



FRDC

FISHERIES RESEARCH &
DEVELOPMENT CORPORATION

**Measuring the economic value
of recreational fishing at a
national level
FRDC 2012-214**

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Measuring the economic value of recreational fishing at a national level
2014/214

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Acknowledgments

The Principal Investigator acknowledges the significant contributions to this project by the members of the Recreational Fishing Valuation Committee.

Abbreviations

ABARES	Australian Bureau of Agricultural & Resource Economics & Sciences
DoA	Commonwealth Department of Agriculture
FRDC	Fisheries Research and Development Corporation
NRIFS	National Recreational and Indigenous Fishing Survey

Executive Summary

This project aims to establish a national economic valuation approach for the Recreational Fishing sector.

Recreational fisheries have no reliable and acceptable methodology or mechanism to measure their sector's economic value to Australians. The sector would also benefit from an improved understanding of end-user requirements for its economic data, and the most appropriate means of obtaining that data.

The project developed and published an Issues Paper (Feb 2013) to inform stakeholders and the forty-five sector leaders who attended a national workshop (Mar 2013) regarding economic valuation issues, benefits and options. A small representative Economic Valuation Committee was established by that workshop to manage the project forward, consider detailed and cost-effective valuation options, and make final recommendations regarding the preferred economic valuation approach for the sector.

The beneficiaries of a national economic valuation approach for the sector include all Australian recreational fishers, other users of aquatic resources, recreational fishing industry bodies, the FRDC and agencies, R&D managers, investors, policy managers, NGOs and the general public.

Catch based (i.e. GVP based) valuation approaches are not appropriate, in-principle, to estimate the economic value of the recreational fishing sector. Such catch based approaches do not appropriately capture all the community benefit elements of the recreational fishing sector.

This project finds that expenditure based valuation approaches are far more appropriate to value the economic contribution of the recreational fishing sector. Using this approach the project estimates the sector's annual economic value to be \$2.56 billion in 2013. This valuation approach is based on fishers' estimated direct attributable annual expenditure as a proxy, and recognises the sector's recreational service values beyond catch. This valuation preference was confirmed by fisheries economics experts and ABARES at a Forum held on 13th February 2015, in Canberra (see Appendix 3, Key Outcomes 3 & 4).

The expenditure based valuation approach was endorsed by the Federal Government in the 2005 Campbell Report. This is the approach recommended by this project for valuing the national recreational fishing sector. It is recommended that all fishers, policy makers and other stakeholders immediately adopt this standard valuation method across the national recreational fishing sector.

It is also recommended that an expenditure based valuation approach be adopted as the basis for the proposed second national recreational fishery survey. The methods proposed through this project have been developed from a broad consultative process including agencies/ABARES representatives, economic experts, and the recreational fishing sector. Given that project outputs arose through this consultative process and have been endorsed by the Economic Valuation Committee, it is recommended they now be actioned.

A standard national approach to economic valuation of the Australian Recreational Fishing Sector will promote awareness of the economic significance of the sector, to investors, planners and stakeholders. The expenditure based approach recognises the economic value of recreational fishing services, thereby enabling additional benchmarking and comparison with industries such as golf, and horse racing and Commercial fishing.

Keywords

Economic valuation, recreational fishing, valuation, angling, GVP

Introduction

Recreational fisheries have no reliable and acceptable methodology or mechanisms to measure their economic value (direct and indirect) to Australians. More broadly, the sector would benefit from a clear understanding of end-user requirements for its economic data, and the most appropriate means of obtaining the required data.

The impacts of this problem are direct, substantial, local and national. Measurement enables monitoring of performance, which enables management of Australia's fisheries resources to consistently achieve best outcomes. Lack of measurement means the sector cannot:

1. Quantify the operational or economic size of the national fishery on a reliable and repeatable basis, and therefore cannot measure or manage economic performance changes over time;
2. Demonstrate with acceptable accuracy the economic contribution to regional and national economies, at any time;
3. Justify and motivate investment by communities, investors and agencies in recreational fishing; and,
4. Clearly and unambiguously demonstrate that it is a relevant sector or contributor to regional and national economies.

The Recreational Fishing Sector's own National Recreational Fishing Industry Development strategy documents (2011) identify at least 2 goals that demand some type of economic measure to demonstrate that they have been achieved.

- Recreational fishing is acknowledged as an important activity that contributes to the health and well-being of Australian society.
- Recreational fishers have access to a fair and reasonable share of Australia's fish resources.

Objectives

The project established four objectives, all of which have now been achieved:

1. Identify end-users of Recreational Fishing data, their economic data needs, and appropriate data collection methods
2. Identify and short-list appropriate economic indicators and the preferred "GVP Equivalent" cross-jurisdictional approach
3. Estimate and document the initial "GVP Equivalent" for the Recreational Fishing Sector by key jurisdiction and for the nation
4. Establish an Action Plan (resources, responsibilities, timing, etc.) for measuring the economic contribution of the Recreational Fishing Sector on a repeatable annual basis.

Method

The project implemented a methodology that engaged national stakeholders to identify end-users, their data needs, collection methods and indicators, and an initial "GVP Equivalent" and Action Plan.

1. Methodology

Recreational Fishing is a community-of-interest encompassing values beyond seafood supply. Participants seek value from their activities, including food, recreation, outdoor lifestyle, and sometimes, economic gain.

The five-step methodology was as follows:

1. Undertake brief desktop research to identify and collate contacts, existing reports, and approaches to recreational fishery data,
2. Hold a national cross-jurisdictional workshop of stakeholders who create/use/report economic data for the recreational fishing sector,
3. Analyse desktop data and workshop outputs, and then document user needs and priorities, collection options, preferred economic indicators, and an initial "GVP Equivalent" as a working example,
4. Draft an Action Plan for stakeholder review and feedback.
5. Finalise the Action Plan.

2. Indicators of Economic value

The methodology considered and short-listed a basket of indicators and a preferred pathway to guide the economic value of the sector from year to year. The range of indicators identified included:

1. Catch and effort of recreational fishers in key fisheries (this project made a direct contribution to another project undertaken in parallel by the CSIRO);
2. Catch retained and released by recreational fishers;
3. Bait, fuel, equipment, insurance, safety, boat and equipment hire, boat storage and mooring costs, maintenance costs, clothing for fishing, club fees, license fees;
4. Participation levels in all components of the recreational fishing supply chain;

5. Commercial investment in recreational fishing v's private investment in recreational fishing;
6. Recreational fishing media growth, sponsorship and consumer uptake;
7. Investment levels in all components of the chain; and,
8. Income demographics of recreational fishers.

The relative weighting of each indicator in the final "basket" will be a key driver for economic value for each respective fishery or jurisdiction. It will take some years to refine and improve these indicators as industry's datasets and measurement skill improves.

Results

The project developed data and completed analyses in four areas over the period December 2012 to November 2014:

1. End-users of economic data, their needs, and best collection methods;
2. Short-listed economic indicators, and preferred “GVP Equivalent” approach;
3. Steering Group established to work with the consultant; and,
4. Estimate and document the initial “GVP Equivalent”

1. End Users and their Needs

Figure 1 summarises the data collated and analysed regarding the end-users of economic data in the Recreational Fishing Sector. Appendix 1 presents this user data in a complete form.

Figure 1. End Users of Recreational Fishery Economic Data

Potential Data Types and Sources	Priority	Main End Users of Data
Recreational Fishing Industry		
1. Fishers – Private, Party, etc.	High	Recfish Aust. & affiliates, and all industry bodies
2. National Recreational Fishing Organisations	High	
3. State and Territory Recreational Fishing Organisations	High	
Recreational Fishing Service Providers / Data End-Users		
4. Accommodation: hotels, motels, apartments, caravan parks, camps	High	Accommodation, caravan parks, real estate and camping
5. Fishing Houses: estate agents, financiers, security, maintenance servicers	High	
6. Camping Gear: manufacturers, suppliers, traders, importers	Med	Recreational and allied industries
7. Bait & Berley: manufacturers, suppliers, traders, importers	High	
8. Boats & Trailers: manufacturers, servicers, marinas, hirers, distributors	High	
9. Clothing & Apparel: suppliers, traders, importers, design/manufacturers	High	
10. Dive Gear: suppliers, service, traders, hire, importers, design/manufacturers	High	
11. Fees & Licenses: clubs, ass's, government agencies, infrastructure owners	High	
12. Fishing Gear: suppliers, service, traders, hire, importers, manufacturers	High	
13. Fishing Services: tours & guides, tourism Ass'ns, media outlets, publishers	High	
14. Fuel, Gas & Power: suppliers, distributors	Med	
15. Ice: manufacturers, suppliers, distributors	Low	
16. Specialist Items: suppliers, distributors, service providers	Med	As per functional agencies and areas of Government
17. Travel: airlines, car hirers, bus lines, car/RV dealers; vehicle lease companies	Med	
18. Food & Liquor: grocery store, supermarket, food service, etc.	Med	
Governments and NGOs		
19. Federal Government Agencies	High	FRDC; AFMA; DAFF/ABARES/BRS, SEWPAC
20. Fishing Industry, Environment, Research	High	
21. Whether & Meteorology	Low	As per functional agencies and areas of Government
22. State & Territory Government Agencies	High	
23. Fishery Managers & Developers, Environment, Research	High	
24. Parks, Reserves, Public Infrastructure – fees, licenses	High	
25. Biosecurity, Customs and Police	Med	
26. Transport, Infrastructure & Freight	Med	
27. Tourism	High	
28. Foreign: Agencies, Institutions (e.g. OECD, FAO), and NGOs (e.g. WWF)	Low	
Researchers and Institutions		
29. Private Researchers and Institutions	High	As per functional agencies and areas of Government
30. Universities, Colleges, TAFEs and RTOs	High	
31. Local regional and national individuals and organisations	Med	

2. Economic Indicators and Approaches

Figure 2 summarises the shortlisted economic valuation indicators and approaches used for Recreational fisheries in advanced economies and in Australia.

Figure 2. Economic Valuation Indicators and Approaches

Technique	Estimated Value	Advantages / Disadvantages
1. Single Site Travel Cost Method (TCM)	Estimate an average non-market use value per trip per fisher or group Uses information on travel costs to assess the recreational value of a specific site.	<i>Advantages:</i> <ul style="list-style-type: none"> • Uses actual raw data for direct, indirect and investment spend, • Uses actual behaviour - low bias potential, • Can reduce survey recall/fatigue problems • Relatively low costs to design and implement <i>Disadvantages:</i> <ul style="list-style-type: none"> • Requires large sample size, • Prone to biases due to multi-purpose/multi-destination trips • Does not include non-use values, • Site specific and relates only to the type of fishing activity at that site
2. Multisite Travel Cost Method + Random Utility Modelling	Aggregate average value derived by recreational fishers from multiple recreational fishing sites/ boat ramps	As for Travel Cost Method, plus disadvantages of: <ul style="list-style-type: none"> • Additional complexity, time and cost, • Interpretation limited to the sites surveyed, • Survey techniques focus on average rather than marginal values.
3. Hedonic Pricing Method	Estimate value of site attribute, via willingness to pay.	Unreliable results may arise if sufficient range of data and site attributes are not used.
4. Contingent Valuation Method		<i>Advantages:</i> <ul style="list-style-type: none"> • Can value both use and non-use values, • No spend data needed, • Can assess potential policy change, <i>Disadvantages:</i> <ul style="list-style-type: none"> • Can value only a single policy alternative or management change, • Induces potential bias, such as "yea saying", strategic bias, and scope issues, • Costly, time consuming,
5. Choice Modelling Method		Values the shift from the status quo to the alternative management scenario. Similar benefits to CV but: with added flexibility across multiple options and attributes, and also, with added design complexity and cost.
6. Expenditure Method or Input-output Method		<ul style="list-style-type: none"> • Main benefit is reduced cost and simple design • Output modelling requires appropriate access to and use of multipliers.
7. Benefit Transfer Method		Can provide cost savings but studies must be aligned to avoid errors.

At a National Workshop (Melbourne, 13 Mar 2013), stakeholders representing all jurisdictions:

- Agreed the sector needs to develop its valuation approach, to recognise its value to participants and end-users for all its activities, together with a sustainable funding model.
- Agreed to jointly work towards national uniform valuation methods and sampling frame. Local flexibility will enable an appropriate transition phase.
- Noted that the Economic Valuation attributable expenditure method was used by Campbell and endorsed by the Australian Government (2000-01 NRIFS - Economic Report 2005, Campbell Report).

3. Steering Group Established

The National Recreational Fishing Workshop attendees (Melbourne, 13 Mar 2013) elected a small Committee to progress the preferred economic valuation method as follows: Ewan Colquhoun (Chair), Prof. Alistair McIlgorm (University of Wollongong), Allan Hansard (CEO of ARFF), Judy Lynne (Board Member of ARFF), Robert Curtotti (ABARES), and Matt Barwick (FRDC Subprogram Manager).

4. Estimate of Initial “GVP Equivalent” for the Sector

This project seeks to identify a standard repeatable economic valuation approach for the recreational fishing sector, which is appropriate for a range of users (R&D managers, investors, policy managers, etc.) and uses.

One fundamental use for the data arising from such a valuation approach is to compare and track economic trends between sectors (e.g. commercial V recreational fishing), between recreational activities (e.g. recreational fishing V golf), and between industries (e.g. fishing V dairy). The fishing industry is a unique case, as it has a very large component (compared to other primary industries) of economic value derived from recreational and customary fishing “service” values, as well as seafood “product” value. A preferred standard valuation approach to be used for recreational fishing must therefore seek to be comparable across sectors and activities including other recreational activities, but also to include the economic impacts of non-product service elements.

Figure 3 presents the estimated economic value (2013 to 2022) of the recreational fishing sector using two approaches identified by this project. An Economic Contribution valuation approach based on aggregated annual attributable expenditure by fishers (Approach B) was recognised by ABARES as an appropriate approach to valuing the recreational fishing sector.

Figure 3. Estimated Recreational Fishing Sector Valuation

Valuation Approach		Year end June		2013	2014	2015	2016	2017	2022
A. Recreational Catch + Release		Inflation rate	3.00%						Nominal \$
Annual RF Catch Tonnage Retained	NRIFS Report 2003, p86		Tonnes	30,000	30,000	30,000	30,000	30,000	30,000
Avg. Catch Tonnage Released	Est. Catch release rate	38%	Tonnes	18,387	18,387	18,387	18,387	18,387	18,387
Total RF Catch and Release Volume			Tonnes	48,387	48,387	48,387	48,387	48,387	48,387
Proxy Avg GVP Prices	per SFM Annual Report 2012, p24-5		\$/kg	\$ 6.88	\$ 7.09	\$ 7.30	\$ 7.52	\$ 7.74	\$ 8.98
Estimated GVP Total			Millions	\$ 332.9	\$ 342.9	\$ 353.2	\$ 363.8	\$ 374.7	\$ 434.4
B. Economic Contribution of Recreational Fishing Sector									
Attributable Expenditure per prior accepted methodology									
Accommodation, camping, travel	NRIFS Econ. Report 2003, p38	\$ 0.62	Billions	\$ 0.85	\$ 0.88	\$ 0.90	\$ 0.93	\$ 0.96	\$ 1.11
Boating, trailer, tackle and diving	NRIFS Econ. Report 2003, p38	\$ 1.12	Billions	\$ 1.55	\$ 1.59	\$ 1.64	\$ 1.69	\$ 1.74	\$ 2.02
Other attributable expenditure	NRIFS Econ. Report 2003, p38	\$ 0.12	Billions	\$ 0.16	\$ 0.17	\$ 0.17	\$ 0.18	\$ 0.18	\$ 0.21
		\$ 1.86							
Aust. Tax Office CPI Index: (http://www.ato.gov.au/Rates/Consumer-price-index/?default=)									
CPI: June 2003 = 74.5; June 2013 = 102.8		Multiplier from 2003 to 2013	1.38						
Attributable Expenditure for RF Sector			Billions	\$ 2.56	\$ 2.64	\$ 2.72	\$ 2.80	\$ 2.88	\$ 3.34

The Economic Contribution valuation approach based on attributable expenditure, estimates the recreational fishing sector’s economic value to be in the order of \$2.56 billion in 2013. This estimate is based on fishers’ estimated directly attributable annual expenditure on fishing activity, as a proxy value. This approach recognises the considerable non-food economic values created by the sector. This approach also follows that endorsed by government and used by Campbell in 2005 and was recommended to be appropriate for valuation purposes for the sector (see Appendix 3, Key Outcome 4). This economic contribution approach could also enable high-level valuation comparison with the commercial fishing and aquaculture sectors, if and when these sectors also develop an economic valuation approach.

The use of an economic valuation measure for the recreational fishing sector also needs to be seen in the context of RD&E investment by the FRDC and other stakeholders. The Commonwealth PIRD Act currently provides a legislative foundation for quantifying such an investment based only on GVP or farm gate values. In some “farm gate” valuation industries (e.g. horticulture, grain) services such as pollination are indirectly supported by the legislative powers of this act for RD&E purposes. Recreational fishing has a similar need for indirect legislative foundations for RD&E investment.

A further area for consideration relates to the potential for comparability of economic valuations for the sector. The attributable expenditure approach to economic valuation (as used in Approach B in Figure 3 above) is broadly comparable to the farm gate value approach derived from GVP measures. Both

approaches aggregate the cumulative actual expenditures to achieve a fisher's desired output: the farm gate value approach aggregates access and harvest costs and landed sales margins, and the expenditure value approach aggregates fisher costs for fish caught (retained as food or released) and related recreational experiences. Both approaches also recognise the element of surplus to the fisher, either as a producer surplus or profit on sale of a commercial harvest, or as a consumer surplus available to the community from viable recreational fishing activities. A further important point is that the economic valuation approach enables the recreational sector to compare and track its value over time to enable better management of RD&E investment by FRDC and other stakeholders.

The Economic Contribution valuation approach based on attributable fisher expenditure will be appropriate and preferred as a headline valuation approach for the recreational fishing sector in most other cases as this will reflect both retained catch values and recreational service values of recreational fishing activities. In 2005 Government endorsed this preference for the expenditure approach in the recreational fishing sector in the Campbell Report. For these reasons this approach is recommended by this project as the preferred valuation approach for the recreational fishing sector.

It is recommended that the recreational fishing sector refine, develop and support adoption of the attributable expenditure valuation approach as the standard for the recreational fishing sector across all jurisdictions and users. In designing the methodology, reference should be made to valuation approaches used by other national recreational sectors (e.g. golf, horse racing, busk walking).

Discussion & Conclusions

1. Outputs

The project has created a number of report outputs (released to stakeholders) which addressed the methodology and objectives.

February 2013 Issues Paper –: Baseline data collation, identification of Recreational Fishery valuation data users, short-listing of economic valuation indicators and approaches, and documentation via an Issues Paper released to stakeholders,

July 2013 Workshop Report - for a national economic valuation workshop of leading Recreational Fishing Sector stakeholders, held in Melbourne in March 2013,

March 2014 Recommendations for a preferred economic valuation approach and methodology, submitted to ARFF Meeting in Canberra. ARFF deferred its consideration of the recommendations, but requested that a short briefing paper be prepared and presented to the Recreational Fishing Valuation Committee by ABARES, to address three Terms of Reference items

- Describe the preferred economic valuation approach identified through the process undertaken to leverage appropriate R&D investment.
- Matters/pitfalls that the Steering Group should be aware of in considering a preferred valuation approach for the recreational fishing sector,
- Any recommendations from the agency to the Steering Group regarding the economic valuation approach and relevant actions to progress this matter from a Departmental perspective.

Mr. Curtotti presented detailed responses to this Terms of Reference to the Committee Meeting on 20 November 2014.

2. Response to Objectives

The project objectives have been met as follows;

Objective 1

Identify end-users of Recreational Fishing data, their economic data needs, and appropriate data collection methods

Figure 1 and Appendix 1 present the identified end users of economic data for the sector, and their relative priority for economic data.

Objective 2

Identify and short-list appropriate economic indicators and the preferred "GVP Equivalent" cross-jurisdictional approach

Figure 2 and Appendix 2 identify the shortlisted valuation approaches used by recreational fisheries in Australia and other advanced economies. The Campbell Report (2000-01 NRIFS - Economic Report 2005), used an economic valuation approach that was subsequently endorsed by the Australian Government.

Objective 3

Estimate and document the initial "GVP Equivalent" for the Recreational Fishing Sector by key jurisdiction and for the nation

Figure 3 presents the two valuation approaches shortlisted by this project – being an estimated “GVP Equivalent” valuation for the sector, as well as an economic valuation based on the Campbell Report methodology. The economic valuation approach is recommended by this report.

Objective 4

Establish an Action Plan (resources, responsibilities, timing, etc.) for measuring the economic contribution of the Recreational Fishing Sector on a repeatable annual basis.

At their final meeting (20 Nov. 2014) the Committee Members considered the Action Plan to implement their findings, and related recommendations to complete the project. They were informed by advice from the Federal Department of Agriculture, and by a presentation from ABARES:

A. Update on the National RF Survey Process

James Lee (observer at the 20 Nov 2014 meeting) advised that the Commonwealth Department of Agriculture (DoA) was working with the sector to establish a national survey framework to update the national recreational fishery dataset established by the NRIFS in 2001. Working with the sector, the state and NT agencies, and the FRDC subprogram, the DoA expects to have agreed the survey objectives, and survey design by June 2015. This survey would only cover recreational fisheries, and not customary/indigenous fisheries.

B. Presentation by Rob Curtotti, ABARES

Preferred Valuation Approach Identified

Discussion during and after the presentation considered the choice of a preferred valuation approach, noting the need to consider a number of factors, including:

- The full range of economic activities/services/jobs that recreational fishers undertake and contribute to the economy,
- The cost-effectiveness of the proposed national survey, and its periodic repeatability to deliver credible trend data,
- The direct comparability with commercial fishery valuation methods,
- The previous valuation approaches used by Australian Government (2000-01 NRIFS - Economic Report 2005, Campbell Report), and
- The level and type of valuations apparent in the various jurisdictions.

The straight GVP valuation approach based on a deemed/proxy value of harvested plus released fish was considered too selective, and too limited in scope, and therefore not an appropriate approach for recreational fisheries.

The valuation approach preferred by the committee is the Economic Contribution approach based on attributable sector expenditure. This reflects the approach endorsed by federal government in the 2005 Campbell Report which valued the sector at \$1.86 Bn in 2003 (now \$2.56 Bn).

Potential Pitfalls

Discussion identified 3 issues/pitfalls that the committee needs to be aware of in recommending an economic valuation method for the sector:

- It was considered important that the assumptions and approach chosen be national, repeatable, and durable over time. It is highly desirable that all states /territories /jurisdictions use a common Recreational Fishery economic valuation survey approach and framework at the top level. This will enhance the integrity, comparability, and use of long-term datasets and trends, and minimise long term survey and data management costs. All jurisdictions and fishers will benefit from a common national approach.
- The survey design for lower level fine detail data needs to be flexible to reflect state /regional /local needs and current trends in recreational activity and fisher participation. The Campbell Report's economic valuation approach is sound, but needs to be enhanced to enable clearer

demographic and fishery participation assumptions, and other fine detail where appropriate. This will be an ongoing task to improve the approach overtime.

- There are limits to the use of the preferred approach as discussed in the Results (section 4), above in this document. The preferred economic contribution approach will provide an indicative headline valuation for the sector and agencies/FRDC, but this will not be an appropriate valuation approach for all recreational sector purposes. For example, the recommended economic contribution approach will not be appropriate to inform resource sharing negotiations/discussions between fishery users. The sector, together with DoA and FRDC, needs to adequately inform stakeholders and the public where necessary of the uses, benefits and limitations of the preferred economic valuation approach.

Advice from Agency regarding Actions

The committee considered a range of options that could ensure its recommendations would contribute to sector outcomes.

It was agreed that:

- The recommendations be documented from the meeting by the Chair and made available as soon as possible to the FRDC, and to the DoA Survey Steering Committee. Industry representatives on the Committee are to inform industry stakeholders promptly with more formal advice to come from the Valuation Committee to Industry Working Groups in early 2015.
- Committee members who are also participants in the DoA's national survey design process would directly inform that process (and upcoming related workshops) of the recommended economic valuation approach described herein.

The Principal Investigator/Committee Chair has documented the recommendations and passed them to the Committee at a workshop on 13th February 2015.

Implications

The staged methodology described above has created outcomes that address each of the project objectives. The final project objective is as follows:

- Establish an Action Plan (resources, responsibilities, timing, etc.) for measuring the economic contribution of the Recreational Fishing Sector on a repeatable annual basis.

This objective requires an Action Plan be developed to implement the recommendations from the project's Recreational Fishing Valuation Committee. As the work of the project (and the Economic Valuation Committee) has now been overtaken by DoA Survey Steering Committee, this Action Plan is in the hands of the DoA Steering Committee. The FRDC's Recreational Subprogram coordinator is a member of that committee.

The joint Industry-DoA initiative (Nov 2014) to establish a national survey framework to update the national recreational fishery dataset is fully supported by the Committee, and is the core task that the Committee would place at the centre of an Action Plan that it would otherwise develop.

Importantly this initiative brings together the sector, the state and NT agencies, and the FRDC subprogram, to agree survey objectives, survey design, and implement a likely survey rollout plan by June 2015.

The Committee believes the best course of action it can now take is to hand responsibility for the national Recreational Fishing Valuation activities to the joint Industry-DoA team.

Recommendations

The FRDC Recreational fishing Valuation Committee (and the Principal Investigator) recommend four actions be taken to support, further develop, and disseminate the findings of this project.

1. ARFF, FRDC and the DoA Steering Committee adopt the Economic Valuation method based on fishery expenditures as the preferred national valuation approach,
2. The summary of issues, benefits and pitfalls described above, be contributed as an input to the design process of the national recreational fishery survey, currently underway within DoA,
3. The work of this FRDC project now be handed over from the Steering Group/ Recreational Fishing Valuation Committee to Recfishing Research, and the Committee be disbanded,
4. The FRDC informs the Australian Fisheries Management Forum of this outcome.

The Principal Investigator urges the FRDC and its relevant managers to monitor the progress of the joint Industry – DoA process to ensure the recommended economic valuation approach from this project is fully understood and adopted for the proposed national survey and beyond. To this end it may be appropriate and desirable for the FRDC to engage directly and early with relevant sector associations and state/NT agencies to ensure they are fully informed of the analyses and recommendations of their elected valuation committee, as detailed in this report.

The Principal Investigator remains available to contribute to the ongoing national valuation and survey initiative, if and when required.

Extension and Adoption

The project has created two formal outputs (an Issues Paper in Feb 2013, and a Workshop Report in July 2013) that have been widely released to national industry leaders and stakeholders.

The recommendations from this project have been directly communicated by members of the Recreational Fishing Valuation Committee to the current joint Industry-DoA steering committee.

As noted above it is recommended that the FRDC Recreational fishing Subprogram engage directly with industry bodies and agencies in all jurisdictions to ensure they are aware of the recommendations from this project and can share this with local stakeholders accordingly.

Project materials developed

Three papers have been developed and published by this project:

Issues Paper Measuring the economic value of Recreational Fishing at a national level, Project 2012/214, February 2013, Ridge Partners.

Workshop Report Measuring the economic value of Recreational Fishing at a national level, Project 2012/214, July 2013, Ridge Partners.

Recommendation to ARFF Recreational Fishery Valuation, Presentation to ARFF by FRDC Valuation Committee Chair, 25th March 2014.

Appendices

Appendix 1. Recreational Fishery End Users of Economic Information

Potential end users of Economic information re Recreational Fishing?	Expenditure Elements	Trip Elements	Needs for / Uses of Economic Data	Priority	Identified End Users for GVPE Info
Recreational Fishing Industry					
	Opportunity cost of time	Attributable	Trip & investment planning.	High	Recfish Aust. & affiliates
2. National Recreational Fishing		N/A	Advocacy, planning, access.	High	ARFF; AFTA, ANSA, GFAA, & affiliates
3. State and Territory Recreational	Qld All capital & operating	N/A	Advocacy, planning, access.	High	Sunfish; Qld Amateur Fishing Clubs Ass'n
4.	NS All capital & operating	N/A	Advocacy, planning, access.	High	Rec. Fish. Alliance of NSW
5.	Vic All capital & operating	N/A	Advocacy, planning, access.	High	VRFish Ass'n; ANSA Victoria
6.	Tas All capital & operating	N/A	Advocacy, planning, access.	High	TARFish Ass'n
7.	SA All capital & operating	N/A	Advocacy, planning, access.	High	SARFAC, SAFlyFish Ass'n; SA Fr'water
8.	WA All capital & operating	N/A	Advocacy, planning, access.	High	Australian Anglers Ass'n WA;
9.	NT All capital & operating	N/A	Advocacy, planning, access.	High	Amateur Fish Ass'n of NT
Recreational Fishing Service					
10. Accommodation: hotels, motels,	Charges NOP (not	Attributable	Scheduling, market	High	Accom. Ass'n of Aust.; Caravan Parks
11. Fishing Houses: estate agents,	Capital & operating	Attributable	Market, and sales planning	High	Real Estate Institute of Australia
12. Camping Gear: manufacturers,	Capital cost	Attributable	Market, sales planning &	Med	Australian Camping Ass'n
13.	Hire charges	Attributable	Market segmentation, sales	High	Caravan and Camping Ass'n & affiliates
14.	Maintenance charges	Attributable	Market segmentation, sales	Low	
15.	Registration &	Attributable	Compliance, market and	Low	
16. Bait & Berley: manufacturers,	Total trip costs	Total trip	Market segmentation, sales	High	Seafood Importers Ass'n of Aust. (SIAA)
17. Boats & Trailers: manufacturers,	Boat capital cost	Attributable	Market segmentation, sales	High	Boating Industry Ass'n & affiliates
18.	Boat charter charges	Total trip	Market segmentation, sales	High	Charter Boat Owners and Operators
19.	Boat fuel & oil charges	Total trip	Market segmentation, sales	Low	
20.	Boat hire charges	Total trip	Market segmentation, sales	Med	
21.	Boat maintenance	Total trip	Market segmentation, sales	Low	
22.	Boat	Attributable	Market segmentation, sales	High	Marina Industry Ass'n of Australia
23.	Boat /trailer insurance	Attributable	Market segmentation, sales	Med	
24.	Boat /trailer	Attributable	Compliance, market and	Low	
25.	Boat safety gear	Attributable	Compliance, market and	Low	National Marine Safety Committee
26.	Trailer capital costs	Attributable	Market segmentation, sales	High	
27.	Trailer maintenance	Attributable	Market segmentation, sales	Low	
28. Clothing & Apparel: suppliers,	Capital cost	Attributable	Market segmentation, sales	High	
29. Dive Gear: suppliers, service,	Capital cost	Attributable	Market segmentation, sales	High	Professional Divers Ass'n of Australia
30.	Air tank fill charges	Total trip	Market segmentation, sales	Low	Aust. Underwater Federation
31.	Hire charges	Total trip	Market segmentation, sales	High	Hire and Rental Industry Ass'n Ltd
32.	Maintenance charges	Attributable	Market segmentation, sales	Low	
33. Fees & Licenses: clubs, ass's,	Club, Ass'n & Member	Attributable	Memberships, and service	High	NSW Fishing Clubs Ass'n Inc. & affiliates
34.	Dam /impoundment	Attributable	Market and sales planning	Med	
35.	Fish Stocking charges &	Attributable	Restocking planning and	Med	Freshwater Fishing and Stocking Ass'n
36.	Competition	Total trip	Event and service delivery	High	ANSA, GFAA
37.	Fishing license fees	Attributable	Compliance, and service	Low	
38.	Other access	Attributable	Event and service delivery	Low	
39.	Other gov't license	Attributable	Compliance, and service	Low	
40. Fishing Gear: suppliers, service,	Tackle capital costs	Attributable	Market segmentation, sales	High	Aust. Fishing Tackle Ass'n
41.	Tackle hire charges	Attributable	Market segmentation, sales	High	Aust. Fishing Tackle M'frs Ass'n
42.	Tackle maintenance	Attributable	Market segmentation, sales	Low	
43.	Tackle terminal charges	Attributable	Market segmentation, sales	High	Aust. Fishing Tackle Ass'n
44. Fishing Services: tours & guides,	Tour & Guide	Attributable	Market segmentation, sales	High	Aust. Amuse't Leisure & Recreat. Ass'n
45.	Book & magazine	Attributable	Market segmentation, sales	Med	Profess'l Fish Instructors & Guides Ass'n
46.	Web service fees	Attributable	Market segmentation, sales	Med	
47.	Other service	Attributable	Market segmentation, sales	Low	
48. Fuel, Gas & Power: suppliers,	Charges	Total trip	Market segmentation, sales	Med	
49. Ice: manufacturers, suppliers,	Charges	Total trip	Market segmentation, sales	Low	
50. Specialist Items: suppliers,	Gifts / memorabilia	Attributable	Market segmentation, sales	Med	
51.	Capital cost: binoculars,	Attributable	Market segmentation, sales	High	Optical Distributors & M'frs Ass'n of
52.	Capital cost: computers,	Attributable	Market segmentation, sales	Med	
53.	Taxidermy charges	Attributable	Market segmentation, sales	High	Australian Taxidermists Ass'n
54.	Insurance charges	Attributable	Market segmentation, sales	Med	
55. Travel: airlines, car hirers, bus lines,	Airfares	Attributable	Market segmentation, sales	Med	

56.	Vehicle capital cost	Attributable	Market segmentation, sales	High	Recreational Vehicle M'frs Ass'n of Aust.	
57.	Mobile Home capital	Attributable	Market segmentation, sales	High	Caravan, RV and Accom. Industry of Aust	
58.	Vehicle hire charges	Attributable	Market segmentation, sales	High	Hire and Rental Industry Ass'n Ltd	
59.	Vehicle travel running	Attributable	Market segmentation, sales	Low		
60.	Vehicle maintenance	Attributable	Market segmentation, sales	Low		
61.	Other private travel	Attributable	Market segmentation, sales	Low		
62.	Food & Liquor: grocery store.	Only charges for goods	Scheduling, market	Med		
Governments and NGOs						
63.	Federal Government Agencies	Charges	Attributable	Policy devel't, planning.	High	FRDC; AFMA; DAFF/ABARES/BRS.
64.	Fishing Industry, Environment,			Policy devel't, planning.	High	
65.	Whether & Meteorology	Charges	Attributable	Whether info, planning and	Low	
66.	State & Territory Government	Charges	Attributable	Policy devel't, planning.	High	As per following functional areas
67.	Fishery Managers &	Charges	Attributable	Plan, Compliance, RD&E.	High	
68.	Parks, Reserves, Public	Charges	Attributable	Plan, Compliance, RD&E.	High	
69.	Biosecurity & Customs	Charges	Attributable	Plan, Compliance, RD&E.	Med	
70.	Police	Charges	Attributable	Plan, Compliance, Public	Med	
71.	Transport, Infrastructure &	Charges	Attributable	Plan, Compliance, RD&E.	Med	
72.	Tourism	Charges	Attributable	Plan, Compliance, RD&E.	High	
73.	Foreign: Agencies, Institutions (e.g.	Charges	Attributable	Plan, Compliance.	Low	
Researchers and Institutions						
74.	Private Researchers and	Not applicable	Not applicable	Technology, social science	High	
75.	Universities, Colleges, TAFEs and	Not applicable	Not applicable	Technology, social science	High	
76.	Local regional and national	Not applicable	Not applicable	Broad range of functions.	Med	

Appendix 2. Global Recreation Fishery Valuation Approaches

	Approach to Recreational Data Management	What data is collected
Canada	<ul style="list-style-type: none"> ▶ A consistent national Travel Cost approach ▶ Survey conducted every 5 years since 1975. Target population in provincial and territorial license databases. ▶ In 2010 surveys were mailed to 102,000 households ▶ Sample design based on license databases. Specific adjustments undertaken by individual provinces. ▶ Northwest Territories survey was conducted by DFO headquarters using samples provided by the jurisdiction. 	<p>The 2010 survey collected information on:</p> <ul style="list-style-type: none"> ▶ Angler profile (age, sex, residence, etc.) ▶ Recreational fishing activities, ▶ Various questions focusing on aquatic invasive species, ▶ Trip information for non-resident anglers, ▶ Expenditures - purchases or investments attributable to fishing activities. Each province/territory also asked supplementary questions on recreational fishing activities and programs in their respective jurisdictions.
USA	<ul style="list-style-type: none"> ▶ Some states do not use saltwater angler's licenses. So surveys aggregate state and regional Travel Cost data into a Marine Recreational Information Program (MRIP) ▶ National Marine Fisheries Service has surveyed marine catch, effort and participation since 1998; last in 2011 ▶ MRIP consists of three independent and complementary surveys of catch, effort, participation, and fishing modes 	<ul style="list-style-type: none"> ▶ 2006 survey - Direct + Indirect data and expenditures - zip code, hours fished, area fished, species, party makeup, gear used, license data, days fished in last 2 & 12 months, length & weight of fish, species retained & released, disposition of catch, angler, overnight trip information (days, lodging, purpose), trip expenditures, fishing ability, boat ownership, durable investment spend, ▶ Induced Expenditure Data – state/region/nation income, taxes, value added, input-output analyses, and state level multipliers for angler expenditures
France	<ul style="list-style-type: none"> ▶ Between 2006 and 2008, Ifremer (French Research Institute for Exploration of the Sea) implemented the first national survey of French recreational fisheries. Based on the Travel Cost approach, the survey aimed to assess the number of fishers and effort, landings, the diversity of practices and species, and economic contributions. The method involved a telephone survey of sample (15,085) of national households, followed by detailed on-site interviews of catch, trip expenditure etc. A license is not required for recreational fishing in France. 	
UK	<ul style="list-style-type: none"> ▶ England's Dept of Environment, Food & Rural Affairs (DEFRA) will conduct its most comprehensive survey of recreational fishing during 2012. ▶ European legislation requires EU Members to collect and report data on recreational catches of certain species. The survey will give sea anglers input to the new IFCAs as policies develop for managing sustainable fishing. The valuation techniques used with this data have not been advised. 	
NZ	<ul style="list-style-type: none"> ▶ In 2011/12 summer, NZ's Ministry of Agriculture and Fisheries (MAF), National Institute of Water and Atmospheric (NIWA) Research and Blue Water Marine Research (BOMR) undertook marine boat ramp surveys, aerial surveys and diary surveys with about 7000 fishers on when, where and how they fish, along with their total catch to better understand and manage recreational fisheries. 	
Ireland	<ul style="list-style-type: none"> ▶ IFI has appointed Tourism Development International (an independent company) to undertake a Socio-Economic Survey of Recreational Angling in Ireland. The survey will establish the current volume and value of domestic and overseas recreational angling in Ireland. ▶ The Survey will consult sea anglers and inform IFI and its tourism partners and also enable improved strategic planning and decision making. The survey comprises two parts, a household survey and a survey of recreational anglers which will commence in April 2012. 	

Framework for a National Recreational Fishing Survey

DRAFT Meeting summary record for the Economic Experts Forum

Date and location: 13 February 2015, Department of Agriculture, Canberra

Attendees

Andy Moore (Chair)	ABARES
Lee Georgeson	ABARES
Robert Curtotti	ABARES
Kasia Mazur	ABARES
Scott Hansen	ABARES
John Wilson	Fisheries Research and Development Corporation
Allan Hansard	Australian Recreational Fishing Foundation
Patrick Sachs	Australian Recreational Fishing Foundation (and AFMA)
Mike Raybould	Bond University
Laurie West	Kewagama Research
Ewan Colquhoun	Ridge Partners
Sarah Jennings	University of Tasmania
Sean Pascoe	CSIRO (Teleconferenced in)
Matt Barwick	Recfish Research (Teleconferenced in)

Workshop objectives

1. Review stakeholder views on the economic objectives for national recreational fishing surveys.
2. Identify the scope, methodology and design of the survey framework.

Key outcomes

3. The forum recognised and agreed in-principle that for a national recreational fishing survey, expenditure was a cost effective and feasible measure of the economic contribution of recreational fishing.
 4. ABARES agreed to investigate the application of the travel cost method to recreational fishing data that have already been collected, with the view to testing the feasibility of expanding the analysis options available from expenditure data to encompass economic valuation of the sector.
 5. Considerations of respondent burden will limit the amount of data that can be collected as part of any national recreational fishing survey, particularly one that collects catch, fishing effort, economic, demographic and other social data.
 6. ABARES is considering two main survey options, both of which address the need for data on the economic contribution of recreational fishing. These are:
 - a. temporal alignment with jurisdictional surveys so that catch, fishing effort, social and economic (expenditure) data can be aggregated
- OR
- b. a stand-alone economic and social survey undertaken independently from the jurisdictions
7. Expenditure data will not on its own be useful to resolve resource allocation or access problems.
 8. The economics literature offers a range of methodologies that would be applicable to determining the optimal allocation of marine resources amongst competing users. These methods typically take into account both the use and non use values of access to fisheries. Such methods may use expenditure

data as a basic building block for the analysis. These methods are usually applied in a targeted way to focus on the resource allocation and access question at hand.

Project background

9. The forum noted the Federal Coalition's *Policy for a More Competitive and Sustainable Fisheries Sector*, which included a commitment to undertake a national recreational fishing survey every five years. The current project is the first step in addressing this commitment.
4. The objective of the ABARES project is to develop a framework for national recreational fishing surveys every five years, including:
 - (a) develop a cost-effective framework and methodologies that will support future national recreational fishing surveys
 - (b) address the requirement to collect social, economic and catch/effort data
 - (c) engage with key stakeholders, including jurisdictions, ARFF and Recfishing Research.
5. The forum agreed to work towards the economic objective by providing advice regarding the robust, repeatable and cost-effective collection of economic data as part of the larger framework for five-yearly national recreational surveys.
6. The forum noted that some economic data was collected as part of the 2000–01 *National Recreational and Indigenous Fishing Survey*, with supplementary analysis provided in the 2005 "Campbell Report" (*The 2000–01 National Recreational Fishing Survey: Economic Report*). This data may provide some guidance in determining future data collection regimes and it would be beneficial if data collected by subsequent surveys were comparable to the NRIFS dataset; however emphasis must be on the development of a new framework that meets the needs of governments and stakeholders and is repeatable into the future.

Stakeholder expectations

7. ARFF presented the 'essential' and 'desired' economic data requirements for a national recreational fishing survey (Attachment 1) and also discussed what was being done internationally. Substantial work has been completed in Canada and the United States on this issue.
8. Itemisation of expenditure was raised. Recreational stakeholders would like analysis at a finer resolution of attributable expenditure so as to determine how money is being spent. ARFF cited declining participation rates (as a proportion of population) but increasing expenditure as something they would like examined.
9. The forum recognised the importance of not increasing respondent burden with excessive survey questions. The possibility of reducing the sampling frequency for economic questions/components (rather than monthly as with catch and fishing effort components) was discussed as an option.
10. ARFF would like economic data stratified to differentiate between fishing profiles. This may then be related to target species or avidity profiles.
11. The forum recognised the importance of capturing online purchases, however consideration should be given to whether goods are imported from overseas, or through the domestic retail sector.
12. ARFF would like economic data to be provided in formats that allow for comparison to other recreational sectors (e.g. golf) and the commercial fishing sector. However the forum recognised the difficulty in providing an output that is directly comparable.
13. ARFF reiterated its stance that fishers place value not only on individual fish, but on the process as a recreational pursuit.

Data collection: Needs and methodology

14. There was an emphasis on future-proofing data collection fundamentals. It may be possible to collect fine-scale data now, allowing for retrospective analyses to be completed. There is a need to ensure any survey designed now is repeatable and not redundant at later years.
15. The forum recognised the importance of sound database design and maintenance.
16. The forum discussed the possibility of applying a travel cost method to recreational fishing expenditure data. Kasia Mazur (ABARES) agreed to investigate this further, possibly using the 2000–01 NRIFS data or the 2009 NT recreational fishing database to determine the feasibility of estimating a willingness to pay for recreational fishing at either the national level (NRIFS) or a state level (NT).
17. Laurie West provided the forum with an introduction to his established survey methodology implemented in the Northern Territory. This highlighted concerns regarding:
 - (a) Lack of fine-scale spatial data, although it can provide regionally specific data
 - (b) Potential for missing important specialised fisheries, such as rock lobster, southern bluefin tuna or abalone. This highlighted the potential need for specialised surveys to capture these fisheries
 - (c) Specialised expenditure needs, although this may be rectified with adjustment of methodology
 - (d) Access to appropriate survey frame remains a significant concern.

Attachment 1 – ARFF perspectives of the ‘economic contribution of recreational fishing’

National level statistics

- number of anglers – defined as a person who reported fishing at least once per year
- economic contribution (output, contribution to GDP)
- jobs (FTE by category – wholesale, retail, services, other)
- pattern of expenditure (per year)
- fishing tackle (by major type – rods, reels, lures, fishing accessories)
- boats - number based on purchase for major use fishing
- Accommodation (per year for fishing trips)
- Travel (cost of travel for fishing trips)

State level statistics

- number of anglers – defined as a person who reported fishing at least once per year
- fish caught (kg/tonnes – by key species)
- economic contribution (output, contribution to GDP)
- jobs (FTE by category – wholesale, retail, services, other)
- pattern of expenditure (per year)
- fishing tackle (by major type – rods, reels, lures, fishing accessories)
- boats - number based on purchase for major use fishing
- Accommodation (per year for fishing trips)
- Travel (cost of travel for fishing trips)

Regional level if possible?

Industry profile (tackle, boats, other)

- exports by key ASIC category (value)
- imports by key ASIC category (value)
- production by key ASIC category (value)

Comparative statistics

With other key industries. Commercial fishing, golf, other sports?

Comparisons on:

- contribution to GDP
- economic output
- employment