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# **An Impact Assessment of FRDC Investment in Project 2010-777: Analysis of the core leadership group and network structure of East Coast Trawl**

**Agtrans Research**

**November 2017**

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Project 2016-134**

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The Fisheries Research and Development Corporation plans, invests in and manages fisheries research and development throughout Australia. It is a statutory authority within the portfolio of the federal Minister for Agriculture, Fisheries and Forestry, jointly funded by the Australian Government and the fishing industry.

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In submitting this report, the researcher has agreed to FRDC publishing this material in its edited form.

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Steve Murphy, Trawl Delegate and Operator, Hervey Bay

# Abbreviations

CRRDC	Council of Research and Development Corporations
DAF	Department of Agriculture and Fisheries
ECTF	East Coast Trawl Fishery
FRDC	Fisheries Research and Development Corporation
MBTF	Moreton Bay Trawl Fishery
RD&E	Research, Development and Extension
USC	University of the Sunshine Coast

# Executive Summary

## What the report is about

This report presents the results of an impact assessment of the Fisheries Research and Development Corporation (FRDC) and Seafood CRC investment in a project to understand and strengthen leadership and the network structure of stakeholders in the East Coast Trawl Fishery (ECTF). The evaluation of the network was supported by the testing of the development and implementation of a whole of fishery opportunity in marketing. The project was based at the University of the Sunshine Coast and was funded over the years ending June 2012 to June 2016.

## Methodology

The investment was analysed qualitatively within a logical framework that included activities and outputs, outcomes and impacts. Impacts were categorised into a triple bottom line framework. Principal impacts identified were then valued. Benefits were estimated for a range of time frames up to 30 years from the year of last investment. Past and future cash flows were expressed in 2016/17 dollar terms and were discounted to the year 2016/17 using a discount rate of 5% to estimate the investment criteria.

## Results/key findings

None of the identified impacts were valued. An important potential impact identified was of a capacity building nature. In that regard, some social impacts may have been delivered. More effective networking and communication may have eventuated between various participants in the ECTF supply chains. It is expected that the diverse groups operating in the East Coast Trawl Fishery, as well as the Queensland Government, would be the primary beneficiaries of any changes.

## Investment Criteria

Total funding from all sources for the project was \$0.32 million (present value terms). FRDC investment costs were \$0.23 million in present value terms. However, none of the benefits identified were valued in monetary terms so that the full set of investment criteria were not estimated or reported as part of the impact assessment.

## Conclusions

While the investment in this project did not result in any significant impacts that could be valued, the process was useful in eliciting an improved understanding of the complexities of the relationships as well as the low levels of trust, cooperation and coordination among the constituent industry groups of the ECTF. Also, there may have been some industry capacity building among stakeholders in the form of improved understanding of constraints to networking and the development of unified strategies. Communication between industry stakeholders also may have been marginally improved.

## Keywords

**Impact assessment, East Coast Trawl, strategic opportunities, leadership, network structure, social capital**

# Introduction

The Fisheries Research and Development Corporation (FRDC) required a series of impact assessments to be carried out annually on a number of investments in the FRDC research, development and extension (RD&E) portfolio. The assessments were required to meet the following FRDC evaluation reporting requirements:

- Reporting against the FRDC 2015-2020 RD&E Plan and the Evaluation Framework associated with FRDC's Statutory Funding Agreement with the Commonwealth Government.
- Annual Reporting to FRDC stakeholders.
- Reporting to the Council of Rural Research and Development Corporations (CRRDC).

The first series of impact assessments included 20 randomly selected FRDC investments worth a total of approximately \$6.31 million (nominal FRDC investment). The investments were selected from an overall population of 136 FRDC investments worth an estimated \$24.98 million (nominal FRDC investment) where a final deliverable had been submitted in the 2015/16 financial year.

The 20 investments were selected through a stratified, random sampling process such that investments chosen spanned all five FRDC Programs (Environment, Industry, Communities, People and Adoption), represented approximately 25% of the total FRDC RD&E investment in the overall population (in nominal terms) and included a selection of small, medium and large FRDC investments.

Project 2010-777: *Seafood CRC: analysis of the core leadership group and network structure of East Coast Trawl to develop, implement and evaluate strategic opportunities* was selected as one of the 20 investments and was analysed in this report.

## General Method

The impact assessments followed general evaluation guidelines that are now well entrenched within the Australian primary industry research sector including Research and Development Corporations, Cooperative Research Centres, State Departments of Agriculture, and some Universities. The approach includes both qualitative and quantitative descriptions that are in accord with the impact assessment guidelines of the CRRDC (CRRDC, 2014).

The evaluation process involved identifying and briefly describing project objectives, activities and outputs, outcomes, and impacts. The principal economic, environmental and social impacts were then summarised in a triple bottom line framework.

Some, but not all, of the impacts identified were then valued in monetary terms. Where impact valuation was exercised, the impact assessment uses Cost-Benefit Analysis as its principal tool. The decision not to value certain impacts was due either to a shortage of necessary evidence/data, a high degree of uncertainty surrounding the potential impact, or the likely low relative significance of the impact compared to those that were valued. The impacts valued are therefore deemed to represent the principal benefits delivered by the project. However, as not all impacts were valued, the investment criteria reported for individual investments potentially represent an underestimate of the performance of that investment.



# Background and Rationale

The ECTF (including the Moreton Bay Trawl Fishery (MBTF)) is the largest Australian wild catch fishery. The fishery includes 21 species. Prawns, Scallops and Moreton Bay Bugs in total contribute the majority of catch volume. Prawns make up the largest proportion with 80% of the catch volume and comprise Tiger Prawns, Eastern King Prawns and Banana Prawns. This large Queensland fishery extends from the Torres Strait in North Queensland to the Queensland /New South Wales border (Queensland Government, 2010).

A status report for the ECTF (Queensland Government, 2008), indicates that the fishery was worth \$78 million per annum, based on prices that fishers received. Of the 21 species of fish retained in the fishery, the bulk of the 6,165 tonnes of product consisted of Prawns (4,969 t), Scallops (567 t) and Moreton Bay Bugs (443 t). Of the 398 active licences, 337 were used to access the fishery in that year.

From 2008 to 2016, the total catch per annum has varied from 6,000 to 8,000 tonnes and the gross value of the fishery from \$76 m to \$100 m.

The different fish stocks in the ECTF are all managed by the Queensland Department of Agriculture and Fisheries (DAF) as one fishery. Industry relationships between fisher groups and their supply chains were weak due to the geographic spread of fishers and their supply chains, as well as the different nature of their priorities due to the diversity of fish stocks within the fishery. The project was funded to better understand and test the network structure within the ECTF and work towards more effective leadership to pursue existing and future whole-of-fishery opportunities. The project was undertaken in close cooperation with the Australian Council of Prawn Fisheries and MBTF.

# Project Details

## Summary

Project Code: 2010-777

Title: *Seafood CRC: analysis of the core leadership group and network structure of East Coast Trawl to develop, implement and evaluate strategic opportunities*

Research Organisation: University of the Sunshine Coast

Principal Investigator: Vicki Schaffer

Period of Funding: Years ending June 2012 to June 2016

## Objectives

The objectives of the project were:

1. To identify a core leadership group and to understand their current industry network structure.
2. To trial and evaluate a market development strategy to demonstrate how effectively a fishery network and the leadership group are at working together to achieve a positive outcome.

## Logical Framework

Table 1 provides a description of the project in a logical framework developed for the evaluation.

Table 1: Logical Framework for Project 2010-777

Activities and Outputs	<ul style="list-style-type: none"> <li>• A steering committee for the project was established.</li> <li>• Information from stakeholders in the ECTF and the MBTF was assembled via in-depth interviews (face to face and phone), a broader on-line survey, and stakeholder workshops.</li> <li>• A social capital framework (including social ties, trusting relationships and value systems) was used to analyse the ECTF network structure across its diverse participants, with a prime purpose of understanding the structure and relationships as well as identifying a leadership group.</li> <li>• Information flows between stakeholders, relationship strengths, and the geographical and product spread of stakeholders were identified.</li> <li>• A social network analysis tool (UCINET data analysis software) was used to map the network; this gave an improved understanding of the ECTF structure.</li> <li>• A questionnaire was developed to collect information from stakeholders to assist in trialling a leadership group for working with stakeholders to develop a market development strategy.</li> <li>• A market development leadership group could not be formed, and only an appreciation of formal and informal leaders was gained.</li> <li>• In addition to information on network structure, information was assembled on how the structure influenced industry development and how information was disseminated across the diverse set of fishery stakeholders.</li> <li>• The data assembled from the stakeholders were used to identify problems and opportunities for the ECTF.</li> </ul>
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	<ul style="list-style-type: none"> <li>• Social capital was found to be weak in the ECTF across several of the social capital dimensions; limited cooperation and collaboration was evident.</li> <li>• Stakeholders who had taken leadership roles in the past reported being frustrated and burned out due to the difficulty of obtaining stakeholder support across the fishery.</li> <li>• A second major activity of the project was to work with stakeholders to identify, develop and implement a market opportunity for the ECTF and the MBTF; this included a market audit report with prawn wholesalers.</li> <li>• Market opportunities could not be identified for the ECTF so the project used the National Prawn Marketing Campaign as a surrogate market opportunity; however, only 17% of ECTF stakeholders said they would cooperate in pursuing this opportunity, despite 59% stating it was a suitable strategy.</li> <li>• A social media strategy was identified as a market opportunity for the MBTF. The project did involve the MBTF with a Moreton Bay Facebook page, and developed prawn pages for the Moreton Bay Seafood Industry Association website and Regional Flavours Festival. However, cooperation and collaboration was low for all these activities.</li> <li>• It was concluded that industry uncertainty as well as operational and communication difficulties and the lack of social capital largely constrained the strategies, particularly for the ECTF.</li> <li>• A list of potential extension activities was developed. The suggestions on the list included: an industry tour, leadership training, support and mentoring, a communication strategy, industry employment support, and food tourism (Project Milestone 5 Report).</li> <li>• Improved communication technologies were identified as important given the spread of geographic locations, the different product types, and the times spent at sea by many stakeholders.</li> <li>• As a result, a communication strategy and a communication tool were developed</li> <li>• In summary, the principal outputs from the project were: <ul style="list-style-type: none"> <li>○ A solid understanding of the ECTF structure</li> <li>○ An appreciation of the formal and informal ‘leaders’</li> <li>○ A marketing audit for wild caught prawns of the ECTF and MBTF.</li> <li>○ A Facebook page for Moreton Bay Prawns.</li> <li>○ Contribution to the development of the Moreton Bay Seafood Industry Association website.</li> <li>○ A communication strategy and communication tool</li> </ul> </li> <li>• Towards the end of the project, a final evaluation of the ECTF and MBTF networks was undertaken</li> <li>• It was concluded that collaboration does not really occur in the ECTF with stakeholder groups within the fishery tending to have a regional/ locational orientation rather than a whole of fishery view.</li> <li>• The general approach of most stakeholders tended to be reactive (e.g. all were against fishing closures) rather than being proactive. This was probably due to the broad range of fishery stakeholders, including fishers (with different target species and locations), and different supply chain interests.</li> </ul>
Outcomes	<ul style="list-style-type: none"> <li>• Those seeking to engage with ECTF stakeholders (e.g. fishers and other businesses along the various supply chains, industry organisations and government), may now have a better appreciation of the factors needed to be considered such as timing (periods at sea or closures of fishing grounds, peak trading times, etc.) and challenges including remote locations and the multiple roles undertaken by some stakeholders.</li> </ul>

	<ul style="list-style-type: none"> <li>• The improved understanding of the ECTF network structure and leadership difficulties may lead to possibilities in the future for enhancing future collaboration, communication, and decision making by ECTF stakeholders.</li> <li>• However, as of 2017, such possibilities have not been realised.</li> <li>• The recognition of the current lack of social capital and the apparent difficulty of increasing the capital may have an outcome of further questioning the structure of the fishery and its management as one entity. For example, it may be possible to increase the aggregate level of social capital by splitting the management geographically, by species, or by a combination of both.</li> <li>• It would appear from the final project report that QLD DAF (the manager of the ECTF) did not feature as a central part of the network structure; hence, any conflicts or strategic differences between different fisheries stakeholders that involved DAF were not identified.</li> <li>• At time of submission of the final report for Project 2010-777, the communication tool was available on all web enabled devices (e.g. desktop, tablet and mobiles). However, an initial web search in 2017 did not find any access to the tool and no evidence of its use was identified.</li> </ul>
Impacts	<ul style="list-style-type: none"> <li>• The project activities have provided the ECTF and MBTF stakeholders with some experience in pursuing market opportunities to increase the awareness of their product and to educate consumers about the uniqueness of the wild caught domestic prawn product. This experience may provide some future potential for increasing demand for the product and the possibility of achieving improved returns; so far, further potential for working together for change has not been exploited by the ECTF and its stakeholders.</li> <li>• The project has provided an increased understanding of the fishery network structure, its lack of social capital, leadership potential and constraints, and has identified the importance of improving communication within the fishery; this could lead in future to fishery management changes that are more conducive to stakeholder collaboration (for example, regionalisation rather than a whole of fishery structure).</li> <li>• The communication strategy and the online Communication Tool were developed and provided some capacity for stakeholders to be more informed regarding fishery issues and pursuing opportunities that may arise in the future, as well as some potential reductions in transaction costs.</li> <li>• It is concluded that communication between stakeholders within the fishery probably improved to some extent, at least in the short term, but it is uncertain whether transaction costs have decreased.</li> <li>• There were few comments about the value of the project from the industry personnel contacted during the evaluation. However, one response noted that there were concerns about the execution of the project.</li> </ul>

# Project Investment

## Nominal Investment

Table 2 shows the annual investment for the project funded by Fisheries Research and Development Corporation (FRDC) and the Seafood CRC.

Table 2: Annual Investment in the Project (nominal \$)

<b>Year ended 30 June</b>	<b>FRDC (\$)</b>	<b>Seafood CRC (\$)</b>	<b>USC (\$)</b>	<b>TOTAL (\$)</b>
2012	79,984	32,669	0	112,653
2013	60,454	24,692	0	85,146
2014	9,243	3,776	0	13,019
2015	0	0	0	0
2016	12,035	4,916	0	16,951
<b>Totals</b>	<b>161,716</b>	<b>66,053</b>	<b>0</b>	<b>227,769</b>

## Program Management Costs

For FRDC investment, the cost of managing the FRDC funding was added to the FRDC contribution via a management cost multiplier (1.115); this was estimated based on the share of 'employee benefits' and 'supplier' expenses in total FRDC expenditure reported in the FRDC Cash Flow Statement (FRDC, 2016). This multiplier was applied to the nominal investment by FRDC that appears in Table 2. A multiplier of 1.083 was applied to the Seafood CRC contribution.

## Real Investment and Extension Costs

For purposes of the investment analysis, the investment costs of all parties were expressed in 2016/17 \$ terms using the Implicit Price Deflator for Gross Domestic Product. No additional costs of extension were included as the project was highly involved with the participants in the ECTF.

# Impacts

The direct impacts from the investment in terms of networking and leadership have been marginal. Some capacity for change in future may have been delivered in terms of understanding and communication.

Table 3 provides a summary of the types of impacts expanded from those listed in Table 1 and categorised into economic, environmental and social impacts.

Table 3: Triple Bottom Line Categories of Impacts from the Network Structure Investment

Economic	<ul style="list-style-type: none"> <li>• The project has provided an increased understanding of the fishery network structure and its social capital (including leadership potential and constraints).</li> <li>• The trialled and evaluated market opportunities have provided the ECTF stakeholders with a marginal increase in the potential to work together in future; however, this potential for working together for change does not appear to have been exploited by the ECTF stakeholders to date.</li> <li>• The communication strategy and an online Communication Tool have been developed that provided the capacity for stakeholders to be more informed regarding fishery issues and opportunities that may improve efficiencies and effectiveness of operations in the future and some potential to reduce transaction costs.</li> </ul>
Environmental	<ul style="list-style-type: none"> <li>• Nil</li> </ul>
Social	<ul style="list-style-type: none"> <li>• An increased understanding by ECTF management of stakeholder conflicts with potential changes to management structures in future.</li> </ul>

## Public versus Private Impacts

The objective was improved leadership and improved networking, so the potential impacts given project success, would have been improved productivity and profitability of fishers involved in the ECTF. Some minor public benefits also could have followed in the form of consumer benefits and some regional community spill-overs. As the Queensland Government was a participant in the ECTF project, some public benefits could also be potentially delivered in future in the form of more efficient and effective fisheries management structures.

## Distribution of Private Impacts

While the extent of impacts from the investment are likely to have been minimal, the beneficiaries of any improved productivity gains would have been the various fisher groups operating in the ECTF. In that case, it can be assumed that the distribution of any benefits from the investment would have been distributed between participants along the commercial supply chains, including final consumers.

## Impacts on other Australian Industries

It is assumed that any project impacts will be confined to the Australian ECTF.

## Impacts Overseas

No benefits to overseas parties are expected.

### Match with National Priorities

The Australian Government's Science and Research Priorities and Rural Research, Development and Extension (RD&E) priorities are reproduced in Table 4. Any improved supply chain impacts may contribute marginally to Rural RD&E Priority 4 and to Science and Research Priority 1.

Table 4: Australian Government Research Priorities

<b>Australian Government</b>	
<b>Rural RD&amp;E Priorities (est. 2015)</b>	<b>Science and Research Priorities (est. 2015)</b>
1. Advanced technology	1. Food
2. Biosecurity	2. Soil and Water
3. Soil, water and managing natural resources	3. Transport
4. Adoption of R&D	4. Cybersecurity
	5. Energy and Resources
	6. Manufacturing
	7. Environmental Change
	8. Health

Sources: DAWR (2015) and OCS (2016)

# Valuation of Impacts

## Impacts Valued

The project did not produce any significant impacts so no quantitative evaluation processes were applied.

## Impacts not Valued

The impacts identified in Table 4 were not valued for the following reasons (Table 5):

Table 5: Reasons for Not Valuing Impacts

<b>Impact/Potential Impact</b>	<b>Reason why Impact Not Valued</b>
The project has provided an increased understanding of the fishery network structure and its social capital (including leadership potential and constraints), so that future networks could be developed and strengthened for the ECTF.	A lack of evidence that any increased understanding of the network structure and constraints has been utilised by the ECTF stakeholders.
The trialled and evaluated market opportunities may have provided some ECTF stakeholders with a marginal increase in the potential to work together in future.	A lack of evidence that any potential for working together for change has been exploited by the ECTF stakeholders to date by way of improved leadership, collaboration and cooperation.
The communication strategy and an online Communication Tool have been developed that provide the capacity for stakeholders to be more informed regarding fishery issues and opportunities that may improve efficiencies and effectiveness of operations in the future and the potential to reduce transaction costs.	A lack of evidence of use of the tool and of any increase in fishers' efficiency and effectiveness due to improved communication, as well as the difficulty of valuing such improvements if they have occurred.
Potential for an improvement in fisheries management.	A lack of evidence that the project has contributed to changes in fisheries management in the ECTF.



# Results

All costs and benefits were discounted to 2016/17 using a discount rate of 5%. All analyses ran for the length of the project investment period plus 30 years from the last year of investment.

## Investment Criteria

Tables 6 and 7 show the investment criteria estimated for different periods of benefits and cost for the total investment and FRDC investment respectively. Note that, as no benefits were valued, the investment criteria reporting is restricted to the Present Value of Costs.

In the interests of consistency with other project analyses and reporting, the Present Value of Costs was reported for the length of the investment period plus for different periods up to 30 years from the last year of investment (2015/16).

Table 6: Investment Criteria for Total Investment in the Project

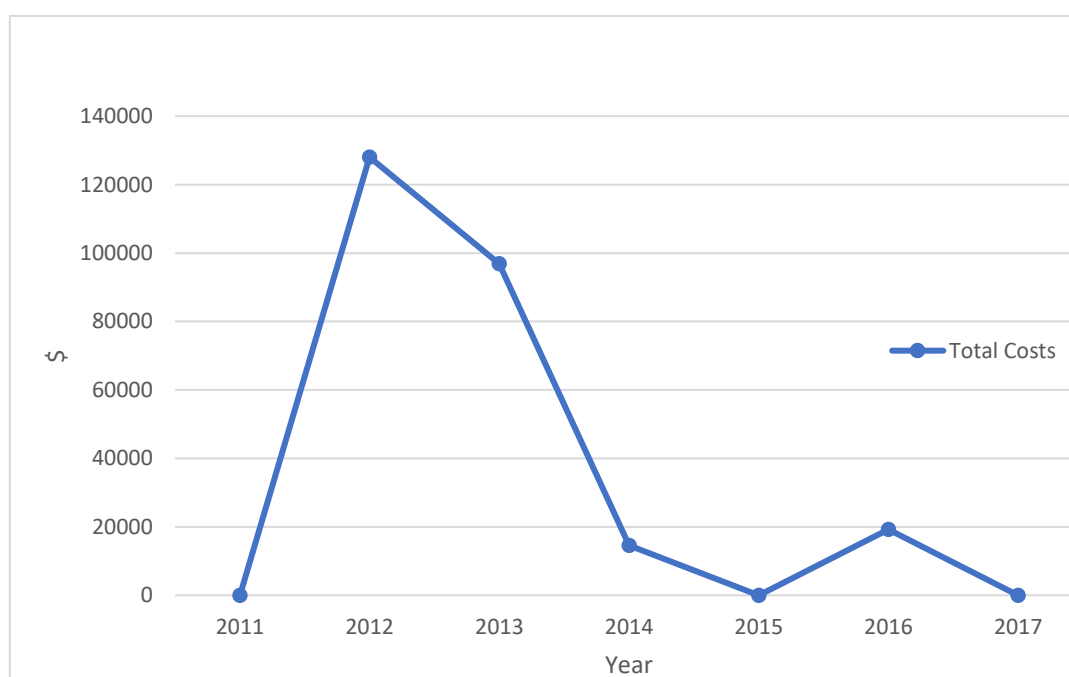
Investment criteria	Number of years from year of last investment						
	0	5	10	15	20	25	30
Present value of costs (\$m)	0.32	0.32	0.32	0.32	0.32	0.32	0.32

Table 7: Investment Criteria for FRDC Investment in the Project

Investment criteria	Number of years from year of last investment						
	0	5	10	15	20	25	30
Present value of costs (\$m)	0.23	0.23	0.23	0.23	0.23	0.23	0.23

The annual undiscounted cost cash flows for the total investment for the duration of investment period plus 30 years from the last year of investment are shown in Figure 1.

Figure 1: Annual Cash Flow of Undiscounted Total Costs



# Conclusions

Total FRDC and Seafood CRC funding for the project over the four years totalled \$0.32 million in present value terms. The FRDC investment costs were \$0.23 million in present value terms. While the investment in this project did not result in any significant impacts that could be valued, the process was useful in eliciting an improved understanding of the complexities of the relationships as well as the low levels of trust, cooperation and coordination among the constituent industry groups of the ECTF. Also, there may have been some industry capacity building among stakeholders in the form of improved understanding of constraints to networking and the development of unified strategies. Communication between industry stakeholders also may have been marginally improved.

# Glossary of Economic Terms

Cost-benefit analysis:	A conceptual framework for the economic evaluation of projects and programs in the public sector. It differs from a financial appraisal or evaluation in that it considers all gains (benefits) and losses (costs), regardless of to whom they accrue.
Benefit-cost ratio:	The ratio of the present value of investment benefits to the present value of investment costs.
Discounting:	The process of relating the costs and benefits of an investment to a base year using a stated discount rate.
Internal rate of return:	The discount rate at which an investment has a net present value of zero, i.e. where present value of benefits = present value of costs.
Investment criteria:	Measures of the economic worth of an investment such as Net Present Value, Benefit-Cost Ratio, and Internal Rate of Return.
Modified internal rate of return:	The internal rate of return of an investment that is modified so that the cash inflows from an investment are re-invested at the rate of the cost of capital (the re-investment rate).
Net present value:	The discounted value of the benefits of an investment less the discounted value of the costs, i.e. present value of benefits - present value of costs.
Present value of benefits:	The discounted value of benefits.
Present value of costs:	The discounted value of investment costs.

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