry, managers and researchers if the gap is to be tackled in a focused manner. It would be useful to publish more detail about where these gaps exist, so that the five-year review can be more specific and measured against the gap 'areas' thereby becoming more meaningful.'*

*'If the total industry (100%) is about \$2bn, then the gap of \$1.1bn represents 55% of the value of the industry. Performance on total allocated catch is one estimate of the industry value. Calculating the gap is complex - there needs to be refinement on some of the measures.'*

*'It may only be possible to fill three quarters of the gap because it is not cost effective to close 100% of the gap. The question then is 'what is the realistic target for the gap and closing the gap'. It is important to include all of the calculations in the estimation process and discussions in the main report.'*

*'The result of 5.6 or \$1.1bn sounds bad - it is human nature to expect to get a 10 out of 10 - which is unrealistic. There will always be a gap and this fact*

*needs to be better explained. At present it looks like the industry is under-performing but it may be closer to the realistic target than the report presents.'*

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### 6.3.2 FEEDBACK ABOUT THE GAP PROCESS

#### GOOD ATTEMPT AT A DIFFICULT TASK

*'Attempts to tackle the difficult issue of quantification is commendable. I wonder about attempting the FAO (Ragnar Arnason et al, Sunken Billions) method instead?'*

*'The struggle is with the jurisdiction point of view - doing this across the board can be a difficult exercise.'*

*'There are identified issues that need addressing and when completed the outputs should provide a sound base.'*

*'I think this will be very useful where consistent criteria can be established and reviewed for comparisons across the years. The results would benefit from addition of extra inputs ('experts') to remove bias from limited data sources. Reduce the report to a couple of page summary for each fishery, so they can see 'their' results and provide to State and Commonwealth MACs or equivalent and get them to provide input - which would show how close or otherwise these results are. Perhaps start with a test of some fisheries.'*

*'The Round 3 report I think accurately reflects the strengths of the gap assessment process. It is always going to be challenging to generate information of this type across disparate fisheries.'*

*'This approach is likely to be as effective as any and what is important is its consistent application over a period of time, so that trends - positive and negative can be assessed. Overly fretting about exact numbers and score will be unproductive. As the framework is refined, it is important that the comparative aspects over time are retained as much as possible.'*

*'I think it is a good starting point but unless something is done to drive management responses we 'Experts' will be going through this exercise again in 2 years' time and nothing much will have changed. The Seafood CRC has put a large investment into its Future Harvest program and more recently has extended it to include a comprehensive extension plan. There is an inextricable link between the Future Harvest program and this Performance Gap Framework. I strongly recommend that the FRDC and the CRC collaborate with the members of the AFMF (directors of fisheries) to take this activity to a higher level and have managers commit to determining initiatives that will help to close the performance gap. The biggest threat to success will be those who don't believe that there is a performance gap.'*

*'It is fine for a gap assessment based purely on known productivity numbers - I can't assess from the information provided here if any estimation has been made for the impact on the industry of the gap in social acceptance and engagement by the industry.'*

*'I believe the gap assessment process is a sound and intelligent approach to providing an overall picture. I also believe that it is fundamentally important to the priority-setting discussions that will be based on use of the framework to ensure future actions take into account optimisation strategies.'*

*'The process has been well developed and the results are very reasonable.'*

#### SUBJECTIVE ASSESSMENT

*'A bit subjective but again a useful comparative tool.'*

*'Subjective and valuable in its own right to determine justification for a reform agenda, but probably too tenuous for precise quantification.'*

*'There are some arbitrary aspects. There are some relative scores used to calculate the gap as well as dollar figures. The dollar figures make the gap appear to be concrete but it is a bit too abstract (e.g. 5.8 versus 5.6 could be a critical result). It is important to quantify some but not all aspects. Perhaps there needs to be a focus on a target out of 10 rather than on a dollar figure.'*

*'The methodology itself seems reasonable. 'But there are so many guesstimates in the data that the results become meaningless. There is no obvious estimate of the total cost of actually attempting to achieve the alleged benefit. There is no estimate of the likely distributional effects on individuals. So why are we trying to measure it?'*

*'It is extremely difficult to assess the gap. For aquaculture and customary fishing there was not a lot to rely on. There has been a massive push on aquaculture but there are EPA challenges. Aquaculture only covers 7 species. EPA has a hard approach potentially. Value of the sector could be higher.'*

#### INDIGENOUS CUSTOMARY FISHERIES

*'It's good for commercial fisheries for which there is plenty of data that is commensurate, but for Indigenous cultural fishing that data is poor and not completely comparable around value. Using the NRIFS Survey 2003 to generalise across the country is not strong as that survey focused on northern Australia where fishing might be very different in terms of quantities of fish taken compared to southern parts of Australia.'*

*'The most significant challenge is to discover ways to meaningfully assess the performance gap of indigenous fisheries in Australia. That gap assessment needs to be able to take into account local knowledge and to account in some way for flow-on benefits derived from broader community issues such as health and wellbeing. Alternatively, a simple social gap analysis may be a worthwhile consideration in future additions of the framework.'*



#### INDUSTRY VS JURISDICTION APPROACH

*'While there can be a broader management philosophy or goals the focus really depends upon the jurisdiction.'*

*'Performance can be affected by whether the fishery has a Commonwealth driver versus a State driver. While the Commonwealth has a focus on wild catch, State jurisdictions are all-inclusive and encompass recreational fishing - 'I fish and I vote' has a bearing.'*

#### COMPARISON OVER TIME

*'The issue of estimating performance against shifting goalposts is a difficult one - so my reading from the issues paper is that although the performance estimates on average are much the same from 2009-2014 there has been improvement in real terms because the assessment criteria/expectations are now tougher? May be worth spending a bit more time on quantifying this and clarifying it so that there's a clearer sense of where the goalposts have shifted and why. Perhaps also more attention to the specific (more macro level) benefits of closing the gap.'*

#### COULD BE SIMPLER AND MORE TRANSPARENT

*'Approaches need to be transparent and deal with allocation.'*

*'It is not clear if the analysis has considered trade-offs between sectors.'*

*'It is better. Clear definition of harvest to post-harvest activities is essential. I am not an economist but it appears that the use of the GOS approach so that both commercial and non-commercial sectors can be compared is a marked improvement.'*

#### CONCERN ABOUT USE AND INTERPRETATION

*'I fear fisheries managers will look at it and think more regulation is required in the areas that are considered not performing. Overall I'm not convinced the current fisheries managers have the skill set to address the areas that need improvement. Them attempting to will only cause the situation to worsen.'*



## 7. Expert Recommendations

### 7.1 ACTION PRIORITIES

In 2009, Experts identified a number of discrete strategies that could be implemented by stakeholders for individual fisheries to improve their performance. In 2014 these were refined with the top 10 strategies identified as follows:

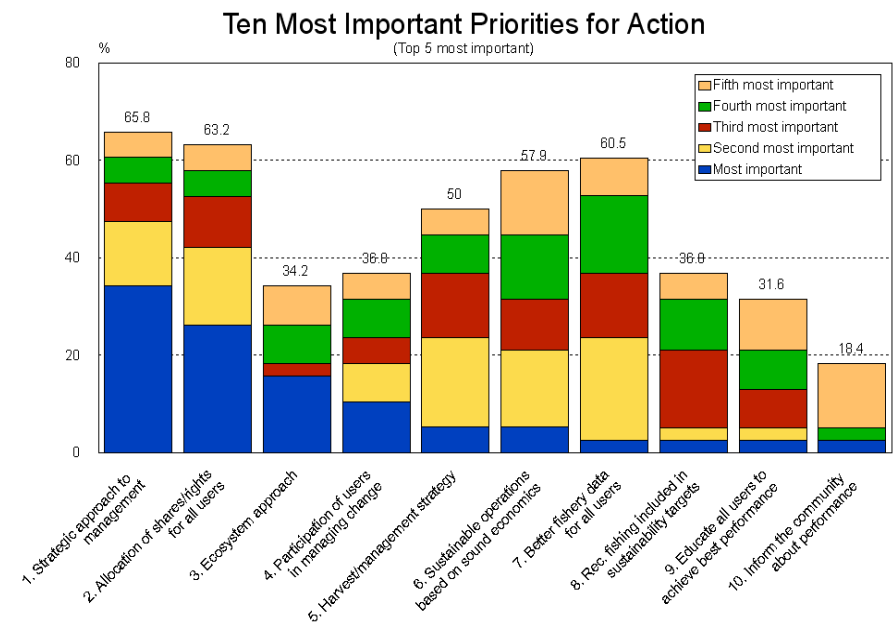
1. More **flexible fisheries management** to respond to future change and a more strategic approach to management for each fishery, incl. clear objectives for Users,
2. **Documented harvest and management strategy** with goals set for ecosystem, biomass and target stock sustainability,
3. **Efficient, transparent allocation of shares and associated property rights** for all Uses – commercial, recreational, and Indigenous customary,
4. **Improved data at fishery level** for all Users - fish stocks, mortality, total economic value, community views and other data to track performance.
5. **Inform the community on performance** of wild catch fisheries, and the need to conserve the fishery resource,
6. **Economically sustainable operation** of the fishery, based on greater awareness and

use of economic analysis and return on investment to inform management about fishing chain values and performances,

7. **Increased participation of fishery Users** (commercial, recreational, Indigenous customary) **in**, and collaboration on, **fisheries management** and implementing change,
8. **Ecosystem or multi species approach** to fishery management
9. Measures of community support or **social license to operate**
10. **Sustainable levels of recreational fishing are integrated** with overall sustainability targets and the harvest strategy for the fishery.

In 2009 the Priorities for Action were ranked by experts per Figure 26, indicating the aggregate support for each priority over 5 choices. The strategic approach to management achieved the highest score and also the most 1<sup>st</sup> preferences, with allocation of shares and rights coming second.

Figure 26. Priorities for Action 2009



The 2009 data also confirms that many experts placed a high aggregate priority on items 5 (harvest strategy), 6 (sustainable operations) and 7 (better fishery data).

In 2014 experts refined and reranked their list of top 10 Priorities for Action per Figure 27. While all identified actions were important, the 2014 rankings introduced a new priority action (item 9 in Figure 28), raised some priorities (items 2, 4, & 5), and reset others significantly lower than in the 2009 assessment (items 3, 7, 8, 10 & 11).

Some experts also felt that top priorities for aquaculture were not clearly covered in the long list of 14 priorities agreed in 2014. The recommendation from this sector was to focus on priorities that align with the National Aquaculture Statement released in June 2014, as follows:

- Develop a national aquaculture strategy,
- Implement and maintain streamlined regulatory and management frameworks,
- Create an environment that encourages investment, growth and profitability,
- Support and recognise the importance of aquatic animal health and biosecurity for a productive aquaculture industry,
- Ensure the continued engagement of the Australian industry and wider community in aquaculture planning and management.

Figure 27. Priorities for Action 2014

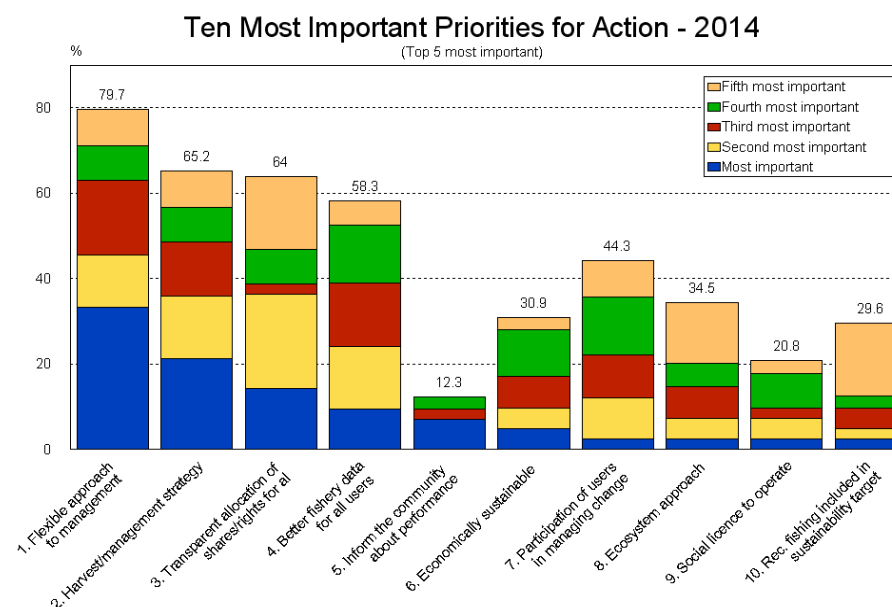


Figure 28. Priorities for Action - Rankings 2009 v 2014

Actions to Reduce the Gap	Rank in:	2014	2009
1. More flexible and strategic fisheries management	1	1	1
2. Documented harvest and management strategy	2	2	5
3. Efficient, transparent allocation of shares and associated property rights	3	3	2
4. Improved data at fishery level for all Users	4	4	7
5. Inform the community on performance	5	5	10
6. Economically sustainable operation of the fishery	6	6	6
7. Increased participation of fishery Users in fishery management	7	7	4
8. Ecosystem or multi species approach to fishery management	8	8	3
9. Measures of community support or social license to operate	9	9	n/a
10. Sustainable levels of recreational fishing are integrated in overall strategy	10	10	8
11. Educate all users to achieve best performance	n/a	n/a	9

*Experts believe that tracking and managing the performance gap will improve the management of fisheries in four ways:*

## 7.2 DRIVING MANAGEMENT CHANGE

Benefit	What use of the performance framework will involve and achieve
<b>1. Focus on best value opportunities</b>	<p>a. There are huge differences between fisheries - a regional approach by fishery is the best approach, to influence behaviour and drive change locally. The framework enables these differences to be identified and addressed, locally.</p> <p>b. FRDC and Industry Leaders need to direct RD&amp;E spend to target fisheries and issues where there is acceptable return on investment, and reassess investments that are not viable. Industry needs to engage in a more structured process of assessment and evaluation to inform industry investment decisions.</p>
<b>2. Develop and manage public assets</b>	<p>c. Fisheries management can easily become a political football due to the restricted entry nature of these public assets. In this context it is important that users demonstrate they are socially and morally responsible, and to declare there is a gap in performance should one exist, based on rigorous assessment and quantification. Managing fisheries is for everyone, not just managers, but managers must improve stock status through performance.</p> <p>d. We need to focus on improved fishery stock levels. It is important to see this in the assessment framework. The Compact Framework is at risk of losing the link to a 'precautionary principles' approach. Where data access is a problem, (e.g. Recreational and Indigenous customary sectors) we need to be more precautionary when data fails us. Fishers need to have access to risk and investment signals and be encouraged, where necessary, to disinvest/leave the industry. The right signals need to start from the top; the performance framework assists this signaling process.</p>
<b>3. Inform debate and management</b>	<p>e. Stakeholders can make the performance assessment framework portable across policy approaches in jurisdictions. We need to get policy network settings right - the framework can guide management of all issues on a risk-based economic framework. This Framework should be linked where possible to ABARES' Fishery Status assessments.</p> <p>f. The performance assessment framework can reveal problems and point to deficiencies. There is work to do and the framework helps see what and where. While there are limits to all methods, the framework is a very useful indicator.</p> <p>g. Many fishing and aquaculture discussions are poorly informed, ignore the science, and are politically motivated. The performance gap is a good tool as it demonstrates that all issues (environmental, economic and social) are regularly being assessed, and embeds a transparent tool visible to all stakeholders. Industry needs to highlight the issues and educate the public about the assessment process. <i>Key message: industry is monitoring and tracking performance.</i></p> <p>h. The big win from the performance gap assessment is the scale and scope of holistic thinking that the process nurtures. Fisheries management is typically in silos where there is a lack of integration between research and implementation. The performance framework brings people together to do this critical holistic thinking.</p> <p>i. The framework helps stakeholders look at the gaps, from their relevant perspectives - state, regional, by species, etc.</p> <p>j. The performance framework is a great conversation starter with all stakeholders. But the final take-home messages need to be digestible for the average user/fisher/farmer. We must take people on the journey and a few targeted dot points with simple explanations can help to explain the trends and problems and point to solutions.</p>
<b>4. Link use of the Framework to action</b>	<p>k. It is important to focus on practical actions to reduce the gap. While there is a strategic approach with the Compact Framework it is important to be able to then get down to the details level. The context is very different for different fisheries and agencies. It is important to identify areas to focus on and perhaps identify some of the tactics that can be used to make a change and improve performance. For example, a new access royalty may fill a public value gap.</p>

### 7.3 OTHER FEEDBACK AND GLOBAL INSIGHTS

The following discussion considers additional comments by experts, and headline global references and insights.

#### NEED TO LINK TO ACTION

*'The paper is very ambitious in what it is trying to achieve but the purpose or use of the findings is still unclear. Who will use it, for what purpose and how often will it be used are all questions that should be answered in considering whether this is done again.'*

*'Selling the value of such a performance criteria format and gap analysis to actual fishers will be very hard - need to be tailored for individual fisheries, but a good step since it is now including more recreational and indigenous aspects of fishing.'*

*'The framework is a powerful management development tool as well as an assessment tool mostly because it enables a subjective rapid assessment to inform the policy cycle on the effectiveness of proposed policy / management frameworks. Unfortunately, these are the same reasons it is a weak quantitative tool to determine the magnitude of "the gap" which doesn't undermine its relevance to determining if a gap exists that can realistically be resolved i.e. I think a range of stakeholders could have an informed discussion around the application of the Compact Assessment Framework to a fishery with which they are familiar.'*

*'Start using to commence the conversation and refine it based on real world input.'*

#### SIMPLICITY AND TRANSPARENCY

*'Beware experts suggesting that complexity should be retained. Whilst some of the issues are complex there is a great need to make the framework relatively simple so that all key stakeholders can understand it and contribute. The emphasis on value chains rather than just GVP etc. is good and should continue to be emphasised.'*

*'This report is pretty good. The Round 3 paper is very dense - it takes time to read. It is designed for the technically minded. Its usefulness to an audience is dependent upon how hard it is to read and absorb. There needs to be a focus on the 'doing and the tactics - with examples' versus sticking with the theory and the backing. Another comment was that 'not much has changed' since the 2009 study. It is important to get the message out that the industry has come out stronger even though the gap may look fairly similar. The industry is working hard and there are increasing challenges. The community is not really aware of these changes. Sustainability has become a huge issue compared with the views 5 years ago. Perhaps include a simple comparison table of 2009 and 2014 to highlight issues, the gap and changes.'*

#### INFLUENCES INDUSTRY THINKING

*'The value from the project is in influencing change. What are the 3 things that we can make changes in? What can be a catalyst to bring forward those things? It is important to pick the top 3 key items that will resonate with the industry and that industry will take forward and change.'*

*'The outcome is commendable. Clear inclusion and identification of indigenous fishery development and assessment issues for indigenous/cultural fisheries. For example, the prioritisation questionnaire.'*

*'You have done an incredible job. Any attempt to categorize complex industry will start discussion and this is the intent.'*

*'It was really valuable to go through the paper. It is good to have an estimate of the gap. Need jurisdictions to look at this and identify a dollar amount for jurisdictions if possible. This dollar amount will grab attention. This occurred when estimates of value were put on illegal fishing. Quantifying the gap at jurisdictional level will help fishers and the community to look at the losses that the community is suffering.'*

#### COMMUNITY AND SOCIAL OUTCOMES

*'I don't think the report mentions delivering community benefit from fisheries resources as an issue or part of the response to closing the gap. This means introducing royalties, levies, or access fees. Without this, I think there's a "so-what?" element to the performance gap. Access "rights" are raised as an issue but in Australia these "rights" are given away 100% to fortunate individuals so it just means more privatisations of the economic rent from fisheries. Closing the gap means increasing rent to these owners of the catch shares, who are increasingly not even based in Australia. Better performance economically in the wild sector means more efficient operations, which means less employment in Australia, and higher lease payments to overseas owners. This is pointless unless the Australian community gets a direct benefit through royalties.'*

*'The interpretation of social issues for fisheries always gets mixed up. Social licence (=community acceptance) and social performance (= welfare of participants) are vastly different things. I'd hate to see the gap in social performance being used to justify reports by sociologists on social metrics of Australian fisheries (=rhymes with bank). The social licence gap is closed with economic changes (e.g. royalties) and ecological (e.g. the problem of so many fish stocks of unknown stock status).'*

*'Still too reactive Add SOCIAL OBLIGATION Turn the debate around to recognise this is a community wide issue. 80+% of Australians live on the coast and within 5 km of the ocean.....their impacts are very substantial and fisheries managers are simply not taking the issue back to the rest of Government and community.'*

*'There are standard approaches available to enable fisheries to more effectively engage with and consult with their communities. Nicki Mazur in the Let's Talk Fish project proposed a measurement method for community support of the industry. The comments from the industry are overly focused on measuring activity and*

*what has happened, and needs to move in the priority areas to a greater focus on activities focused on behaviour change - both within the industry and to assist external behaviour change. From the information provided here, 'social license to operate' is clearly still perceived to be a 'communications' issues (i.e. we just have to tell them more often and louder that everything is OK) rather than a cultural/behavioural change issue for the industry - which if undertaken will lead to a cultural/behavioural change in the community/government. There are a number of activities on the list of priority actions that should be 'standard operating procedure' now - or jurisdictions should be actively engaging with them as the tools.'*

#### GOOD PROCESS

*'Interesting and valuable process with clear evidence that participants were heard and changed priorities and methodology through the iterative process. Good to see criticism of "dogma". Highlighted the need for better economic performance based on community benefit and understanding of supply chain and market opportunities.'*

*'Some of the comments are enlightening as to the different ways the resource is viewed depending on your background.'*

*'It was a very useful exercise and I was glad to have been able to participate. I hope this is repeated again in a few years.'*

#### REGULATORY BURDEN

*'One issue that has not been included is the stifling effect of the ever greater regulatory burden. This is a layer of inefficiency overlaying all activities that are being measured and in itself will tend to depress industry performance.'*

### Selected Global Fishery and Aquaculture Assessment Studies

2008 *A comparative assessment of biodiversity, fisheries and aquaculture in 53 countries' Exclusive Economic Zones*, Fisheries Centre, Uni. of British Columbia, Vol16, #7 2008 ISSN 1198-6727.

2012 *Charting a Course to Sustainable Fisheries*, California Environmental Associates, 2012.

2014 *The State of World Fisheries and Aquaculture – Opportunities and challenges*, FAO Rome 2014 ISBN 978-92-5-108275-1. The FAO updates this report every few years.

*'In some aspects, e.g. environmental, compliance with regulation is considered a positive effect of industry performance. In some aspects this may be correct, e.g. ensuring sustainability of the resource, but in many cases it is regulation for no clear benefit. It would be interesting to assess the impact of new regulations on the overall performance of the industry.'*

#### CAN IMPROVE

*'Perhaps there needs to be some attention to dealing with the flow of economic rent and subsidy.'*

*'I understand the need to recognise the two GVP bands for commercial wild-catch (i.e., the top 82% and the rest); and have promoted the notion of a two speed industry in certain circumstances. However, I hope that this is not interpreted to mean that the gap is best closed by concentrating on the 'big end of town' (another of my oft used descriptions of the two speed industry). Admittedly, were we to increase the GVP of rock lobster by 10% it would have a bigger impact on closing the gap than were the same achieved for snapper; however, there may be hidden opportunities in smaller fisheries, e.g., Sardines. Managers need to look at all options afforded by all fisheries.'*

#### IMPROVE THE STUDY PROCESS

*'I was concerned about the small sample size. The framework needs to go out to a wider number if it is going to be used for the longer term. There is a need for a consistent representative sample to respond to feedback/ratings using the Compact Framework. The study needs the thoughts of a consistent sample (e.g. role focused and consistency of role coverage from one study to the next). This could cover management, research and compliance roles in each jurisdiction. A structured framework is needed for the sample for the next review. The use of performance bands needs some review to be really useful.'*

#### DETAILED FEEDBACK

*'The discussion about an "app" was a bit unclear - I don't think this sort of evaluation framework is well suited to a simple App? The need for precaution or use of the precautionary principle is absent even though this is one of the main strategies to deal with the very substantial uncertainty in fisheries science and assessment - particularly at an ecosystem level in a very dynamic environment (climate change, pollution impacts etc.).*

*Overall a valuable contribution to the fisheries landscape (seascape!)*

#### GLOBAL PERSPECTIVES

There is increasing global attention on fishery and aquaculture performance. A selection of related studies is presented in the text box on this page. International studies predominantly focus on comparisons of fisheries' status (data permitting), and their performance against broad and deep assessment criteria. These studies reveal very useful and increasingly sophisticated outputs and insights. Australia ranks highly (typically in the top 10) in these studies.

But the fundamental aim of international studies is different to this Performance and Use Study. Two key differences: firstly, the P&U Study is an internal perspective on Australian fisheries and aquaculture; and secondly, it has an iterative long term methodology (assessment – analyses – learning – communication - performance enhancement - review), not just a once-off study. The P&U study and its emerging metrics is therefore increasingly able to dive much deeper into local performance and use drivers to leverage outcomes.

## 8. Project Conclusions

The FRDC's Resource Working Group and stakeholders have to date invested considerable resources (both human capacity and financial) in the fisheries Performance & Use assessment initiative. The Working Group's pursuit of the core goal – *for Australian fisheries to be the best they can* – has been steadfast and supportive, making a very challenging brief a little easier for the project team and the 152 Delphi expert contributions where experts have given freely of their time in 2009 and 2014.

What has been achieved from this investment? Is it demonstrably delivering on the core goal to boost Australian fishery performance?

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### 8.1 HEADLINE CONCLUSIONS

Many experts in 2014, have noted that the main benefit for stakeholders from the P&U Project is the broad and deep conversation it has started with all sectors about Australian fisheries and how they perform against selected criteria.

In its second iteration in 2014, it is clear that many experts want to be part of this ongoing performance journey and building a better future for fisheries.

The project team believe it is a reasonable conclusion to assume that most fishers, farmers, managers and researchers will also, like the experts, want to understand more about how to boost performance in their fishery.

The following top line conclusions are drawn by the project team based on their participation in the P&U Project since inception in 2009.

As a headline these conclusions are quite straightforward. But drilling down to the performance drivers becomes complex, quickly. As a result, each conclusion is expressed more fully in Figure 29.

The core conclusions are as follows:

1. Fishers and stakeholders want to understand, improve and defend fishery performance. Opportunity exists to expand the assessment role of fishers and farmers at fishery level, but keep project governance and design at a national level.
2. A concise and straight-forward assessment framework is critical. This now exists – but there is more refining to do so we can fully leverage our joint investment in the performance outcomes.
3. Current overall fishery and aquaculture performance is fair (~6/10), but can be better. We need to be able to drill down and segment the issues and reveal the implications.
4. The Top Priorities for Action are consistent in 2009 and 2014. The top 3 are:
  - *Flexible and strategic approach to management,*
  - *Documented harvest and management strategies,*
  - *Efficient, transparent allocation of shares and associated property rights for all uses.*
5. The Performance Gap is complex and vital, but needs more work to make it user friendly and directly linked to actions.



Figure 29. Conclusions

	<b>Project Conclusions 2014</b>
<b>1. Fishers and stakeholders want to improve and defend Fishery Performance</b>	<ul style="list-style-type: none"> <li>a. Fishers, managers, researchers and stakeholders want to talk about fisheries performance. They want to understand the fundamental issues and how to measure, monitor, and take action to demonstrate best outcomes now and tomorrow. They want to act nationally, regionally and in local fisheries.</li> <li>b. Talking about fishery performance issues is a network learning opportunity for stakeholders – it offers a new way of thinking about risk and strategy.</li> <li>c. Many users and stakeholders feel threatened by all the complex and uncontrollable issues, and trade-offs in fisheries. But experts tell us that a good performance assessment tool will provide clear stable signposts to clarify, prioritise and defend what must be done now and could be done later.</li> <li>d. The great bulk of Delphi experts support the P&amp;U Project and its objectives. This support was strong in 2009, but is now even more evident in 2014 as additional data points reveal new insights and details about fishery performance. Stakeholders will want even more as datasets build and deepen.</li> <li>e. Private (fishers &amp; farmers) and agency motivations to improve performance are critical to P&amp;U Project uptake and development. If long-term performance management can reduce risk and increase Return on Investment, more stakeholders will participate and boost project outcomes for all.</li> </ul>
<b>2. A concise and straight-forward assessment framework is critical</b>	<ul style="list-style-type: none"> <li>a. Fishers and farmers know that fisheries vary greatly; comparing performances can therefore be a wall of ambiguity and pain. But the <i>Compact Framework</i> refined by experts in 2014 is now a stable platform and tool for all users to use and unpack for local needs. There is more work to do to refine it.</li> <li>b. The framework can and is starting to reveal streamlined qualitative and quantitative results comparable and portable across time, space and users. For example, experts believe the industry consistently underperforms against Social &amp; Engagement criteria (35% underperformance compared to other categories). Further, the report estimates that multispecies wild fisheries underperform single species wild fisheries by an average 0.6 points (on a 10-point scale) – is this implied loss of economic value real, or do multispecies fisheries create more non-economic benefits that communities will value?</li> <li>c. The framework is offered to stakeholders as a user-friendly, flexible tool. It must not be dumbed-down and lose scientific rigor or professional credibility. The design and utility need to be more fully tested by all users at both functional levels - high and detailed. An app may reduce costs.</li> <li>d. Environmental/economic/social issues are embedded in the framework, challenging stakeholders to be honest and forthcoming about performances. Early trends are identifying areas of underperformance. As more fisheries engage, stakeholders will be tested re their commitment to transparency.</li> <li>e. There is no single best point of balance between <i>top-down national assessment</i> V <i>local fishery assessment</i>. But it is clear that local fishers/managers should be driving project engagement and selecting core criteria for action from a national framework. This is the best path to high performance.</li> </ul>
<b>3. Current overall performance is Fair, but can do better</b>	<ul style="list-style-type: none"> <li>a. In 2014, 58 experts rated 41 unique fisheries. The scores ranged from 1.5/10 to 9.1/10. 2014 was the first year all sectors participated, albeit with limited input from the Indigenous customary sector. Aggregate performance was 5.6/10, a result similar to that achieved in 2009 of 5.8/10. The wild catch commercial sector is the only sector to fully and uniformly participate in both 2009 and 2014, scoring 5.9 in 2014 and 6.0 in 2009.</li> </ul>
<b>4. The Emerging Top Priorities for Action are consistent</b>	<ul style="list-style-type: none"> <li>a. The project is doing a good job identifying the top priorities for action. Logic and consistency is evident even with just 2 data points (2009 &amp; 2014).</li> <li>b. The project has confirmed from experts that the top 3 Priorities for Action nationally are relatively consistent. We need: <ul style="list-style-type: none"> <li>– Flexible fisheries management to respond to future change with a more strategic approach including setting objectives for performance for all uses,</li> <li>– Documented harvest and management strategies with goals set for ecosystem, biomass and target stock sustainability,</li> <li>– Efficient, transparent allocation of shares and associated property rights for all uses – commercial, recreational, and Indigenous customary.</li> </ul> </li> <li>c. We have only 2 data points to date (2009 &amp; 2014). Therefore, performance ratings have no historical averages to dampen their current volatility. In the short term we will likely see an unintentional and uncontrollable bias in favour of issues of the day (e.g. A\$ moves, social media hotspots, etc.).</li> </ul>
<b>5. The Performance Gap is complex and vital, but needs more work to be user friendly</b>	<ul style="list-style-type: none"> <li>a. Gap estimation is complex, especially so for such a diverse industry. In 2014 the gap is estimated at just on \$1.001 Bn, or 43% of <u>net</u> economic impact (after upstream and downstream cost recovery). This is complex for stakeholders and must be simplified for use as a broad measure of performance.</li> <li>b. A GVP measure does not work for non-food fisheries, and rating scores out of 10 are only good at a single point in time as they are subject to the assessor's frame of reference. Gross Operating Surplus is a solid standard numeric economic measure able to consistently reflect trends over time.</li> <li>c. Using SA's economic data series as a proxy baseline for national gap assessment is not sustainable. Data from all jurisdictions must be accessed ASAP.</li> </ul>

## 8.2 WHAT'S NEXT FOR THE P&U JOURNEY?

After two iterations (2009 and 2014) the P&U methodology and Compact Assessment Framework are now relatively stable across all fishery users. The assessment frame includes all sectors, upstream and downstream for activities that result in direct and trackable economic impacts.

Industry now has a common language and clear assessment criteria that can adequately contrast and assess the use and performance of wild fishers and farmers for seafood production, for recreational fishing activity, and for traditional Indigenous customary fishing.

More fine-tuning will be required, but outputs to date (including the methodology and tools) must be viewed as quite an achievement for the Fisheries & Aquaculture Industry. Industry and stakeholders are feeling good about the project and how it is evolving.

But as a number of experts told the project team in 2014, "It's a good start but there is much more to do" to build our capability and understanding and drive fishery performance. The project team has identified a number of further improvements to the P&U Project, as follows:

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### 8.2.1 P&U PARTICIPATION & COST

The FRDC Resource Working Group has the opportunity to consider steps and issues that will help the broader development and refinement of the P&U process. These options include:

- Change the performance assessment paradigm so that all Australian fisheries are aware of the benefits of the project and are able to self-select to participate in the project. This opt-in approach will provide balance to the current approach where "experts" selected by the FRDC/project team choose fisheries they wish to assess. The current approach has been appropriate for the first stage to establish the P&U project and process, but change is now required to optimise the future gains from past and current investment in the project.
- Promote the benefits of engagement in the project to users. This will have many benefits, not least of which will be an increase the number of assessment responses into the database. Other benefits will be an increased opportunity to engage with fishers, community stakeholders, environmental NGOs and governments regarding fishery resource use and performance and the Industry's relative status and performance trend in that regard.
- Increase the scope and number of fisheries participating in the project. One significant problem at present is that some major fisheries are not engaged with, nor participating in the project (e.g. Salmon aquaculture, farmed prawns).
- Now that the P&U assessment methodology has been developed and thoroughly road-tested over 5 years, put the operational aspects (not governance) of the Compact Framework assessment tool in the hands of identified and responsible users and stakeholders in each participating fishery.

- In 5 years' time, in addition to expert and broad fishery participation in the P&U Project, help a selected 10-15 case study fisheries drive their P&U performance framework by working jointly with an expert panel to more fully interrogate, understand and action their performance measures and outcomes.
- Expand the assessment and documenting process, using local stakeholders employing national electronic tools and IT tools (e.g. phone apps for collating source data).

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### 8.2.2 P&U OPERATIONS AND GOVERNANCE

Establish a small independent team to oversight the project, control the Compact Framework, engage with contemporary experts, implement periodic assessments, manage the dataset and access to it, govern the IP related the project and process, and report to FRDC and stakeholders as necessary.

One option may be to establish an Australian Fisheries Performance trust, as a not-for-profit entity or centre of excellence. This entity would be owned jointly by industry, FRDC and NGOs, funded with philanthropic contributions, and governed by a small board of experienced volunteers and staff. This organisation could link with ABARES / MSC / ASC, and GSSI (globally) to align performance assessments.

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### 8.2.3 LACK OF BASELINE DATA

A significant shortcoming for the P&U Project, now and potentially in future, is the lack of national and state agency baseline data regarding the economic impact of fishery products and services (both inputs and outputs) as they flow through state, territory and national economies.

South Australia is the only jurisdiction that maintains a comprehensive series of economic impact data, from economic rent in commercial fisheries and farm aquaculture, through to direct and indirect downstream impacts from recreational fishing and employment, household impacts and state surpluses. Baseline economic data enables the use and performance of each fishery in any jurisdiction to be assessed and weighted appropriately by sector, by use, by location and by timeframe. To date the P&U Project has used SA baseline data as a proxy in assessing all wild fisheries and aquaculture farms across all jurisdictions selected by experts. The fact that SA maintains a large and diverse fishery and aquaculture base has underpinned this proxy assumption to date, but as the P&U methodology develops the proxy baseline will lack credibility unless it is broadened to include baseline trend data for all jurisdictions.

Exploratory discussions between the Project Team and the SA data team (Econsearch Pty Ltd) indicate that a small project could be established cost effectively to identify and collate existing baseline data for this purpose from agencies in all fishing and aquaculture jurisdictions. Access to long series baseline data for all jurisdictions would be a major benefit to the ongoing development of the P&U process for the fishing and aquaculture industry.



## Appendices

### Appendix 1. Terms of Reference (as per 2009 Study)

#### Using Expert Assessment to Assess Outcomes of Australian Fishing Management

##### Background

The FRDC's Resource Working Group was formed in 2007 to address issues relating to resource access and allocation. These issues have been raised repeatedly as both important and needing action for example at the FRDC supported Coolangatta Conference in 2002, and yet broad progress has been limited.

In the light of the lack of progress on these issues it is likely that Australian fisheries are failing to achieve their full potential in generating benefits for the community. Even in relation to the narrow objective of managing commercial fisheries for the maximum economic yield/value of that fishery there are few fisheries demonstrably managed so as to achieve these goals. In relation to recreational fisheries there is little evidence that they are being managed so as to maximise community benefit.

As part of its work program the Resource Working Group has proposed:

*That estimates be developed as to the benefits arising from managing fisheries to their best use and managing that use in such a way as to generate the greatest benefit to the community, then comparing those benefits as against current outcomes. That this information then becomes widely acknowledged informing both major stakeholders in Australian fisheries and the general public.*

One of the paths identifies to meet this objective is to use expert assessment to identify the size of the 'gap' between best outcomes for

fisheries management and current practices. The Delphi technique was one method suggested as appropriate (see below).

Other methods being investigated concurrently involve; evaluation of comparative return on capital, estimates of B.mey / B.msy / B.cur comparisons and projects targeted at specific fisheries. Together it is anticipated that estimation by a range of methods will develop up a robust composite picture of the performance gap.

##### Brief

The contractor will undertake a suitable form of expert assessment (see note below) that provides for a robust and methodologically valid estimate of the performance gap. This estimate will be used in conjunction with other forms of assessment.

##### Tasks

The contractor will be expected to:

- Approach experts nominated by the Resource Working Group and other relevant bodies/experts.
- Develop up in consultation with the Resource Working Group a suitable briefing document for the experts and a questionnaire.
- Conduct multiple rounds of assessment
- Assess the results applying appropriate techniques
- Deliver an interim report to the Resource Working Group and then develop a Final Report as to outcomes

It is anticipated that the rounds of questionnaires will be carried out by email and that communication with experts will be principally if not exclusively by email and phone. The proposal should communicate a timetable for this activity.

##### Contact/Administration

Proposals should be lodged with John Wilson, Business Development Manager, FRDC in Canberra.

2. **Appendix 2.** Three Rounds of Issues Papers

3.

Three issues papers (one for each Delphi Round) are separate appendices to this report.

- Issue Paper 1. Issued in June 2014
- Issue Paper 2. Issued in July 2014
- Issue Paper 3. Issued in November 2014.

## Appendix 3. Compact Framework for Assessing Performance and Use of Fisheries and Aquaculture

### Part A. Wild Catch Framework

WILD CATCH PERFORMANCE & USE MEASURES		Commercial	Recreational	Customary
Performance is managed and measured across the three wild capture fishery sectors and related value chains.				
Ratings (High/Medium/Low) indicate the measure's relevance to P&U Evaluation for this User.				
<b>1. Management</b>				
<b>Arrangements</b>	1.1. Relatively simple and transparent government legislation framework covering fishing activities in all Australian jurisdictions			
	1.2. Flexible management that can adapt and respond to change e.g. environmental, economic, consumer, social, cultural needs, or other changes			
	1.3. Management that is efficient for each User - costs attributable to each User as a percent of GVP or investment are appropriate			
	1.4. Efficient and transparent allocation of property and access rights for multi sector uses – wild-catch commercial, recreational and Indigenous customary			
	1.5. Mandatory fishing licences for all Users based on statutory rights of access to resources			
<b>Controls</b>	1.6. Documented harvest and management strategy for Users that effectively targets goals for ecosystem, biomass, stock performance and optimal benefits			
	1.7. Clear output controls and/or effective input controls based on sound science, result in improved fishery performance. Recreational fishery controls such as maximum/minimum size, bag limits, and seasonal and spatial closures, can demonstrate a high level of compliance			
	1.8. Management instruments under regular review to achieve continual performance improvement			
	1.9. Effective monitoring, data recording, and annual reporting against standard national benchmarks, regarding fishery use and performance. Reporting is to Users, local communities and other stakeholders and includes qualitative and quantitative metrics such as commercial stocks, game fishing tournaments, environmental improvement strategies, and indigenous cultural fishing education activities			
	1.10. Effective measures to monitor, limit and control illegal fishing activities and related impacts			
<b>Values</b>	1.11. Fishery co-management approach and joint-decision-making principles are adopted by fishers, other Users and fishery managers in their pursuit of shared goals and outcomes for commercial, recreational and Indigenous customary uses			
	1.12. Trust and collaboration among fishers, other Users and stakeholders, based on well supported and active organisations and skilled leaders			
	1.13. Fishery management approaches and needs that apply to recreational and Indigenous customary fishers are understood by all sectors and stakeholders			
<b>2. Environmental</b>				
<b>Arrangements</b>	2.1. Precautionary principles observed and, at a minimum, always based on documented risk management assessments and best available science. Related indicators clearly target sustainable use and management for the fishery activity			
	2.2. Third party accreditation of User activities (e.g. commercial or Indigenous customary harvest, recreational tournaments) that informs consumers and stakeholders, and promotes improved performance			
	2.3. Human and use impacts (e.g. pollution, waste) on the fishery habitat are identified and mitigated			
<b>Controls</b>	2.4. Promotion and use of fishing systems, practices and gear that minimise the impact on the environment (e.g. catch and release practices, postharvest processing systems)			
	2.5. Quota/target species discards and by-catch to be low, minimised and recorded			
	2.6. Impact of fishing is minimised on threatened, protected or endangered species			
<b>Values</b>	2.7. Ecosystem or multi species approach to fishery management			

	2.8. Users, managers, communities and other stakeholders are aware of and use best environmental practices			
<b>3. Economic</b>				
<b>Arrangements</b>	3.1. Appropriate measures (e.g. Economic Rent, Consumer Surplus, Return on Investment) and processes confirm the effective and sustainable operation of fishery activities, and the transfer of appropriate returns and benefits to the community net of any subsidies			
	3.2. When a change is made to the management of fishery activities, its cost effectiveness and economic impact on Users and the community are evaluated in both quantitative and qualitative terms			
<b>Controls</b>	3.3. Fishery access, capacity and effort are managed and adjusted using transparent economic and market mechanisms to promote efficient and viable fishing operations			
	3.4. Fishing input costs lie within acceptable ranges for the economic viability of commercial fishers, charter operators and other commercial service providers			
<b>Values</b>	3.5. The fishing sector understands and proactively seeks and responds to market and investment opportunities to enhance performance (e.g. better handling or seafood product development, recreational charter improvements, service inputs to Indigenous customary fishing)			
	3.6. Fishery leaders and operators understand and have taken ownership of their value chains (for products and services) and are committed to being internationally competitive with their product and service offers			
<b>4. Social &amp; Engagement</b>				
<b>Values</b>	4.1. The sector has a social licence to operate.			
	4.2. Communication and education is available to all Users and the community on best practice use and behaviour, User business viability, supply chain enhancement options, and available markets (e.g. seafood, recreational, tourist fishing charters, and indigenous fishing guide services).			
	4.3. Community access to fishing activities is available if desired.			

## Part B. Aquaculture Framework

AQUACULTURE PERFORMANCE & USE MEASURES		Farm System		
		Semi-Open	Semi-closed	Closed
Performance is managed and measured across the Aquaculture production and supply chain. Ratings (High/Medium/Low) indicate relevance to P&U Evaluation for this User. Assessment is made against common criteria in four aquaculture systems:				
1.	Semi-open Systems: Systems where there is control of host movement but no control of water flow e.g. net or pen culture.			
2.	Semi-closed Systems: Systems where there is control of host movement and some control of water flow e.g. pond culture, race culture.			
3.	Closed Systems: Systems where there is good control of both host movement and water flow e.g. recirculation aquaculture, aquaria.			
<b>1. Management</b>				
<b>Arrangements</b>	1.1. National Strategic plan for aquaculture development, and a relatively simple and transparent government legislation framework covering aquaculture activities in all Australian jurisdictions			
	1.2. Flexible management framework that can adapt and respond to change e.g. environmental, economic, and social needs			
	1.3. Mandatory aquaculture licences defining rights and obligations of licence holder			
<b>Controls</b>	1.4. Management instruments under regular review to maintain relevance to changed needs and conditions			
	1.5. Effective monitoring, data recording, and annual reporting to regulators of aquaculture inputs and outputs affecting use of the public resource			
	1.6. Effective measures to monitor, limit and control non-conforming aquaculture activities and related impacts			

<b>Values</b>	1.7. Trust and collaboration among farmers, regulators, and stakeholders, based on truthful reporting of relevant environmental and social parameters			
<b>2. Environmental</b>				
<b>Arrangements</b>	2.1. Regulations and best practice guidelines observed at a minimum. Continuous improvement, targeting sustainable practices, based on best available science. Intent of the Precautionary Principle, including consideration of level of risk and cost effectiveness of mitigation measures, observed whenever applicable.			
	2.2. Third party accreditation of aquaculture activities that informs consumers and stakeholders is widely adopted by industry			
	2.3. Human and use impacts (e.g. pollution, waste) on the aquaculture stock and site are identified and mitigated			
<b>Controls</b>	2.4. Effective compliance with regulations, and promotion and use of aquaculture systems, practices and gear that minimise the impact on the environment			
	2.5. Impact of aquaculture is minimised on threatened, protected or endangered species			
<b>Values</b>	2.6. Natural Capital, i.e. the economic value of the natural environment and ecosystem services which aquaculture depends on, is recognised and valued.			
	2.7. Users, managers, communities and other stakeholders are aware of and use best environmental practices in the aquaculture sector			
<b>3. Economic</b>				
<b>Arrangements</b>	3.1. Appropriate measures (e.g. Return on Investment) and processes confirm the effective and sustainable operation of aquaculture activities, and the transfer of appropriate returns and benefits to the community net of any subsidies			
	3.2. Economic impact of uncertain regulatory framework on business confidence is understood and mitigated against.			
	3.3. When a change is made to the management of aquaculture activities, its cost effectiveness and economic impact on Users and the community are evaluated in both quantitative and qualitative terms			
<b>Controls</b>	3.4. Users comply with the national Corporations Act and subsidiary corporate law framework.			
<b>Values</b>	3.5. The aquaculture sector understands and proactively seeks and responds to market and investment opportunities to enhance performance (e.g. better handling or seafood product development)			
	3.6. Education and training programs are available to stakeholders about aquaculture activity, best practice use and behaviour, User business viability, supply chain enhancement options, and available markets			
	3.7. Global information on research, best practice/adoption of RD&E/innovation uptake etc. is widely accessed			
	3.8. Industry plans for resilience in dealing with known and unknown risks			
<b>4. Social and Engagement</b>				
<b>Arrangements</b>	4.1. Periodic objective surveys confirm that local community members and visitors believe there is adequate and equitable access to aquaculture opportunities for members of the broad community.			
<b>Values</b>	4.2. The aquaculture fishery has a social licence to operate.			
	4.3. Communication and education is available to all Users and the community on best practice use and behaviour, User business viability, supply chain enhancement options, and available markets (e.g. seafood, recreational, tourist fishing charters, and indigenous fishing guide services).			
	4.4. Social responsibility in relation to employees and the public are governed by OH&S (Occupational Health and Safety) and labour laws.			
	4.5. Where aquaculture is a major contributor to the local economy, corporate responsibility strategies cover local employment including young people; local reinvestment; and local best practice (e.g. employment diversity, new technology, process improvement)			



### Part C. Common Assessment Criteria

This figure summarises the degree of commonality / overlap between the Wild catch Assessment Framework and the Aquaculture Assessment Framework.

Assessment Criteria	Wild-catch Framework	Common Performance & Use Assessment Issues	Aquaculture Framework
1. Management	<ul style="list-style-type: none"> <li>All about regulating access to a community resource - water and biomass</li> <li>Co-management</li> </ul>	<ul style="list-style-type: none"> <li>Every operator needs a licence</li> <li>Every operator has rights and responsibilities</li> <li>Indigenous customary rights are recognised by all Users</li> <li>Industry needs to engage with government / regulators</li> </ul>	<ul style="list-style-type: none"> <li>Fishery Regulators have a limited role beyond EPBC matters, biosecurity and human health</li> <li>Food industry/safety regulators</li> </ul>
2. Environment	<ul style="list-style-type: none"> <li>Habitat</li> <li>Gear damage</li> <li>Marine environment for seafood, recreation and source of Indigenous customary practice</li> <li>Bycatch</li> </ul>	<ul style="list-style-type: none"> <li>Regulators has key role in EPBC matters, biosecurity/ threatened and endangered species /sea lions/birds etc.</li> <li>Human health</li> </ul>	<ul style="list-style-type: none"> <li>EPBC issues especially water/effluent/NPK discharges</li> <li>Wildlife interactions</li> <li>Animal welfare</li> <li>Biosecurity/translocation</li> </ul>
3. Economic	<ul style="list-style-type: none"> <li>Access to the wild resource</li> <li>Number of competing licences</li> <li>Economic rents from a very wide range of capture fisheries</li> <li>Subsidised / non-viable / underutilised / IUU fisheries</li> </ul>	<ul style="list-style-type: none"> <li>Risk management practices</li> <li>Harvest efficiency</li> <li>Supply chain efficiency</li> <li>Sector aspirations and planning capacity</li> </ul>	<ul style="list-style-type: none"> <li>Access to sites</li> <li>Access to capital</li> <li>De-risked aquaculture waters /zones</li> <li>Return on investment</li> </ul>
4. Social		<ul style="list-style-type: none"> <li>Engagement with internal and external stakeholders</li> <li>Community Acceptance - Social licence to operate (SLtO)</li> </ul>	