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**Milestone 3: Analytical Report on  
historical factors and barriers, thematic  
analysis, typology of stakeholders, and  
social network analysis**

**PREPARED FOR:  
Fisheries Queensland, Department of  
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# Executive Summary

Managing fisheries is ultimately an issue of understanding and working with different personalities and types of human behaviours (Barclay et al., 2017; Urquhart et al., 2011).

In 2017, Fisheries Queensland (FQ) released a 10 year reform strategy for managing fisheries along the Queensland coastal, inland waters, and the Gulf of Carpentaria. This reform includes specific recommendations relating to improving stakeholder engagement that states a “need for ongoing and transparent stakeholder engagement mechanisms that include the broader community as well as all fishers” (State of Queensland, 2017 p. 14). Within this major area of reform, the 10 year strategy calls for the “use of more novel engagement techniques to gather views from stakeholders and the broader community (State of Queensland, 2017 p.14). A range of new actions are included in the strategy, including the appointment of an expert panel, establishment of fishery specific Working Groups, working with Indigenous communities and groups, utilising novel methods, and reviewing the effectiveness of engagement.

This report presents the findings from qualitative research conducted, where 59 professional fishers and stakeholders (PFS) semi-structured interviews were held and a survey to 154 stakeholders was distributed. This sample was derived through a combination of face to face interviews in 6 regional areas with a concentration of license holders across fishery types, and phone based interviews and an online survey including professional fishers and stakeholders (PFS) across Queensland. This provided a sample that was considered to be representative across different regions, different fisheries, and different links in the value chain (i.e. harvest, processing, wholesale).

This Analytical Report focuses the question: **what are the historical factors that have led to the current status of engagement between FQ and Queensland PFS?** For the purposes of the research this question was further broken into a number of related research questions:

- What are the historical experiences of FQ engagement with PFS?
- How do stakeholders feel in light of these historical factors?
- How do different ‘types’ of PFS currently engage with FQ?
- What are the networks like between PFS and FQ?
- What are the network like within PFS?

## What we found

Part 1 of the report presents major fisheries management social concepts and the relevance of this study for reforming engagement strategies. It sets the context of the report.

Part 2 of the report presents a chronological overview of the major factors and barriers that have led to the current status of engagement between FQ and PFS. These historical reforms and changes have influenced the current experiences and reactions

to engagement. The 2013-2017 period has been intensive, as the Queensland government has sought to establish a modernised, co-ordinated fisheries management system. This was a response to 12 years of reviews and reforms that ultimately resulted in substantial erosion of trust and effective communication with large sections of the commercial fishing industry.

In this part, we document:

- The fluctuation of different engagement mechanisms, such as the QFCO, MACs, and ZACs, and the impact of these changes on experiences of engagement
- The cumulative nature of reform and how that has built up to 'all time lows' in perspectives on the relevance and value of engagement
- The fact that FQ has made substantial efforts at engagement, and the opportunities that Working Groups bring to bridging the current experiences of engagement.
- The experiences that the important roles of scientific knowledge extension have been coupled with compliance staff, which has meant that engagement for topics of scientific communication are now blended with issues of legal requirements and compliance.
- The successive rationalisation of government services at a whole of government level in the late 1990s/early 2000s, 2009 and 2012 is likely a historical factor that has influenced the relationships and the state of engagement in commercial fisheries.

Part 3 presents thematic analysis of qualitative data and initial insights from an online survey used to triangulate data and inform the analysis.

We identify and discuss seven themes which relate to current barriers and experiences of engagement:

1. The perceived impacts of PFS input on FQ processes and outcomes.
2. The cumulative historical effect of reform processes over a 25 year period, and perceived advantages/disadvantages offered through past reforms
3. Differing worldviews and life experiences and their implications on engagement
4. The influence of political decisions on commercial fisheries engagement processes
5. Public perceptions of the value of the commercial sector, including contributions that professional fishers make to society
6. Interpersonal engagement vs institutional engagement
7. Stakeholder fragmentation and cohesion

Each of these themes has specific barriers, which call for methods reported in the companion Engagement Methods Report. The barriers to engagement per theme are presented in the table below:

<b>State of engagement themes</b>	<b>Barriers to engagement</b>
Theme 1. The perceived impact of professional fisheries stakeholder input into FQ processes and outcomes	PFS do not see the impact their input (or that of their representatives) has had on outcomes.
Theme 2. The cumulative historical effect of reform processes over a 25 year period, and the perceived advantages/disadvantages offered through past reforms	PFS often view historical engagement with FQ as a history of loss and marginalisation.
Theme 3. Differing worldviews and life experiences among industry and between industry and FQ, and their implications on engagement	PFS often feel that FQ do not understand the day to day reality of their lives, do not view the world in a similar way to them, and do not value their particular experience, knowledge or relationship to fisheries and marine systems.
Theme 4. The influence of political decisions on professional fisheries engagement	PFS feel that decisions at the political and upper managerial level are subject to the influence of stakeholder groups who would prefer the industry did not exist.
Theme 5. Perceptions of the value of the professional sector, and the contributions that professional fishers make to society	PFS often feel demonised and that the momentum for change is reflective of an incorrect societal view that professional fishing is unethical and unsustainable.
Theme 6. Balancing interpersonal engagement vs organisational engagement	Interpersonal relations were generally considered to be good, however barriers exist to facilitate greater interpersonal interactions – including staffing levels, budgets and workplace rules and regulations. The main barrier to engagement at an interpersonal level appears to be low levels of trust for FQ at an organisational level.
Theme 7. Stakeholder fragmentation and cohesion	A lack of co-ordination and cohesion between PFS represents significant barriers to effective engagement.

Part 4 focuses on the different types of stakeholders that FQ will need to engage, and identifies how different strategies will be needed. We present a 'typology of stakeholders' to assist in identifying groups and subsequent methods for targeting those groups. This includes two major groups of PFS (Group A and B), organised around three categories: Highly engaged, transactional, and disengaged.

We present experiences of all six typologies with engagements and suggest the differences between them influence how future engagement methods are implemented and rolled out. The typologies used are in the following table:

	<b>Highly engaged</b>	<b>Transactional</b>	<b>Disengaged</b>
<b>Group A fishers</b> (Larger, more 'business oriented' PFS)	<b>A1:</b> Hold quota/license and are actively fishing the quota/license. Entrepreneurial, tech savvy, motivated by competition, autonomy/freedom, utilitarian and challenge values – risk takers. Often operate vertically integrated businesses, high levels of investment, fixed crew and single species focus. Future oriented, have plans and a strong vision. Few barriers to engagement except perceptions relating to a lack of transparency or predetermined outcomes.	<b>A2:</b> Not a significant group within sample. May be owner operators or license holders (i.e. investors).	<b>A3:</b> Lease or license holders who are not fishing (investors). Often have links with post-harvest sector, often offshore, tend to be more disengaged and corporate. Barriers to engagement include time constraints and quantity and relevance of information. Perception that FQ do not listen to input.
<b>Group B fishers</b> (Smaller owner operators often in multiple fisheries)	<b>B1:</b> Owner/operators, interested more in business viability than business profitability ie 'lifestyle' motivators important, motivated by tradition, freedom/ autonomy and escape values. Few barriers to engagement except perceptions relating to a lack of transparency or predetermined outcomes.	<b>B2:</b> May include owner operators, as well as mixed income owner operators, lessees and crew. Mixed ages, may include younger fishers. Barriers to engagement related most specifically to time and capacity, as well as a feeling of suspicion that any information provided to FQ would be 'used against them'.	<b>B3:</b> Especially Aboriginal and Torres Strait Islander (ATSI) and English as Second Language (ESL) fishers, fishers from disadvantaged backgrounds, lessees and crew. Language and literacy issues a major communication barrier. May also lack confidence and skills to engage effectively. ATSI may feel reluctant to engage when their rights are not fully understood and acknowledged by other stakeholders.

In Part 5, we present a social network analysis which visually shows the strength and weak spots in communication networks. We present two major networks:

- Network 1: Between PFS and FQ
- Network 2: Within PFS

The network maps emphasise the critical role what Working Group and individual FQ staff play in being communication channels between different stakeholder groups. We also identify the important role that that post-harvest stakeholders play in linking PFS, offering an opportunity to target that group as disseminators of knowledge and information.

The networks also show that there are isolated networks that do not engage with the main network, yet isolated networks have their own communication channels. This presents an opportunity for FQ to work with the tight networks that exist throughout fisheries for tailoring future engagement strategies.

# 1 Introduction

In 2017, Fisheries Queensland (FQ) released a 10 year reform strategy for managing fisheries along the Queensland coastal, inland waters, and the Gulf of Carpentaria. The third area of reform relates to improving stakeholder engagement that states a “need for ongoing and transparent stakeholder engagement mechanisms that include the broader community as well as all fishers” (State of Queensland, 2017 p. 14). Within this major area of reform, the 10 year strategy calls for the “use of more novel engagement techniques to gather views from stakeholders and the broader community (State of Queensland, 2017 p.14). A range of new actions are included in the strategy, including the appointment of an expert panel, establishment of fishery specific Working Groups, working with Indigenous communities and groups, utilising novel methods, and reviewing the effectiveness of engagement.

The first step towards improving the effectiveness of engagement involves identifying stakeholder experiences of engagement and areas of success and failure, in the context of underlying historical influence (Benham and Daniell, 2016; Leventon et al., 2016). These individual experiences can be documented and contextualised within wider historical policy and political changes, and used to advance resource management. Stakeholder experiences can help develop social objectives, such as individual and community wellbeing or social resilience, and to work towards sustainable outcomes. These social objectives, while critical for sustainable management, have been overlooked as a result of a primary focus on biological and economic objectives (Pascoe et al., 2014), and compounded by a lack of social science informing fisheries research and policy (Symes and Phillipson, 2009).

For the purposes of this research we adopt the term ‘professional fishers and stakeholders (PFS)<sup>1</sup> to refer to all businesses involved in professional fishing, charter operations, seafood processing, and wholesalers. PFS are critical to regional socio-economic development and natural resource management throughout Queensland, particular in the coastal regions. Many within this group of stakeholders have been involved in fishing for generations, and have been reported to have strong sense of identity to their craft and expertise (Marshall et al., 2007). Given that FQ has between 2000-3000 PFS with licenses to operate, they are a critical stakeholder in the management of fishery resources.

## 1.1 Review of existing knowledge

Previous studies on PFS in Queensland have focused on their willingness to remain in industry and ability to absorb ongoing policy changes. For example, Pascoe et al. (2015) explored Queensland East Coast Trawl fishery stakeholder satisfaction with fishing and the desire to leave. In the study, where the authors held face to face interviews with 60 trawl fishers, they found that key drivers of satisfaction with fishing include levels of income, ability to continue a family tradition, and being able to be part of an active industry.

There have also been previous studies with the professional sector on social resilience (Marshall et al., 2007; Marshall and Marshall, 2007). Social resilience is defined as the ability of an individual or community to absorb external changes and stresses while

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<sup>1</sup> We note FQ uses the term commercial stakeholders. We use the term professional fishers and stakeholders to recognise that individuals and business in the industry are a profession with long history and knowledge built through time.

maintaining the sustainability of their livelihoods (Adger et al., 2002). A study of social resilience in the professional fisheries sector in Queensland found that the ability of fishers to plan, learn, and reorganise is important in determining their resilience to policy change (Marshall and Marshall, 2007). In that study, more entrepreneurial fishers willing to develop novel methods or business models tended to demonstrate higher capacity for resilience to those with less opportunities to innovate. Another study found that in order to prepare to future changes in policies, the ability to adapt and organise was essential (Marshall et al., 2007).

A study in the 2000s funded by the Fisheries Research and Development Corporation (FRDC) sought to identify and integrate social considerations into the management of inshore professional fisheries in Queensland. The study used qualitative research methods to look at the impacts of socio-economic change on communities, changes of attitudes and resilience to policy change, and the impacts of policy change on individuals and families. The project found that at the time there was a need to increase awareness of the social implications of social change, improve communication and business opportunities for stakeholders, and embed greater understanding of social change in light of policy shifts. In summarising the study, the authors note:

*“[The] Research findings suggest that the current management focus on economic and ecological goals fails to sufficiently address the cumulative short and longer-term social impacts of fisheries change, in particular, the effect on the health, well-being and quality of life of the people interviewed for this study. These findings are analysed from the views and responses of the fishers and their families to the personal and social consequences they continue to experience. Notably, the study shows there is a lack of communication from policymakers about the possible social ramifications or potentially damaging social impacts arising from management measures and major policy initiatives.”*  
(Shaw et al., 2011 p.2)

Other relevant social science literature relates to literature on co-management and societal perceptions of industry. A number of studies have noted that fisheries have traditionally been managed by governments to work towards achieving biological and economic objectives (Barclay et al, 2017; Voyer et al 2017; Pascoe et al 2014). This may include, for example, maintaining ecologically viable populations of particular species, or designing maximum economic yield limits as management strategies. While these objectives remain critical, they have come at the cost of social objectives, and have led to unintended social impacts, such as impacts on fisher wellbeing, relationships and social cohesion with fishing communities.

One way in which social objectives have started to form a more explicit part of fisheries management is through the concept of co-management. In an Australian context, South Australia’s government has an articulated policy of co-management (Government of South Australia, 2013). The policy maintains that co-management exists on a continuum that begins with information exchange and consultation, and develops into a situation where industry and managers can, under the right conditions, share responsibilities and formal delegation of management functions. Co-management is a way of achieving efficient regulatory practice, not a means for industry to avoid being scrutinised or required to operate under legal requirements. The value of co-management approaches lies in fostering partnership rather than a top-down relationship. Co-management can augment the sense of ownership over decisions, embed contextual and historical sensitivities into policies, and increase the use of expert knowledge held within industry and local communities.

While co-management is centred on the links between public organisations and PFS with the aim of influencing policy, a different literature focuses on knowledge exchange and scientific enquiry processes. The concept of co-production of knowledge has a long history in the fields of science and technology studies (Miller and Wyborn, 2018). In its simplest form, co-production relates to allowing societal experts, government, and researchers to frame research problems together, share data collection and analysis processes, and inform governance decisions that influence social, economic, and environmental outcomes. In fisheries management, communities have deep experiential knowledge of resource behaviours and stocks, as well as business changes and models, that can be critical in scientific processes (Blythe, 2015; Cinner, 2018).

PFS are also influenced by societal perceptions of the fisheries sector. For example, fishers are frequently vocal about not trusting management, citing unfair treatment and perceived poor standing in broader society (Hernes et al., 2005; Pascoe et al., 2015). While community perceptions do not necessarily transfer to a desire to exit the industry, it influences how fishers interact with broader society and the systems in place to balance economic benefits and conservation outcomes from fisheries (Aslin and Byron, 2003; Pascoe et al., 2015).

## 1.2 Study questions and approach

Managing fisheries is ultimately an issue of understanding and working with different personalities and types of human behaviours (Barclay et al., 2017; Urquhart et al., 2011). Economic and quantitative surveys are highly useful in modelling economic scenarios, or quantifying the extent of perceptions and concerns over specific fishery issues. These methods often use numeric data sets to identify patterns and trends and paint an 'objective' picture of what is happening at one point in time. To complement these widely used data sets, qualitative methods that do not involve mathematical analysis, but rather focus on stories, spoken words, observations of behaviour, historical analyses, and written insights, can be useful (Barclay et al., 2017). These non-quantifiable data sets provide rich insights on stakeholders' reasoning as to why they perceive a situation in a particular way. Ultimately, the combination of these quantifiable and non-quantifiable data sets can help inform decisions that lead towards triple bottom line outcomes.

Our team used qualitative social science methods to identify PFS historical factors that have led to the current perspectives in regards to efforts of engagement made by FQ. These insights provide a 'raw' data set, which when interpreted alongside the documented historical changes in fisheries management in Queensland, present a baseline for developing new strategies for stakeholder engagement. We situated the specific stories and issues highlighted by interviewees in the existing literature relating to theories of co-management, organisational listening, Indigenous voice, and knowledge co-production to identify a series of thematic areas around which to base our analysis (Section 3). Each of these themes has individual concepts and categories that relate to how societal stakeholders interact with government and decision making processes.

This research project aimed to answer the following research questions:

1. What are the historical trends and reasons behind the current state of engagement between FQ and Queensland professional fishers and stakeholders?

- i. This question is answered in this Analytical Report
2. What methods and strategies can be used to improve stakeholder engagement?
  - i. This question is answered in the companion Engagement Methods Report

The two companion reports developed as part of this research are structured around these two key questions, and should be read together as they are closely related.

This Analytical Report focuses on question 1: **what are the historical factors that have led to the current status of engagement between FQ and Queensland PFS?** For the purposes of the research this question was further broken into a number of related research questions:

- What are the historical experiences of FQ engagement with PFS?
- How do stakeholders feel in light of these historical factors?
- How do different ‘types’ of PFS currently engage with FQ?
- What are the social? networks like between PFS and FQ?
- What are the social networks like within PFS?

Table 1 outlines the methods employed to address each of the five research questions explored within this report. The major ‘raw’ data set for this qualitative study came from semi-structured interviews with PFS. We also held discussions and a workshop with FQ staff to clarify key concepts, communication methods, and historical experiences with the professional sector. However, the analysis of raw data was centred of PFS interviews as they are the core stakeholders whose experiences are documented in this study.

**Table 1: Research methods used to address research questions**

Research question	Research methods	Analytical Report Sections
What are the historical trends in FQ engagement with its PFS?	Desk top review and key informant interviews with FQ staff	Section 2
How do stakeholders feel in light of these historical factors?	Semi-structured interviews	Section 3
How do different ‘types’ of PFS currently engage with FQ?	Semi-structured interviews, literature review, FQ workshop and	Section 4
What are the social? networks like between PFS and FQ?	Social Network Analysis	Section 5
What are the social networks like within PFS?	Social Network Analysis	Section 5

In total 59 PFS were interviewed for this project, covering a cross section of fisheries and fishing regions, as detailed in Table 2. Of these 37 (63%) interviews were conducted face to face as part of the fieldwork, whilst the rest were conducted over the phone. It should be noted that a number of the fishers who participated in the face to

face interviews operate from ports other than the one in which they were interviewed. For example, two fishers interviewed in Bowen were based out of the Gold Coast. Therefore targeting major port areas, as well as phone interviews, allowed for a good cross section of fishers to be interviewed from across the state. The semi structured interview guide used is in Appendix 1.

Particular effort was also made to engage with Indigenous stakeholders. A total of five Indigenous fishers were interviewed, including a number who currently hold an Indigenous Fishing Permit.

In accordance with ethical protocols from the University of Technology Sydney, we have de-identified names of individual and businesses in reporting the results. We use these individual experiences to present aggregate findings that can be used by FQ to address the major historical factors and experiences shared by stakeholders.

**Table 2: Distribution of interview participants by fishery and location (fieldwork locations marked with \*)**

Location	Fishery									
	Charter	Harvest	Inshore net	Net fisher	Post-harvest	Reef line	Trawl	Crab	Mixed	Total
Gulf								1		1
Cairns/Far north	1	2				1			1	5
Townsville	1					1	1			3
Bowen*					1	1				2
Airlie Beach*					1				4	5
Mackay		1								1
Rockhampton/ Yeppoon*					1			3		4
Gladstone*					1	4			1	6
Bundaberg*			2		2	2	8			14
Hervey Bay/ Maryborough*				1	5		1	1		8
Moolooboba								2		2
Gold Coast							3	1		4
Moreton bay			2		1		1			4
<b>Total</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>1</b>	<b>12</b>	<b>9</b>	<b>14</b>	<b>8</b>	<b>6</b>	<b>59</b>

We recruited interview participants through sending emails to initial contacts obtained from our network and Working Group members. When in the field, we sampled stakeholders through 'snowballing' and opportunistic interviews. Professional fishers spend time in wharfs servicing their equipment and loading/unloading. We found that spending time at the wharf was the most salient way of building rapport with stakeholders and communicating the project with them.

An additional online survey was emailed out to 154 stakeholders recruited with the assistance of FQ. Out of 154 invited stakeholders, we had a total of 99 responses (64%).

To recruit stakeholders for the survey, our team asked FQ to place a call to participate on their website, and send an email and text message to stakeholders who wished to

be involved in the project. The survey provided stakeholders with a simplified version of the interview question guide, and open ended boxes. The survey allowed for confirmation and triangulation of the findings from the semi-structured interviews. We do not report on survey quantitative analysis as it is beyond the scope of this immediate piece of work, however they provide context for the final workshops to be held with FQ and opportunities for further development of engagement methods in the future.

Overall, this sample was derived through a combination of face to face interviews in 6 regional centres with a concentration of licence holders across a diversity of fishery types, and phone based interviews and an online survey including professional fishers and stakeholders (PFS) across Queensland. This provided a sample that was considered to be representative across different regions, different fisheries, and different links in the value chain (i.e. harvest, post-harvest).

The result of this recruiting strategy and use of mixed methods for data collection allowed for the development of results that are considered broadly representative of the current state of engagement and sentiment of PFS regarding engagement. In focusing field work efforts on a restricted number of regional areas rather than conducting meetings in all regional areas, we were able to follow networks among fishers to a level of depth that was fruitful in understanding how different types of fishers understand common issues, as discussed in Section 4 of this report. However we acknowledge that FQ will need to be mindful when applying these findings in areas outside of where we conducted face to face interviews, and we emphasise that the findings will need to be adapted to fit the local situation. For example, fishers in the Gulf of Carpentaria are likely to have a slightly different understanding of how the main engagement issues impact on them as compared to fishers on the Sunshine Coast.

### 1.3 Analysis conducted

The interviews allowed us to carry out three types of analysis, which are all used in this report:

1. Thematic analysis involving the identification of meta-themes from individual stories or anecdotes. The themes come from our previous experience and understanding of issues in fisheries governance and stakeholder engagement in Australia and internationally. Multiple quotes might talk about different specific examples, but collectively, they create one theme. Thematic analysis is well understood and documented in social science qualitative research (Ayres, 2012; Braun and Clarke, 2008; Richards, 2014). The seven themes identified are presented in Section 3.
2. An analysis of stakeholder typologies and how they engaged. Building on the work of Voyer et al. (2016), we conducted a matrix analysis of the data to situate experiences of engagement across a spectrum of stakeholders. This analysis is in Section 4 of the Analytical Report and is used further to organise strategies and methods in complementary Engagement Methods Report.
3. A social network analysis based on likert scale ranking questions on links between PFS and FQ, and within PFS. Social network data is organised using matrices in Excel, and used to create social network maps showing different aspects of networks in the software UCINET. These maps describe the influence of particular individuals or groups, identify outlier networks, and present some findings relating to groups to target in future engagement. This is present in Part 5 of this Analytical Report.

## 2 Historical overview

### 2.1 Introduction and chronology

The state of engagement between FQ and PFS is a complex topic with a lengthy history. This is a history that is influenced by the inevitable interactions and trade-offs in natural resource management. This includes a mix of actions by FQ, other areas of DAF with fisheries mandates, political dynamics in Queensland, Commonwealth agency interactions, and the behaviour and responses of the industry. These interactions have taken place over decades within a changing macro-economic context, for example with declining competitiveness and competition from imports, which have created pressures on industry and government to continue to reform fisheries management.

The following section provides an overview of efforts to engage with Queensland PFS, and reforms that have impacted on Queensland professional fisheries. This is based on documentary sources to develop a chronology, augmented with key informant interviews and synthesised data from an inception workshop with FQ staff. **This project focused on engagement, however the interview material indicates that PFS do not always separate out 'engagement' and 'reform'. This is important for future framing of activities, as PFS may need clarity in defining how engagement is different from reform.**

PFS also noted that there has also been a lack of clarity of the responsibilities of FQ in specific engagement activities, decisions, or management changes. Changes in the marine management or the operation of a given fishery are generally perceived to influence engagement with FQ, regardless of which agency actually changes the policy. **FQ remains as the face and primary organisation that PFS attribute to reform and engagement.** This is also true of perceptions of past reforms. PFS do not necessarily separate experiences of negative impacts of past reforms from discussions of the merits of current efforts to reform. This supports the notion of a "cumulative effect" over time, where multiple efforts to engage with PFS by a range of agencies, and multiple experiences of reform responding to separate organisational imperatives, contribute to the attitudes of PFS towards further engagement with FQ.

Within this context, Figure 1 presents a summarised overview of key engagement and reform efforts over the last 30 years in Queensland fisheries. Limitations exist in available documentary sources for many reforms and engagements, particularly those prior to the early 2000s. This is therefore not a complete chronology, and in some cases precise dates have not been identified. Figure 1 provides a useful overview of relevant major developments for analysing the current relationships and engagement efforts by FQ.

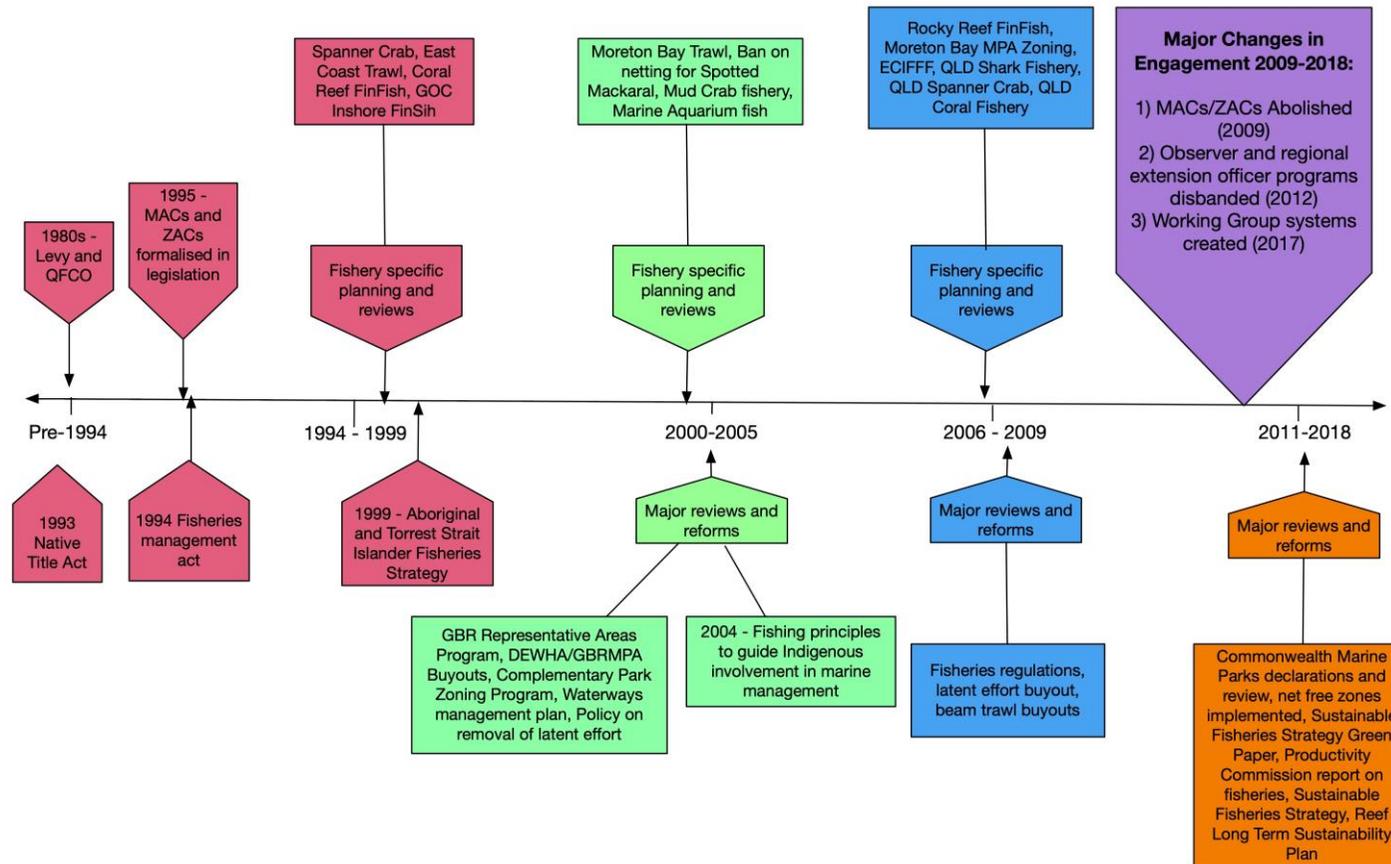


Figure 1: Chronological overview of engagements and reforms in Queensland professional fisheries, 1994-2018. Sources: primary data, Haysom (2001); State of Queensland (2012); Stevenson (2017)

## 2.2 History of engagement

Prior to the 1994 Fisheries Management Act, PFS and government were closely linked by the existence of the Queensland Commercial Fishers Organisation (QCFO). This was a statutory body under the 1974 Primary Producers Act. This was funded by an industry levy attached to license fees, and it was compulsory for license holders to be a member of the QCFO. The QCFO had committees for all major fisheries that informed representation and deliberation both in relation to fisheries management and political representation. The QCFO acted as a functional body that linked stakeholders from different sectors, with the financial viability to sustain ongoing interactions and dialogue of reform processes (Haysom, 2001).

The Fisheries Management Act 1994 also provided the basis for the first major period of reform. This began a roughly 12 year intensive period in which management plans were developed and periodically reviewed, beginning in 1999 until 2011, with some management plans continuing to be adjusted subsequently. A number of these were the basis for major reforms, such as implementing quota systems in reef line and trawl fisheries, and implementing buybacks in the beam trawl and East Coast inshore net fisheries. Fisheries specific planning or review processes we have been able to document during this 12 year period, as well as some additional state level MPA planning processes, are displayed in the timeline. This resulted in a fairly constant stream of planning and review which, from the perspective of mainstream fisheries management practice, represented a process of adjusting management to suit changing conditions, occurring in consultation with industry via MACs and ZACs. Industry was able to formally engage with government processes through these recognised committees.

The Fisheries Management Act 1994 provided the basis for formalising engagement with the professional sector via Management Advisory Committees (MACs) and Zonal Advisory Committees (ZACs). MACs and ZACs provided a formal pathway for industry representation, as well as an informal setting in which views could be, ideally, communicated to managers and decision makers and issues worked through without having to make recourse to political lobbying. ZACs provided a structured means by which broad-scale reform plans could be communicated to stakeholders in regional areas, and through which feedback and input into planning processes focused on more localised perspectives could be enabled. MACs and ZACs did not offer opportunities for adequate Indigenous representation (Smyth, 1999). These formal engagement mechanisms were further supported by operational staff within FQ, including regional extension officers, and an observer program, each of whom contributed to education and extension work on both formal and informal levels.

During the 2000s, substantial changes to this system of engagement mechanisms and industry representation occurred. Firstly, the levy that supported the QCFO was abolished, thus effectively defunding the organisation. In its place the voluntary Queensland Seafood Industry Council was established, and a range of organisations focused on a specific fishery/region (such as the Professional Crab Fisherman's Association or the Moreton Bay Seafood Association) or a common view of fisheries management (e.g. Fisherman's Portal). **This catalysed a fundamental change – the industry rapidly fragmented, as no coherent organisation in place to link them to government.** These developments have led to a substantial reduction in membership for the peak industry representative body, with current QSIA membership anecdotally sitting at between 200-300 members out of an estimated total of over 3000 fishers. Industry representative bodies have subsequently become fragmented.

Further changes to FQs engagement approaches since 2009 have influenced this picture. Firstly, in 2009 following a whole of government review, the MACs and ZACs were abolished, with a single industry wide advisory council put in place. Working Groups were recommended to be convened only for specific reforms or reviews, in place of the permanent, formal structure that the MACs and ZACs represented. In 2017, these Working Groups became a new form of linking FQ with key industries. However, the 8 year hiatus supported the fragmentation of communication, creating a barrier of for information and knowledge exchange between FQ and PFS.

The result is that these organisations can be locally effective mechanisms for engaging with FQ where a group of fishers can successfully organise around common issues, and at an appropriate scale. However, at the industry wide level, and in those fisheries where a functional, broadly representative body does not exist, both fishers and FQ appear to lack any clear mechanism whereby engagement can be undertaken in a structured manner that supports fishers to disseminate information, aggregate opinions, nominate representatives and establish common positions effectively, as a precursor to engaging with FQ. **This historical factor has created a major barrier: the lack of coherent mechanisms for industry-government dialogues. The ‘lull period’ between QCFO dismantling and the newly organised Working Groups has led to a long period of fragmentation of fishery organisations and forums to interact with FQ.**

The 2000s presented a major period of change in communications and linkages between FQ and PFS, which were compounded by wider changes that affected PFS. Firstly, the GBRMPA Representative Areas Program which ran between 2002 and 2004 led to a major rezoning of the Great Barrier Reef Marine Park. This resulted in 30% of the GBR being put into “Green Zones” as permanently off limits to fishing, and the removal of 114 professional boat licenses from the fishery (State of Queensland, 2012). Secondly, through the 2000s a series of buyouts were initiated under the aegis of FQ. In 2007 the establishment of a policy on removal of latent effort in Queensland Fisheries led to further industry wide buyouts achieved largely via the removal of fishery symbols, and subsequent more localised buyouts occurred in the Beam Trawl fishery and in the East Coast Inshore Finfish fishery, while in 2009 the Moreton Bay buyouts resulted in a further 118 professional boat licenses being bought out. In total, between 2000 and 2012, 232 professional boat licenses and 2527 symbols providing resource access to licence holders were removed from Queensland fisheries. This represented 37% of total symbols prior to these reforms being initiated (State of Queensland, 2012)<sup>2</sup>.

Following a change of government in 2012, a lull in efforts to periodically review and adjust fisheries specific management conditions occurred. The only substantial reforms in the fisheries sector in this time was the establishment of Net Free Zones in 3 areas across the Queensland coast, which was reported to have had a major impacts on local professional fishers, and the implementation of the Commonwealth Marine Parks in 2013, and subsequent reviews, which saw substantial input from professional fishers, though impacts from this process were not reported in this research.

In 2012 “day to day” engagement was impacted by a whole of government rationalisation, in which FQ was restructured and engagement functions changed. Of particular importance is that observer and regional extension officer programs were

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<sup>2</sup> Fisheries resource access arrangements in Queensland are complex. Stakeholders need a boat license to fish or harvest, but they also need a symbol to designate which type of fishery they can operate that license in. One can have multiple symbols on one license.

discontinued. While the observer function appears to be being replaced by VMS capabilities, education and extension roles have been integrated into Boating and Patrol officer duties, alongside enforcement and compliance activities. Monitoring staff also play an informal role in terms of education and extension, yet their roles are blended with issues of legal requirements and compliance. **These changes have meant that important roles of scientific knowledge extension have been coupled with compliance staff, which has meant that engagement for topics of scientific communication are now associated with issues of legal requirements and compliance.**

The next major suite of efforts to engage with PFS began in 2014 with the MRAG review of the Queensland fisheries management system, which aimed to focus on the systems and processes for fisheries management rather than on the specific arrangements in individual fisheries” (MRAG Asia Pacific, 2014). This was a major effort to collate opinions and input from a wide range of stakeholder groups with interests in Queensland professional fisheries, involving public meetings in 16 regional centres across Queensland, as well as a written submission period.

The MRAG review resulted in a Green Paper on sustainable fisheries management reform, which had a further extensive consultation period. This involved 126 face to face meetings with 230 stakeholders, as well as over 11,000 written submissions, including the following efforts by FQ:

- 4049 letters sent to all professional licence holders
- 949 letters and/or emails sent to representative groups, bait and tackle shops, local councils and Indigenous corporations
- 8000 emails to stock impoundment permit holders
- social media posts
- advertisements in fishing-related magazines
- ministerial media releases (picked up by local newspapers and radio)
- website promotional material
- proactive cold-calling of key stakeholders and invitations to meetings
- meetings on request, arranged in regional locations along the Queensland coast based on those who registered interest.
- individual consultations via telephone appointments.

These consultations informed the finalised Green Paper, which then informed the Sustainable Fisheries Strategy 2017-2027.

In light of the history of formal engagement and representation since c.2000, the establishment of formal Working Groups under the Sustainable Fisheries Strategy since late 2017 represents a shift back towards a formalised structure through which engagement can occur. This system currently has 9 established Working Groups focused on Trawl, Crab, Spanner Crab, Coral Reef Finfish, Rocky Reef, Sea Cucumber, Lobster, Marine Aquarium Fish and Coral, and Inshore net fisheries. In total, 64 professional fishing and post-harvest members sat on these Working Groups as of August 2018.

The role of a Working Group member does not involve representing industry views and opinions. Some interviewees in this project reflected that it is FQ’s responsibility to consult with the wider industry on options for management and reform based on progress and discussions in the WG. Others did conduct their own small scale consultations with peers prior to and following meetings in order to inform their opinions. Reflecting this, recent expression of interest notices have been issued by FQ for a series of regional workshops for harvest strategy development within the trawl

fishery, which will 'operate under the Trawl fishery Working Group terms of reference to provide input into the drafting of harvest strategies for each of the proposed relevant management regions.'<sup>3</sup> **In summary, this appears to be a positive shift back towards a structured process for engagement, and appears to have been largely welcomed by stakeholders we interviewed. The Working Groups may be offering an opportunity to start re-building the hiatus period where no clear ways of linking FQ developments directly with industry were in place.**

## 2.3 Discussion of historical factors

These historical reforms and changes have influenced the current experiences and reactions to engagement. The 2013-2017 period has been intensive, as the Queensland government has sought to establish a modernised, co-ordinated fisheries management system. This was a response to 12 years of reviews and reforms that ultimately resulted in substantial erosion of trust and effective communication with large sections of the professional fishing industry.

In this context, a key finding of this historical section is that over the course of the last 20 years of reform of Queensland professional fisheries, and most recently since the 2014 MRAG review, FQ and other government agencies have made sustained, industry wide and fishery specific efforts to engage with PFS, using a wide variety of approaches and techniques. These methods have been used in different contexts and for different purposes, and they do show that FQ has made considered efforts at informing and consulting with PFS of reform processes over a long period of time. FQ has also had a very 'hands on' role, notably through the observer and monitoring staff in the past, at communicating scientific concepts and changes in fisheries management. **This presents an important context for changing engagement. The context is one where FQ has made substantial efforts at engagement and consultation, yet PFS attitudes towards FQ engagement appear to be at a historic low. Overcoming these attitudes requires a re-assessment of what has been done and how PFS perceive larger changes could take place to improve engagement.** While the rest of this report will provide suggestions for improving engagement based on our primary data gathered from PFS and analyses, here we offer some initial observations drawing on the historical material presented above.

An initial look at this history of engagement and reform furnishes the conclusion that in the past 20 years, there has seldom been a year go by in which at least some part of the professional fishing sector has not been subject to review, reform, efforts to engage and consult, or changes in the nature of industry representation. This alone suggests that the likelihood of 'engagement fatigue' is very high for PFS. One way to address this is to shift the narrative from one of engagement to one of co-management, listening, and deliberation. **We expand on these methods in the companion Engagement Methods Report.**

The highly diverse nature of Queensland fishers, many of whom operate multiple endorsements in multiple fisheries, is also likely to exacerbate this fatigue, because fishers have to be part of multiple engagement and reform processes affecting their operations. Fishers have their own communication networks with each other, and these may present an opportunity for FQ to work with those networks and tailor engagement strategies specifically to them.

<sup>3</sup> See <https://www.daf.qld.gov.au/business-priorities/fisheries/sustainable/sustainable-fisheries-strategy/fishery-working-groups>

Furthermore, the extremely wide geographical spread of Queensland professional fishers, often in remote areas with low levels of telecommunications coverage makes efforts to engage a challenge regardless of the nature of the issue at hand. This is likely not assisted by the fact that most FQ fisheries managers and decision makers are based in Brisbane, and therefore cannot be in a regular “on the ground” interaction with the fisheries they manage, without incurring significant expense.

Finally, the successive rationalisation of government services at a whole of government level in the late 1990s/early 2000s, 2009 and 2012 is likely a historical factor that has influenced the relationships and the state of engagement in professional fisheries. This has led to the removal of the formal mechanisms for engagement that the QCFO and the MACs/ZACs represented, and informal mechanisms via education and extension undertaken by extension officers and observers that are likely to have played important roles in maintaining positive interactions regardless of wider issues.

The following sections will build on these historical insights to present the views of PFS expressed during the project, organised around seven major themes.

### 3 Historical factors and barriers: How do professional fishers and stakeholders feel about the current state of engagement with Fisheries Queensland? Insights from the semi-structured interviews

The interviews with PFS revealed rich variation and nuance in stakeholder accounts of their relationships with FQ, and their perceptions of the effectiveness of current levels of engagement. In this section, we present seven major themes which summarise discourses within PFS on the current state of engagement, emerging from their historical experiences. These themes are a distillation of issues influencing the current state of engagement, and while there are considerable complexities and diversities of viewpoint in relation to different themes, here we present an overview of the core message of each theme. That is, as presented these themes represent issues that a large number of PFS across fisheries and locations raised, and are therefore broadly indicative of industry sentiment. The validity and legitimacy of the findings can be confirmed if, upon report review, a summary of findings is shared with participants to comment on our interpretation of the engagement context.

In the thematic analysis we identified seven major themes based on the data and linked to wider issues in fisheries management in Australia and international literature. These seven themes are:

1. The perceived impacts of PFS input on FQ processes and outcomes.
2. The cumulative historical effect of reform processes over a 25 year period, and perceived advantages/disadvantages offered through past reforms
3. Differing worldviews and life experiences and their implications on engagement
4. The influence of political decisions on professional fisheries engagement processes
5. Public perceptions of the value of the professional sector, including contributions that professional fishers make to society
6. Interpersonal engagement vs organisational engagement
7. Stakeholder fragmentation and cohesion

A more detailed analysis of how these accounts varied across different stakeholder groups, from disengaged to highly engaged, can be found in Section 4 of this Analytical Report. Table 3 summarises how the seven themes interact with specific barriers to engagement amongst PFS.

**Table 3: State and barriers to engagement between Queensland PFS and FQ**

<b>State of engagement themes</b>	<b>Barriers to engagement</b>
Theme 1. The perceived impact of professional fisheries stakeholder input into FQ processes and outcomes	PFS do not see the impact their input (or that of their representatives) has had on outcomes.
Theme 2. The cumulative historical effect of reform processes over a 25 year period, and the perceived advantages/disadvantages offered through past reforms	PFS often view historical engagement with FQ as a history of loss and marginalisation.
Theme 3. Differing worldviews and life experiences among industry and between industry and FQ, and their implications on engagement	PFS often feel that FQ do not understand the day to day reality of their lives, do not view the world in a similar way to them, and do not value their particular experience, knowledge or relationship to fisheries and marine systems.
Theme 4. The influence of political decisions on professional fisheries engagement	PFS feel that decisions at the political and upper managerial level are subject to the influence of stakeholder groups who would prefer the industry did not exist.
Theme 5. Perceptions of the value of the professional sector, and the contributions that professional fishers make to society	PFS often feel demonised and that the momentum for change is reflective of an incorrect societal view that professional fishing is unethical and unsustainable.
Theme 6. Balancing interpersonal engagement vs organisational engagement	Interpersonal relations were generally considered to be good, however barriers exist to facilitate greater interpersonal interactions – including staffing levels, budgets and workplace rules and regulations. The main barrier to engagement at an interpersonal level appears to be low levels of trust for FQ at an organisational level.
Theme 7. Stakeholder fragmentation and cohesion	A lack of co-ordination and cohesion between PFS represents significant barriers to effective engagement.

### 3.1 Theme One: The perceived impacts of PFS input on FQ processes and outcomes.

This theme relates to the perception that efforts to engage and communicate with FQ over a sustained period of time (i.e, 20+ years) had not led to substantive impacts on fisheries management, decision-making or operations. While stakeholders did speak of engagement experiences, the issue they identified was the direct attribution of *their* perspectives to final decisions. A shared feeling among stakeholders was that they perceived 'final' decisions made before any engagement happened, making it hard for

PFS to genuinely shift the decisions. Using variations in language, stakeholders shared the common feeling of whether any future engagement 'will make any difference'.

This theme suggests that PFS individuals, from highly engaged to the highly disengaged, feel disempowered and disenfranchised from decision making related to issues that deeply affect them. This is due to the lack of direct attribution of their ideas to final decisions. As a result of this feeling, they perceive no tangible benefit in participating in future FQ engagement processes. Examples of the quotes from fishers, processors, and wholesalers that formed part of this theme include:

*Wholesaler: The problem with fisheries is that they have a guy sitting in Brisbane, and they've already got their mind made up. And then they just go ahead and implement it. And then they come out and say "this is what we're going to do" but it's already been set.*

*Researcher: So you guys haven't had any instance in which you've said to FQ, "here's what we think" and you can see that it has influenced the outcome?*

*Processor: No. So lots of people don't bother these days. It's getting too complicated and everyone is frustrated. People want to be included. But it feels like a dictatorship, that it's not open to discussion.*

**Processor, Wholesaler**

*To me there was a plan that was already going in. You could make submissions, but there was no listening. And these were plans that were extremely disruptive to businesses, families, towns, where I believe if they really thought that fisheries management had to be implemented, that it could have been done in a far less harmful way.*

**Processor**

*My views will differ from other fisher friends because I'm also looking at it from a science point of view, and a lot of them (FQ) are trying to do the right thing. But when you have your say it is hard to see that it had any effect at all.*

**Fisher**

The implications of these themes are that any strategy or method needs to work towards documenting how PFS perspectives, where adequate, can shape management decisions. This requires processes of feedback and communication back to stakeholders how decisions change *after* an engagement process.

### 3.2 Theme Two: The cumulative historical effect of reform processes over a 25 year period, and perceived advantages/disadvantages offered through past reforms

Project participants shared detailed stories relating to the history of fisheries reforms over a period of approximately 25 years, and the influence of these processes on the viability of their operations as well as their ongoing relationship with FQ. In some cases

respondents referenced as far back as the establishment of logbook data collection in 1988 when citing concerns in their relations with FQ. For all participants, the impacts of past reforms and management decisions on their operations is a key influence on their perceptions of the value and success of current engagement efforts by FQ.

PFS related their negative experiences of past reform processes to current responses to reforms and efforts to engage. This means that any current engagement process is perceived with a preconceived perspective that it will not benefit the industry, given the long histories of changes in fisheries management. For fishers holding multiple endorsements and smaller businesses across the engagement spectrum, this history is primarily viewed as a history of loss. Loss was related to loss of opportunity, loss of viability, loss of status in society, and a loss of trust that FQ is capable of acting in the sector's best interests.

*If you're going to start talking about relationships between Queensland fisheries and fishermen, you've got to go back 25 years, because that's when we really started to be directed in fashions we didn't want to go... I said right from the start when reforms started that this was absolutely the wrong way to go, because the sustainability of any fishery is to be diversified, so, consequently, a mud crabber isn't going to keep fishing for mud crabs out of the Burnett River if there aren't enough there to remain viable. He's going to go out and do his Spanish Mackerel fishing or go netting somewhere else, it makes perfect sense to me... You get a printout from 25 years ago though, and you look at the endorsements, and the number of licenses under those endorsements that gave access to the resource, which is a good thing to be able to diversify. But you're looking at 2000 on that one and 1900 on that one, and it just didn't look good on paper, so they [FQ] say "we've gotta change that," and they did.*

*We have been systematically dismantled for the last 25 years.*

**Fisher**

*They [FQ] are not managing fisheries. They are just using every chance to cut large chunks off the fishing industry. Every chance they get.*

**Processor**

The implication here is that historical experiences have influenced negative feelings, and as such any new methods and strategies will need to articulate how they are different from the past and what 'new' aspects are being developed to improve the expertise of PFS.

### 3.3 Theme Three: Differing worldviews and life experiences and their implications on engagement

Different worldviews and life experiences influence the multi-actor networks within which PFS and fisheries management agencies operate. We define worldview as an holistic sense and understanding of the world that an individual or group holds, often expressed or conceptualised as relatively coherent set of beliefs, values and practices, and connected to their practical life experiences (Guba, 1990; Kuhn, 1970; Moon and Blackman, 2014).

The worldview relates theme relates to the expressed sentiment that FQ does not fully comprehend the nuanced realities of fishing and day to day activities of PFS. This was expressed in terms of not viewing the world in the same way as industry, not acknowledging and valuing the expertise and experience of industry, and relationships within industry. These different understandings led to stakeholders not wanting to engage in further processes with FQ. The online survey underscored this. For the statement 'on scale of 1 to 10 I feel like DAF understands me and my business' the average response was just 1.5 out of 10.

The theme of worldviews is organised around three sub-themes. These sub themes were drawn from the empirical data, and illustrate aspects of different worldviews and life experience that influence the relationship between FQ and PFS.

### **Differences in life experience and identity**

Some respondents entered the fishing industry at a relatively young age (for example, before Year 10), and it has provided their principle or only source of work over the course of their adult lives. The two most common means of entering the industry were either as a result of family involvement in the industry, or as a result of a passion for recreational fishing and boating. In each case, these pathways into the industry form the basis for an identity and sense of self that is strongly associated with fishing. As a result, fisher's personal wellbeing is likely to be evaluated to a significant degree in terms of their ability to maintain a productive involvement in the industry. This resonates with previous work the social dimensions of fisheries in Australia (Voyer et al., 2016; Voyer et al., 2017). This is a finding that is also strongly reflected in previous work on social resilience in Queensland fisheries (Marshall et al., 2007; Marshall and Marshall, 2007).

*I'm a 3<sup>rd</sup> generation fisherman, and I grew up with dad building trawlers, and I've been driving trawlers since I was 19. I'm not so interested in money, I just love fishing and being around nature, and I feel like I can catch a lot because I'm in touch with nature.*

**Fisher**

### **Differences in education and exposure to formal learning processes**

The results of the interviews reflect a tendency towards tactile, or 'hands-on' learning within the fishing industry, with lower levels of formal education. Common with fishers from all around Australia, stakeholders in our study had entered the industry without completing a high school qualification (Marshall et al., 2007; Marshall and Marshall, 2007). This has particular implications for the communication methods and language used in future engagement activities. As one fisher noted:

*I started in the fishing industry when I was 13 years old. I hated school and didn't want to be there so I left. I don't really like the fact that people have to go to school - let the brainy kids do that and others do other things.*

**Fisher**

It is worth noting that fisheries management as a field is based around analytic and practical processes that frequently require high levels of formal education, often in specific fields of scientific expertise. Our experience of interacting with FQ staff

suggests that almost all staff above the level of field officers (and probably a lot of field officers too) will be likely to have a higher education degree or completed additional formal training in relation to their roles with FQ. This means that the different ways of understanding fisheries in practice emerge from a complex mix of life experience, formal and informal training, and beliefs on what the ‘purpose’ of management is. This has implications for methods of engagement, indicating that methods need to work towards ways of explicitly identifying and recognising the role of these different worldviews in management.

These differing modes and methods of learning can lead to a breakdown in communication, understanding and respect. Fishers’ identity and experiences lead to a worldview informed by their skills and knowledge in the *practice* of fishing. PFS often assume that formal management decisions are based solely on ‘book learning’, and do not include adequate consideration of these practical aspects of fishing. This undermines the respect of PFS for these decisions.

Similarly, fisheries managers find it difficult to incorporate ‘anecdotal’ or experience based knowledge into the scientific, data driven empirical processes they are trained to trust and employ. This creates two sets of worldviews – one based on formal technical training, and the other based on experiences of fishing. These worldviews create different ways of framing problems and solutions, and without adequate forums to acknowledge the different worldviews, conflict can emerge. As one stakeholder summarised:

*There are very few people in FQ that actually know how the fishery operates. [once a manager grabbed] me and some butcher paper and asked me to explain where the Line fisheries were and who was doing what... Like that is Line fishing 101.*

**Fisher**

This disconnect between models of learning, and the relative power held by fisheries managers in decision making processes, can lead to a sense that the data produced by fisheries managers and scientists is being privileged and prioritised over the accumulated experience-based knowledge of PFS. Many PFS have a strong desire for their knowledge and potential contributions to fisheries management to be recognised and valued, alongside that of other stakeholders, managers and experts. This is likely tied to the strong sense of occupational identity that many fishers maintain, and is also linked to the prevailing feeling, discussed in Theme 5, that fishers’ contribution to the community in various ways is undervalued. As two stakeholders summarised:

*“Fishermen are crying out to have their knowledge valued”*

**Fisher and processor**

*“We’d like to see more involvement in the process of putting together information and showing us how they’ve compiled that information. There is a lot of knowledge in the fishing industry, and this just isn’t valued enough or included in the fisheries process.”*

**Processor**

Rather than using different worldviews as a barrier, they create an opportunity to working towards created shared framings of scientific questions and processes that are salient to the different stakeholders. This has implications for engagement methods relating to the production and conduct of scientific and economic research in marine fisheries in a way that embraces the diversity of experience in the sector.

## Differences in what the objectives of fisheries management should be

There is perception that FQ supports a narrative that prioritises addressing conservation and biological concerns, at the cost of holistically integrating social, economic and biological considerations. This was a key aspect of differences in worldview and approaches to fisheries management.

*Managers' interests are not aligned with industry and there's a massive gap there. FQ have to bridge that gap to build any trust, they need to align their objectives with industry objectives. Their role should be ecological sustainable development – maximising returns to community from the resource. But as far as I have seen, they aren't genuinely interested in the economic or the social at all, only interested in the ecological issues, and only the ones that address the day to day pressures managers are under in terms of the EPBC Act, and doing stock assessments all the time. Even though the legislation is there for triple bottom line ESD, there is no real talk about that, it is put in the too hard basket. The culture, in reality, says that ESD is impossible and we're not going to bother. That's not to say it's an easy task, and everyone has the same problem across Australia, but FQ needs to be strong enough to identify what they are aiming for, rather than just dealing with the bushfires.*

**Fisher**

### 3.4 Theme Four: The influence of political decisions on professional fisheries engagement processes

There was a sense that decisions at the political and upper managerial level are subject to the influence of stakeholder groups who would like to see professional fisheries reduced or eliminated. The principal influences were viewed as being the recreational fishing lobby, and conservation organisations. As this influence is sometimes seen to be exercised outside of stakeholder inclusive decision making processes, this negatively influences PFS willingness to engage in departmental level processes. In this regard PFS felt their needs were 'played off' against those of other stakeholder groups, which they considered to be more powerful and influential in political spheres. This translates to political interference in decision making on fisheries management, undermining the ability of the industry to influence outcomes and therefore creating a barrier to effective engagement. The implication of political decisions is that PFS are blind-sided by changes and have little to no opportunity to influence outcomes, hence eroding the belief that engagement works for influencing outcomes.

An example that illustrates this issue is one interpretation of the 2008-2010 Rocky Reef Finfish assessments and proposed reductions in catch rates. In this case, PFS we interviewed reported having supported major changes to catch levels at significant financial risk in the interests of sustainability. They argued that these proposals were frustrated by the recreational fishing lobby, who disputed stock assessments on multiple occasions and successfully lobbied at the ministerial level to block reductions in resource access for the recreational sector. Ultimately, no significant changes in management measures were introduced, after two years of intensive planning and industry consultation.

A further episode in recent history that reflects this theme was the implementation of three net free zones across the east coast in 2015. This was viewed by PFS involved in net fisheries as a defining moment in recent relationships, and a further example of the responsiveness at the political level to demands from the recreational fishing sector. In particular a major grievance associated with this process was a perceived lack of consultation with the professional sector or serious consideration of the socio-economic impact on professional fishing and fishing dependant towns.

### 3.5 Theme Five: Perceptions of the value of the professional sector, and the contributions that professional fishers make to society

PFS noted that the fishing industry has become demonised in wider society, and that this is reflected in fisheries management decisions and processes on a regular basis. Whereas farmers inland receive support and are acknowledge as pillars of Australian society, the fisheries sector is perceived as extractive and unsustainable, despite PFS considering themselves as 'the farmers of the sea'. This narrative is influencing engagement with FQ as PFS often perceive that the momentum for change is reflective of these concerns from wider society that professional fisheries are viewed as unethical and unsustainable profiteers. As two fishers noted:

*I've fought for fishers for over 20 years and I'm so tired of the constant stress, and the vilification in the media. But particularly the unapologetic and unwavering selfishness of the rec sector in ignoring the rights of the public to have access to commercially caught domestic seafood, to give them the choice of having their own seafood.*

**Fisher**

*Interviewer: What could FQ do to improve its engagement with PFS?*

*Interviewee: Convince me that I'm wanted*

**Fisher**

The narrative within society of PFS is an important area where future engagement and communication can help. Documenting the value and importance of PFS for natural resource management can assist in changing this narrative towards one where PFS are better understood and valued.

### 3.6 Theme Six: Interpersonal engagement vs organisational engagement

PFS emphasised that interpersonal relations and interactions with individual FQ staff and PFS were perceived in a much more positive light than relations between FQ as an organisation. Interpersonal interactions acted as a positive influence on engagement, with relationships with individuals in FQ being relatively positive. This is also reflected in our social network findings (Section 5).

It was generally acknowledged, with some small exceptions, that fisheries managers and boating and patrol officers have a very difficult job to do. PFS noted through different examples that FQ staff make sincere efforts in their complex roles. Monitoring staff were often singled out as a positive example of interactions by PFS, not only in the sense that they were “doing a good job despite the problems” but that their work more regularly had a genuine “two-way” interaction that fishers valued. As two fishers summarised:

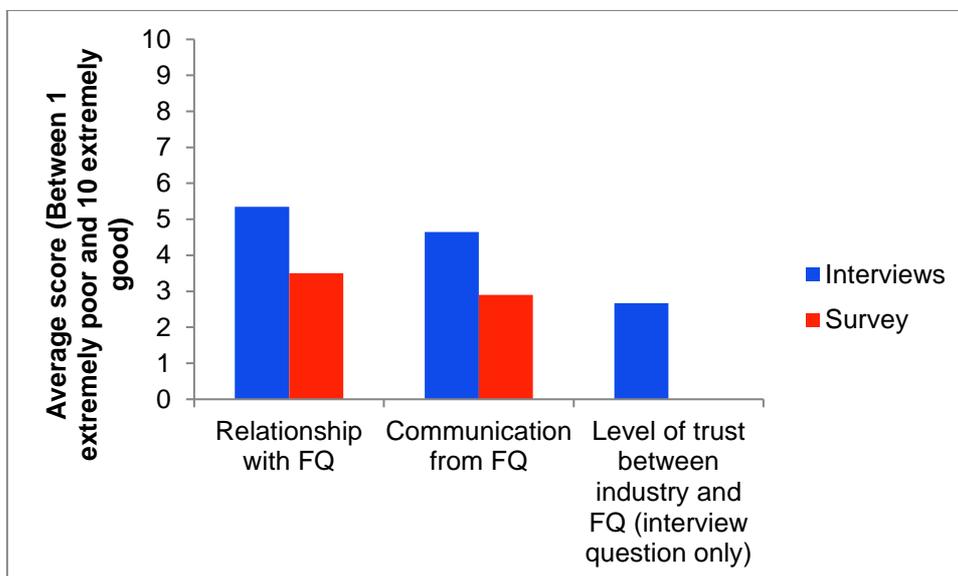
*I find it really helpful to talk on the phone to the managers, it keeps everything in context much better than emails or texts can... Regardless of what's going on I feel I can pick up the phone and they will be responsive. Can't ask for more than that. I realise the managers sit in a difficult position – the political level is above them, and the managers can't always say certain things. Well, some more than others, but it's generally ok.*

**Fisher (Typology B1)**

*If it wasn't for the monitoring guys my whole view on fisheries would be different... They know what is going on.*

**Fisher (Typology B1)**

While interview responses indicated relatively strong one on one relationships with individuals within the agency, this was not reflected in overall assessment of relationship with FQ as an organisation. When participants were asked in the interviews and the online survey to rank their relationship with FQ, the communication from FQ, and levels of trust<sup>4</sup> in FQ the average responses were very low (Figure 2).

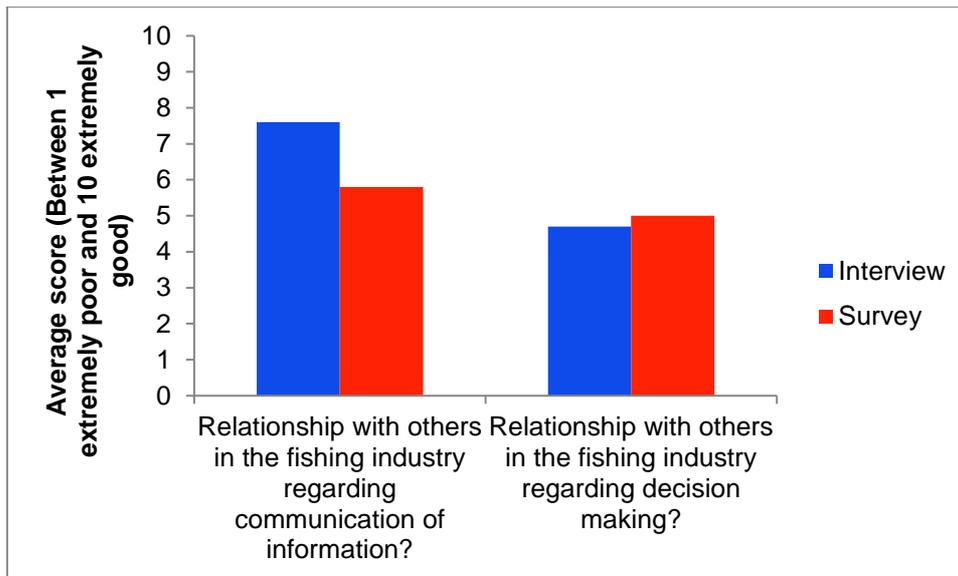


**Figure 2: Authors analysis of responses given during interviews (N=43) and survey (N=77) NB not all participants responded to this question**

<sup>4</sup> Please note this question was only asked in the interviews and not the online survey

### 3.7 Theme Seven: Industry fragmentation/cohesion

The historical review noted the dilution of formal organisations and bodies after the abolishment of the QFCO, MACs, and ZACs. This fragmentation of the industry and a lack of co-ordination and cohesion between operators represents significant barrier to effective engagement. Whilst interview and survey respondents considered communication within the industry much more favourably than their relationships with FQ, they also acknowledged the difficulties in establishing common ground, or a united voice, across the industry in relation to decision making (Figure 3).



**Figure 3: Authors analysis of responses given during interviews (N=33/27) and survey (N=76/75) NB not all participants responded to this question**

This is a particularly difficult barrier for FQ to overcome, as the industry ultimately needs to be able to organise itself more effectively to assist with better engagement. The Working Groups are an initial positive attempt at revitalising the needs for important linking organisations. As one stakeholder noted:

*There's that much bad blood in industry, that I don't know what can be done [for the industry to organise itself better]. There's a few companies with several boats, and the little guys are scared of the big guys, but the big guys also need the little boats to use their wharf. The split between the big and little boat really needs to be addressed first. There are big guys on the Working Group, but then, the small guys didn't put their hand up. People won't take opportunities then pipe up when things go wrong.*

**Fisher (Typology B1)**

*The fishery is so diverse that everyone has a different agenda, because you are catching so many different things in so many different places...It is just so diverse that you can't put everyone in one box.*

**Fisher (B2)**

Where interviewees were not part of an association, they noted an inability of associations to effect change was closely connected to government decisions and the perceived negative impacts of reforms.

*The QSIA are doing their best, but their membership is going down because they can't achieve anything, because government won't do anything. That really undermines QSIA's ability to get industry support.*

### **Wholesaler (A3)**

It was noted that in certain cases, more localised or fishery specific associations had been more effective in engaging with FQ productively. To the extent that FQ are able to support the development of these more localised associations, we believe this will lead to improvements in the ability of fishers to engage with FQ.

## 4 Engagement preferences of different stakeholder groups

Queensland PFS are made up of a diverse range of stakeholders from varying social, demographic, ethnic and socio-economic backgrounds. Tailoring communication and engagement strategies to meet these needs of different sections of the fishing industry is essential for improving relationships and building rapport. Ways of communicating information will depend on the characteristics of different groups.

In this section, we seek to answer the research question: *How do different 'types' of PFS currently engage with FQ?* In order to answer this question we developed a typology of Queensland PFS, which identifies the different challenges and opportunities for engagement which exist across the breadth of the industry. The process of identifying the types of stakeholders with whom FQ engages involved two steps. The first stage involved the development of theorised matrix of stakeholder typologies (4.1 below). The second stage involved using the results of the fieldwork to explore and build on this theorised matrix (4.2 below).

### 4.1 Identifying a stakeholder typology

The first stage of the development of a Queensland PFS typology involved initial discussions with FQ staff during an inception workshop held on August 27, 2018. A fishing industry stakeholder 'classification' exercise was conducted with FQ staff to identify some of the characteristics of different groups of fishers within the Queensland fisheries. This exercise built on similar work completed in NSW which identified two distinct 'groups' of fishers, with quite different needs, aspirations and fishing practices (see Table 4Table 4).

**Table 4: Segmentation of NSW professional fishers according to business models from Voyer et al. (2016b)**

Group A fishers	Group B fishers
<p>Involvement in single or limited number of fisheries (i.e. specialist fishers). Often focused on high volume offshore fisheries such as purse seine, ocean fish/prawn trawl, abalone or longline, although some generalist estuary fishers also fit in this category. Significant travel often involved.</p> <p>Value adding common often through own wholesaling or processing facilities.</p> <p>Multiple markets – markets selected according to optimum price, often outside the co-operative or Sydney Fish Market system.</p>	<p>Endorsements in multiple fisheries, especially in shore fisheries such as estuary general and ocean haul (i.e. generalist fishers).</p> <p>Limited or small-scale vertical integration or value adding – usually market direct to co-operatives or Sydney Fish Market</p> <p>More likely to be involved in 'part-time' or seasonal work outside the industry.</p> <p>Group B might include Indigenous professional fishers operating on traditional sea country with strong local community engagement and some sharing of catch.</p>

The inception workshop also identified three main groups of stakeholders in relation to their levels of engagement with FQ. These were:

1. **Highly engaged:** these fishers tend to be active advocates for the industry, engaged in representative bodies, regularly involved in consultative mechanisms (such as advisory groups) and in regular contact with the Department. FQ staff considered that this group wanted to know everything they could about management activities and were more likely to appreciate the complexities involved in fisheries management.
2. **Transactional:** these fishers contact the Department when they are in need of information, advice or have a complaint about a management activity or intervention. Communication with these fishers tends to be largely transactional in nature. In turn the Department only reaches out to this group periodically, for example, when in need of information or data. This was considered the largest stakeholder group amongst Queensland professional fishers.
3. **Disengaged:** this group were believed to rarely, if ever, engage with the department, had low level of trust or respect for Departmental staff and tended to conflate FQ decisions with 'government' more broadly.

The combination of fisher 'groups' and levels of engagement led to the development of a theorised matrix of stakeholder typologies in relation to key fishing industry stakeholder characteristics and engagement patterns (Table 5). It highlights six distinct groups of stakeholders, combining 'Group A' and 'Group B' fishers with the three levels of engagement.

**Table 5: Theorised matrix of stakeholder typologies**

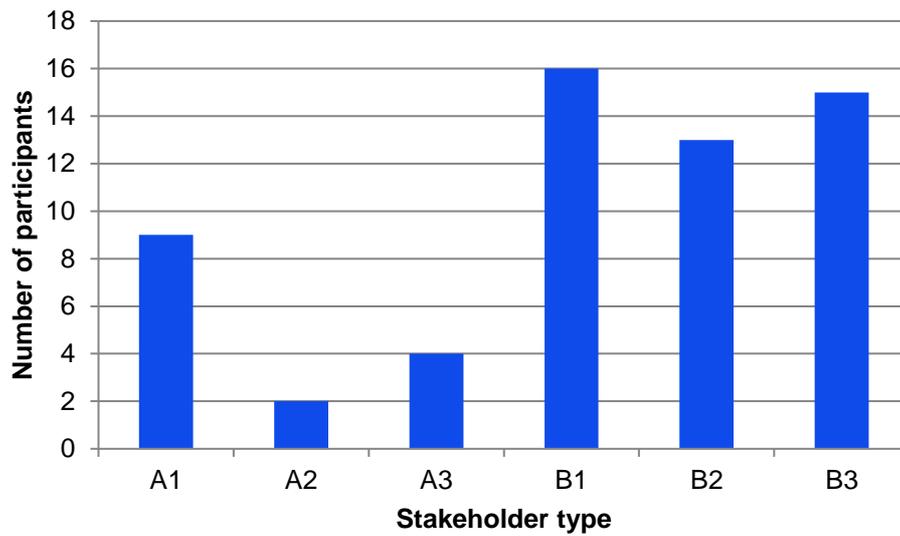
	<b>Highly engaged</b>	<b>Transactional</b>	<b>Disengaged</b>
<b>Group A</b>	<b>A1:</b> Highly engaged Group A stakeholders	<b>A2:</b> Transactional engaged Group A stakeholders	<b>A3:</b> Disengaged Group A stakeholders
<b>Group B</b>	<b>B1:</b> Highly engaged Group B stakeholders	<b>B2:</b> Transactional engaged Group B stakeholders	<b>B3:</b> Disengaged Group B stakeholders

Some likely characteristics of each of these 6 stakeholder types were identified in consultation with FQ staff. The fieldwork aimed to reach a broad section of the industry in order to reach all these different 'types' and explore these characteristics in greater detail. Each interview participant was classified according to the following criteria:

- Large quota holders, specialised fishers or stakeholders with vertically integrated business models, multiple businesses or vessels or investment holdings in the industry were classified as Group A.
- Owner operators, small or family run businesses, fishers with multiple endorsements and part time or seasonal fishers were classified as Group B.
- Individuals in Working Groups or representative bodies or in other forms of regular, and often formalised contact with the department were classified as highly engaged.
- Individuals who expressed infrequent or irregular contact with the Department were classified as 'transactional'
- Individuals who indicated that they rarely or never engaged with the Department were classified as 'disengaged'.

Figure 4 summarises the results of this classification process for all 59 stakeholders interviewed. The smaller number of Type A stakeholders is as expected, and is

consistent with existing information that the Queensland sector is dominated by family run owner-operators, with a much smaller number of larger operations.



**Figure 4: Spread of participants across stakeholder types. N=59, source= Authors**

## 4.2 Using the stakeholder typology to understand engagement patterns

Following development of the typology, and classification of all interview participants according to the criteria outlined in the matrix above, analysis was conducted to identify engagement patterns across the different typologies. Barriers to engagement were identified through this analysis and by cross referencing with the themes identified in Section 3 of this report, in order to establish whether particular concerns or issues were more relevant to particular sections of the industry. Table 6 summarises the findings of this analysis with further details outlined in the following sections

**Table 6: Summary of the characteristics and barriers to engagement for each of the identified stakeholder types.**

	<b>Highly engaged</b>	<b>Transactional</b>	<b>Disengaged</b>
<b>Group A fishers</b> (Larger, more 'business oriented' PFS)	<b>A1:</b> Hold quota/license and are actively fishing the quota/license. Entrepreneurial, tech savvy, motivated by competition, autonomy/freedom, utilitarian and challenge values – risk takers. Often operate vertically integrated businesses, high levels of investment, fixed crew and single species focus. Future oriented, have plans and a strong vision. Few barriers to engagement except perceptions relating to a lack of transparency or predetermined outcomes.	<b>A2:</b> Not a significant group within sample. May be owner operators or license holders (i.e. investors).	<b>A3:</b> Lease or license holders who are not fishing (investors). Often have links with post-harvest sector, often offshore, tend to be more disengaged and corporate. Barriers to engagement include time constraints and quantity and relevance of information. Perception that FQ do not listen to input.
<b>Group B fishers</b> (Smaller owner operators often in multiple fisheries)	<b>B1:</b> Owner/operators, interested more in business viability than business profitability ie 'lifestyle' motivators important, motivated by tradition, freedom/ autonomy and escape values. Few barriers to engagement except perceptions relating to a lack of transparency or predetermined outcomes.	<b>B2:</b> May include owner operators, as well as mixed income owner operators, lessees and crew. Mixed ages, may include younger fishers. Barriers to engagement related most specifically to time and capacity, as well as a feeling of suspicion that any information provided to FQ would be 'used against them'.	<b>B3:</b> Especially Aboriginal and Torres Strait Islander (ATSI) and English as Second Language (ESL) fishers, fishers from disadvantaged backgrounds, lessees and crew. Language and literacy issues a major communication barrier. May also lack confidence and skills to engage effectively. ATSI may feel reluctant to engage when their rights are not fully understood and acknowledged by other stakeholders.

### **A1: Highly engaged group A stakeholders**

This group of stakeholders (nine interviews) were spread across most fisheries but were particularly concentrated in the quota managed fisheries, such as trawl. Participants within this group were almost exclusively specialised fishers operating several vessels or business interests in a single fishery, or were large scale processors or wholesalers who owned vessels or quota to supply stock for their business. They had a strong interest in maintaining profitability, managing costs and developing market share, often in export markets or high value domestic markets. As one trawl fisher noted in demonstrating their high engagement:

*"You have to run our operation as a business, there is lots more regulation now, fuel is more expensive as well, you have to do regular AMSA vessel surveys. It's a very different ball game these days and you have to be more business savvy."*

**Fisher**

All participants classified in this group were current or previous members of Working Groups and/or representative bodies. All indicated they had direct and regular contact with senior fisheries managers within FQ, through email and phone as well as relatively large networks of contacts within the industry. Almost all this group indicated they had good working relationship with FQ, even though they did not always agree with the decisions made. This group tended to have a greater appreciation of the challenges faced by FQ in managing the resource. For example, on charter stakeholder noted:

*They're people that I know... and we've got a long established relationship so there's an element of trust there... (I understand) that DAF are very much the meat in the sandwich a lot of the time... you've got recreational versus commercial interests, you've got greenie groups versus recreational, commercial and charter... you might have budgetary constraints, you've got all these competing interests that they have to deal with.*

**Fisher**

This group of stakeholders were overwhelmingly looking for certainty, stability and conditions which allowed them to gain a return on the investments they had made in their businesses. There are few barriers to engagement for this group, who are motivated to be actively engaged in FQ processes by a desire to have direct input into decisions that may impact on their businesses. This group was the most likely to relate instances where either their own or industry input had led to some specific and substantial changes in policy or management outcomes they viewed as favourable. One processor noted:

*When we were going through a previous fishery review, we were asking for information from fisheries, but we weren't getting it... It took political intervention for the information to come out.*

**Processor**

These individuals acknowledged that a large majority of the sector did not have this experience of productive input or engagement and the influence they had was often seen by others in the industry as only being to their own advantage, or even at the potential expense of others in the industry.

Although the level of influence or meaningful input was highest in this group over all others, many did still express frustration about processes that lacked transparency or were perceived to be predetermined.

*I'm having difficulty coming up with a good example (of interactions with FQ) - by this I mean getting a satisfactory conclusion from it. If you mean having a conversation then [name of fisheries manager] is a very, very good communicator, but reaching a conclusion that will help bring stability and financial income has not happened... I don't think we go through a listening process - I think the average fishermen through all different fisheries... go through a process of being told what they are going to get and how they are going to get it and 'accept it or get out'.*

**Fisher**

## A2: Transactional group A stakeholders

Only two participants was classified as A2, and therefore it is difficult to draw meaningful conclusions about this group. There are a number of potential explanations for this low number. This may be because the sampling strategy was not successful in reaching this group. The second explanation is that Group A stakeholders - due to their business oriented focus are in general motivated to be in the highly engaged category. Those that are not motivated in this way may be investors and therefore less likely to engage in day to day management and therefore tend to fall into the disengaged camp.

## A3: Disengaged group A stakeholders

All the four interview participants classified in this group were involved in the post-harvest sector as processors, wholesalers or retailers. In many cases the participants held licenses which they leased out and, while some were ex-fishers, most did not actively fish themselves.

The participants classified in this group indicated that they received regular updates and information from FQ via email, the website or through local Queensland Fisheries and Boating Patrol (QBFP) or the FQ research and monitoring team. This all related to one way communication and they expressed difficulties in keeping up with the volume of information or struggled to filter out the items that were most relevant to them. In terms of having input into decision making processes there was a great deal of scepticism and a sense that FQ would not listen to input and therefore an ambivalence towards getting involved. One stakeholder summarised:

*The bombardment in the last 6 to 8 months with email after email and... I just tend to just bin it... we've found that after the last 2 or 3 years of industry meetings they don't take any of it on board so it's a waste of time. The belief from... myself and a lot of other people I talk to is that DAF and Government are going to do what they want so what is the point of interacting? It falls on deaf ears.*

### Post-harvest

This sense of engagement being perceived a 'waste of time' is a significant barrier to engagement for this group. Participants expressed respect for local Patrol officers and members of the Research and Monitoring team, based on the personal relationships they had with individuals from these sections, but did not view the FQ organisation as whole positively. Face to face engagement appeared to be an important method of engagement with this group. This relates to the thematic finding in Section 3 of this report on the importance role that FQ individuals play in maintaining relationships with PFS.

This typology of stakeholders also expressed interest in contributing to the science underpinning fisheries management through their record keeping and business knowledge.

*"We'd like to see more involvement in the process of putting together information and showing us how they've compiled that information. There is a lot of knowledge in the fishing industry, and this just isn't valued enough or included in the fisheries process."*

### Processor

Willingness to participate and be part of scientific research and information gathering presents an opportunity for applying new strategies or adjusting current ones, as discussed in the Engagement Methods Report.

## B1: Highly engaged group B stakeholders

This group of 16 stakeholders were spread across most fisheries but were particularly concentrated in the crab, inshore net and line fisheries, holding multiple licenses across different fisheries. This group of participants were full time owner operators, mostly fishing from small trailer boats. When asked why they fish the majority indicated that 'lifestyle' was an import motivator, or the desire to carry on a family business. They indicated that they are not necessarily always motivated to be highly profitable, but business viability was important in that it would allow them to maintain involvement in the industry. Lack of alternative qualifications and skills, however, was noted by one stakeholder as leading him to the fishing industry:

*I began fishing commercially at 10 years old... and been fishing ever since... it's all I've done all my life is fishing... I hate fishing, but I've got to feed my family somehow. I'm not a computer genius, I'm not good at anything else, I'm a fisherman – I've been brought up as one, I've been born as one. I don't have many things I can go and do other than fishing.*

**Fisher**

All 16 participants classified in this group were current or previous members of Working Groups and/or representative bodies. This group shared some similarities with the A1 group in that they felt comfortable with contacting fisheries managers within FQ directly, however the frequency of contact appeared to be less and often tended to be via email rather than phone. Some limited their contact to only the Working Group meetings and did not contact FQ outside of those meetings. While A1 were interested in discussing industry or fishery-wide structural issues, such as communication channels with FQ, B1 focussed more on day to day concerns relating to operational matters, such as VMS, log books and management of the recreational sector. For this group there were concerns expressed relating to process, such as minutes not reflecting Working Group discussions, which appears to indicate a greater degree of mistrust and suspicion than was seen in the A1 group.

*It's beyond frustration, some of the simple things in life that you would expect from a Government department...I do not call them anymore, I make everything formal so there is no misconception, no error in what I said...most of my conversations and emails are regarding poor documentation, no reviews, mistakes...(but) they just fudge it off and they just keep steam rolling in this horribly unfair process and reform that is currently being rolled out...I'm not looking at documents for errors, I'm looking at documents for legitimacy. We're basing a lot of decisions on the paperwork that's being sent out for review by the public – I need to know that what's going out is accurate and true.*

**Fisher**

As with A1, there were few barriers to engagement for this group given their high level of existing connections with the Department. However, there were widespread concerns over impacts of proposed reforms on the 'little guy' and a feeling that FQ did not understand what was involved in being a small scale fisher in Queensland. Their suggestions for improvements often focused on spending more time with fishers, getting to know their businesses and defending the industry against threats such as other stakeholders. One fisher said:

*I'm there (in the Working Group) so that I can influence the legislative outcomes, to get some sense into the decisions – the fishery managers don't understand what actually happens on the water.*

## Fisher

These concerns particularly focused on the cumulative impacts of successive reform processes on Group B fishers, who tend to hold multiple endorsements or fish part-time. These fishers indicated that the process of relying on catch records unfairly concentrated impacts on diversified businesses, who had small catch histories across multiple fisheries.

*We had a diversified fishing license, and we used to catch Spanish mackerel, reef fish, rocky reef fish and spend part of the year on crab, and a bit of net fishing. Fisheries decided to take both reef and mackerel fisheries to quota in about 2002, but that's where the problems started for us. The mechanism for determining quota was horrendous for us, because it was based on 5 year catch history...in the end most fishermen didn't qualify for quota...In the end it meant three fisheries for us, wiped out. That was heartrending and really bad for business.*

**Fisher**

### B2: Transactional group B stakeholders

The group of 13 stakeholders in this category were largely smaller scale trawl operators or had multiple endorsements. They were all full time owner operators and were often part of inter-generational fishing families. The majority worked in fisheries that had involved significant travel or extended periods at sea or not in home ports. Constraints around time availability were therefore prominent in this group and were reflected directly in the way they accessed information and engaged with FQ:

*I talk to the guys on the wharf, lately I haven't had time to look at emails and I hardly ever do...someone else is going to tell me what is going on...it's a time factor.*

**Fisher**

Despite this, these fishers did engage with FQ irregularly as required, usually in order to resolve day to day operational concerns, such as clarifying rules or regulations or seeking to identify truth in 'wharf talk' rumours. Only half the stakeholders classified in this group were members of representative bodies, and for some their opinion of their representatives in the Working Groups and peak bodies was quite cynical. These fishers relied heavily on trusted social networks for communication amongst the industry.

*I will not join them (a rep group)...unless it is to suit themselves they won't do nothing...the problem we've got, when it comes to having committees (is)...you get fishermen on there they make it to suit themselves and I will not be part of it.*

**Fisher**

Barriers to engagement related most specifically to time and capacity, as well as a feeling of suspicion that any information provided to FQ would be 'used against them'. Like the B1 group, suggestions for improvements often focused on promoting the industry and 'giving something back', including defending the industry against outside threats.

### B3: Disengaged group B stakeholders

This group of 15 stakeholders consisted of skippers and crew, as well as a number of owner operators or lease holders who indicated very low levels of education or learning difficulties such as dyslexia.

This group were clearly indicated that they never or seldom interacted with FQ and in most cases when they did it was with the QBFP rather than FQ staff. Interactions with FQ mostly related to functional roles, such as with staff in charge of administering log books. Crew in particular had almost no opportunities to interact in any way with FQ staff.

The experiences with QBFP were mixed but generally respectful, with a number indicating that it was patrol officers were their main 'go to' for clarification on procedural or regulatory queries. Log books in particular seem to be an item of concern for this group. Many expressed confusion or frustration with a highly complicated reporting system which were particularly difficult for stakeholders with low levels of education amongst this group. One fisher said:

*They might tell me my log books aren't great. And because I left school at such an early age I tell them I am just doing the best I can... and they have been very helpful.*

**Fisher**

Despite the lack of engagement the fishers interviewed in this category were often enthusiastic about the opportunity to share their knowledge, expertise, and insights into the status and health of the resource and the effectiveness of the current management arrangements. This is critical – it shows that even when engagement is low, the interest is there among stakeholders to be part of engagement if framed with mutually beneficial interest.

Yet they were clear that this needed to be done face to face and in a location that was familiar and comfortable to them. Most did not like to attend meetings but welcomed the opportunity for one on one or small group interactions with trusted friends or colleagues, or the opportunity to 'educate' FQ staff on what it means to be a fisher such as through 'observer' experiences for staff. One stakeholder noted:

*I think they need to trust us a bit more to be honest. I don't think they think they think we are as competent as we are...I just think they need to speak to us more.*

**Fisher**

### **Indigenous perspectives on engagement with FQ**

Five participants in the interviews with professional stakeholders were Indigenous. Of those five interviewed, four were professional fishers (1 licenced and 3 holding Indigenous Fishing Permits (IFP)). The fifth interviewee was not a professional fisher but had knowledge of current reform processes.

All four professional fishers said that they had fished most of their life as cultural fishers providing food for the families. Their move into professional fishing had been a natural progression which allowed them to derive an economic benefit from what they considered were their rightful marine biological resources, in one case it was part of the family tradition. A common view among this group was that professional fishing kept them connected to their traditional sea country allowing for continued cultural maintenance and the derivation of social and economic benefit. Two stakeholders highlighted this by saying:

*"I started fishing because it is a family tradition and keeps me connected to my sea country. I like being able to make a living from the fish our community have caught*

*for generations. It was all I wanted to do when I was growing up” Professional Indigenous Fisher 1*

*“I wanted to use the Indigenous fishery permit to build community capacity and provide opportunity for youth in the area, as well as link it in to our sea country management obligations” Indigenous Fishing Permit Holder 1*

These observations are supported by similar findings from research in NSW on Aboriginal participation in professional fishing (Schnierer and Egan, 2012).

Relating to relationships with FQ, sentiments were mixed but by and large tended to be lean towards negative experiences. For example, two Indigenous fishing permit holders found initial contacts with FQ regarding their application for a permit very helpful but were disappointed that FQ had not been clear about some of the limitations which prevented them from fishing on what they said were their traditional waters. One of the interviewees summarised:

*“we assumed that the IFP could be used everywhere on our sea country at any time for any species’ Indigenous Fishing Permit Holder 2*

Participants were of the view that FQ do not understand or hold adequate levels of care about Aboriginal culture, and the rights they believe they have with respect to fishing on their sea country for professional and non-professional purposes. One participant went so far as to say that:

*“FQ have no understanding of cultural fisheries and I would like to get caught just to take FQ to court and argue my rights. DAF needs a cross cultural training across the whole department” Indigenous Fishing Permit Holder 1*

*“apart from a couple good ones in FQ most are unwilling to hear what Traditional Owners rights are in the professional industry because of ignorant and racist attitudes” Professional Indigenous Fisher 1*

One participant said that he held little trust on the information that FQ used to make decisions and he was very critical of the lack of cultural awareness shown regarding traditional attitudes to fishing areas. He felt there was a strong need for FQ to develop culturally appropriate protocols for dealing with Aboriginal professional fishers in relation to licences and permits. This has implications for building capacity and understanding of Indigenous worldviews and histories within engagement staff, and embedding them into future processes.

When asked about experiences or ideas of good engagement, all Indigenous participants were of the view that it needs to be built on honesty, transparency and trust. They all asserted that an Aboriginal ‘voice’ is needed in all decision-making processes that have the potential to impact their presence in the professional industry.

*“Good engagement means building the relationship with the Aboriginal community, knowing who to talk to, maintaining regular communication, the need for workshops, need to part of the problem solving and decision-making process” Indigenous Fishing Permit Holder 1*

They believe that at present there is minimal interest given by FQ and other stakeholders to the rights they have as the first fishers of the resources now exploited professionally across Queensland. One stakeholder summarised:

*“[FQ] should know about our cultural rights and explain these to other professional fishers”* **Indigenous Fishing Permit Holder 3**

Participants also highlighted the ability to provide input into FQ processes. Indigenous professional fishers should be able to provide their input, as a minimum, with representation on each fishery Working Group as well as the establishment of an independent Indigenous fishery Working Group. Different stakeholders noted this.

*“We need an Aboriginal fisheries advisory body as well as membership on other working groups”* **Indigenous Fishing Permit Holder 3**

*“We need a voice on the working groups”* **Indigenous Professional Fisher 1**

*“Indigenous professional fishers need some forum from which recommendations can be developed and fed into fisheries management processes”* **Indigenous interviewee 1 (no license)**

All participants supported the view that communications are best facilitated through face-to-face contact. In the Engagement Methods Report, we focus on how liaison functions can help bridge this barrier of requiring face to face engagement and building awareness of Indigenous fisheries management. Experiences from the Department of Primary Industries in NSW show that dedicated Indigenous staff can go a long way at improving the inclusion of Indigenous voices in decision making processes.

### **Women’s perspectives on engagement with DAF**

Six participants in the interviews with PFS were women. Their perspectives have been incorporated into the analysis outlined above but it was also considered worthwhile to also draw on the unique perspectives of these women. There was a range of perspectives across these six women. Some were relatively ‘silent’ partners in their husband or partners business, assisting with bookkeeping, correspondence or reporting obligations. Others were highly active, playing a significant role not just in the day to day operation of their businesses, but also as industry advocates and representatives. Regardless of their role the contribution of these women appear to be under-reported and undervalued. In particular our respondents felt that women played an important role in diffusing conflict. They felt they played a mediating role within the male dominated industry, assisting by bringing relatively calm and rational voices to sometimes emotionally charged debates.

*I think sometimes there needs to be more women (laughs). A bit too much testosterone flying around. I know myself I always see both sides of the argument, even though I might have a preferred view I am willing to listen to the other side and make a constructive (contribution) – but men just tend to (get angry).*

**Fisher**

Table 7 and Table 8 below summarise the different segmentation of stakeholders and themes identified.

**Table 7: Summary of Queensland fisher segmentation for Group A stakeholders**

		<b>A1</b>	<b>A2</b>	<b>A3</b>
<b>Characteristics</b>		Hold quota/license and are actively fishing the quota/license. Entrepreneurial, tech savvy, motivated by competition, autonomy/freedom, utilitarian and challenge values – risk takers. Often operate vertically integrated businesses, high levels of investment, fixed crew and single species focus. Future oriented, have plans and a strong vision.	Not a significant group within sample. May be owner operators or license holders (i.e. investors).	Lease or license holders who are not fishing (investors). Often have links with post-harvest sector, often offshore, tend to be more disengaged and corporate.
<b>State of engagement themes</b>	Impacts of CFS on FQ outcomes	Tend to be familiar with the challenges faced by fisheries managers, respectful but very involved and aware of the detail. The most influential group of fishers including within political circles.		Time poor and cynical about the extent to which the Department listens to or takes on board feedback. Feeling of being overwhelmed with information.
	Impact of reform	More favourable view of reforms, and major beneficiaries of quota-based reform		Concerns relate to impact of reform on supply chain, and post-harvest sector.
	Differing worldviews	Concern with maintaining profitability Completion of high school and higher education more common		Concern with maintaining profitability Completion of high school and higher education more common
	Political influence	May have political connections themselves and therefore able to influence decision making.		Disconnected from day to day decision making
	Perceptions of the industry	Seek to portray a professional image, often with well-developed marketing and branding strategies.		Focus on relationships with the market and supply chain
	Engagement patterns	Engagement mostly with fisheries managers and senior QF staff		Engagement largely with operational staff and rare or transactional in nature
	Stakeholder fragmentation	Can be perceived by other sections of the industry as the 'quota barons' and 'in it' for themselves		May be active/influential in social networks, including with their suppliers but limited involvement in fisheries matters
<b>Barriers to engagement</b>		Minimal. Perceptions relating to a lack of transparency or predetermined outcomes.		Time, quantity and relevance of information. Perception that DAF do not listen to input.

**Table 8: Summary of Queensland fisher segmentation for Group stakeholders**

		<b>B1</b>	<b>B2</b>	<b>B3</b>
<b>Characteristics</b>		Owner/operators, interested more in business viability than business profitability ie 'lifestyle' motivators important, motivated by tradition, freedom/ autonomy and escape values.	May include owner operators, as well as mixed income owner operators, lessees and crew. Mixed ages, may include younger fishers.	Especially ATSI and ESL fishers, fishers from disadvantaged backgrounds, lessees and crew.
<b>State of engagement themes</b>	Impacts of CFS on FQ outcomes	Sense that consultation is tokenistic	Cynical of engagement efforts and mistrust that information will be used against them	Least influential group. Feel helpless and that it is a waste of time to put submissions in or engage with government.
	Impact of reform	Reform fatigue and cynicism Cumulative reform impacts concentrated in this group	Focus largely on day to day operational issues, anger about reform but tend not to get involved.	Concerns focus on day to day operational issues, such as log books or safety regulations, with limited understanding or awareness of wider reform processes.
	Differing worldviews	Occupational identity: interest in maintaining viability, not necessarily profitability Largely informal learning	Informal, practice based learning. Often involved in other professions or trades.	Feeling that 'on water' and practice based knowledge is not valued
	Political influence	Concern that industry is not supported or defended against attacks by other stakeholder groups		Disempowered – feeling that other stakeholder groups have more political influence
	Perceptions of the industry	Feeling of not being valued by society, victimised and demonised		
	Engagement patterns	Engagement mostly with fisheries managers and senior QF staff, often adversarial and suspicious	Engagement mostly centred around formal consultative mechanisms (eg port meetings), often adversarial and suspicious	Not talking to this group at all. May engage with boating patrol and other operational roles periodically.
	Stakeholder fragmentation	Feeling of being marginalised and that FQ do not understand their businesses or fisheries		
<b>Barriers to engagement</b>		Minimal. Perceptions relating to a lack of transparency or predetermined outcomes.	Time and capacity, as well as a feeling of suspicion that any information provided to FQ would be 'used against them'.	Language and literacy issues a major communication barrier. May also lack confidence and skills to engage effectively.

## 5 Social Network Analysis findings

This section will explain what a social network analysis (SNA) is, what data it draws from, and what it describes. We have analysed the data to produce two networks for analysis:

- Network 1: FQ-Industry Communication Network
- Network 2: Internal Industry Communication Network

We created matrices from questions relating to relationships, these are then used to create visual network maps. These maps show the information flows and connections between individuals and groups, and clusters where core individuals are influential in the network, as well as showing isolated but still important networks.

Furthermore, the SNA information allows us to develop the practical methods that target a particular link in the network that varies in strength. For example, we will look at any strong or weak links between different professional groups, and determine if different methods of engagement are required because of the strong or weak connections.

### Introduction to SNA metrics

In order to conduct a SNA, both an affiliation matrix and an attribute matrix needs to be created. The information provided by interviewees regarding their interactions with FQ and industry was used to create directed symmetric affiliation matrices. There is one affiliation matrix for Network 1: FQ-Industry Communication Network and another for Network 2: Internal Industry Communication Network. In addition to the affiliation matrix, an attribute matrix is made. Every interviewee and information point is a node and every connection between the interviewee and information point is a tie. The affiliation matrix therefore demonstrates the connections between nodes.

Every node must have attributes, and these attributes are used to create different networks, for example by location, organisation, etc. Attributes for each node allow us to overlay these specifications upon the affiliation matrices, bringing meaning to the connections between nodes.

For the purpose of this research the attribute categories include:

- Organisation (FQ, DAF, Conservation, and Industry)
- Region (Brisbane, Gulf, Mid-North [Rockhampton-Townsville], Mid-South [Noosa-Rockhampton], North [Townsville-Cooktown], South [Border-Sunshine Coast], WA and Other)
- Typology Matrix (Group A1, Group A2, Group A3, Group B1, Group B2, Group B3, NA)
- Working Group membership
- Roles (Compliance, Conservation, Fisheries Management, Fishing, Fishing, Post-harvest, FQ [other] Industry [other], Licensing, Monitoring, Research & Monitoring or Unclear)

From the interviews undertaken, 47 are used for the SNA. This is due to some interviews being undertaken in smaller groups (e.g., 2 people) and the interview responses have been aggregated to a singular response. Each respondent provided a

list of up to three people they talk to, creating multiple nodes (i.e, individuals) in the network.

Each mention becomes a node within the network. Therefore, these 47 interviews and every information source within these are listed as nodes. Every node in the network is noted with an “n” number (e.g., N1). Those interviewed have an “n” number and an interview number (e.g., N1/I1).

## Network 1: FQ-Industry Communication Network

### Network size, attributes and visualisations

From the 47 interviews, a total of 196 nodes were nominated (including the 47 interviewees). This gives us a full network 1 of N=196. The 196 nodes exist because people were asked to refer to up to 3 people they talk to.

From these 196 nodes, 36 were FQ members, 3 DAF, 1 worked in Conservation and 156 were in the Professional Fishing Industry (see Table 9). Box 1 shows Network 1 (FQ and Industry), and their interactions, with Working Group members being coloured in blue, non-Working Group members coloured in black, with the organisations being differentiated by shape.

The shapes in the diagram each diagram for Network 1 are as follows:

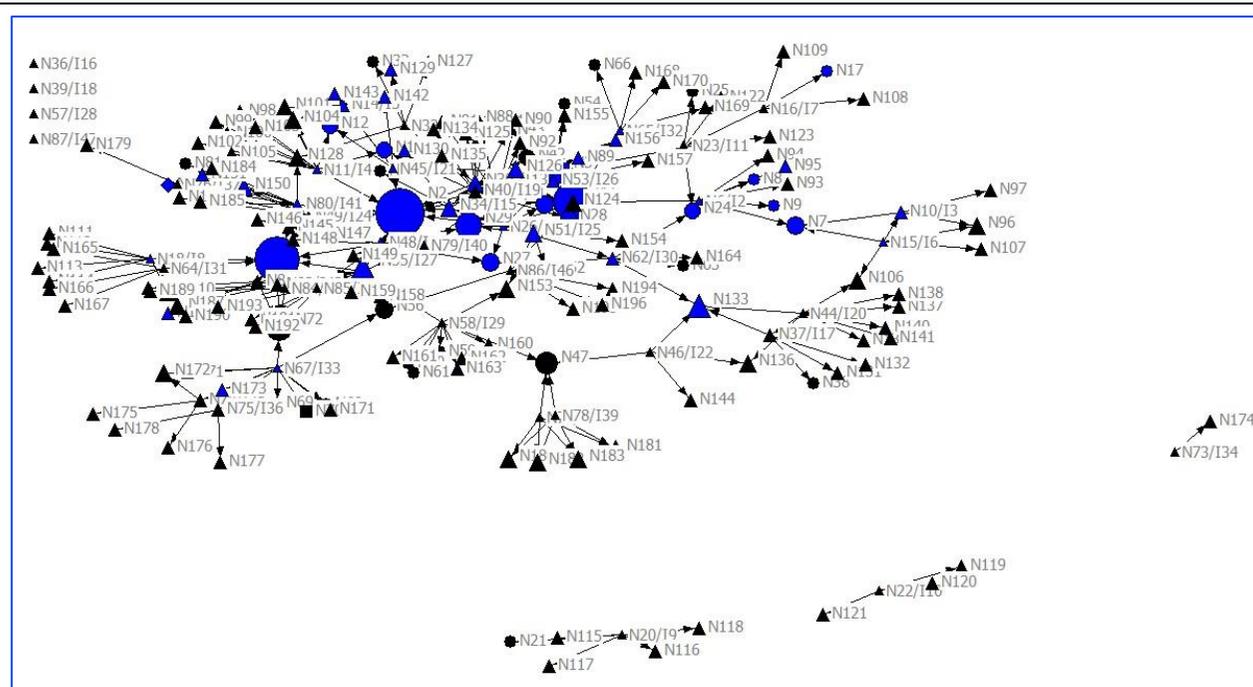
- Circle = FQ
- Square = DAF
- Conservation = Diamond
- Industry = Triangle

Of these 196 nodes, 49 were Working Group members and 147 were not (see Box 1).

In every instance, the size of the node indicates the number of nominations a node has received from interviewees. Within social network analysis, this is called “in-degree”. For example, if a circle is very big, this means that specific FQ node (i.e., individual) is a frequently sought source of information. Within every visualisation, the layout is forced by geodesic distance. This means firstly that the nodes that are more similar are closer together, and secondly, those nodes with that are more central to the network are closer to the middle.

**Table 9: Node attributes – Organisation. These attributes apply to all maps as legends.**

ORGANISATION	Number of nodes in network	Node shape in visualisations
FQ	36	Circle
DAF	3	Square
Conservation	1	Diamond
Industry	156	Triangle

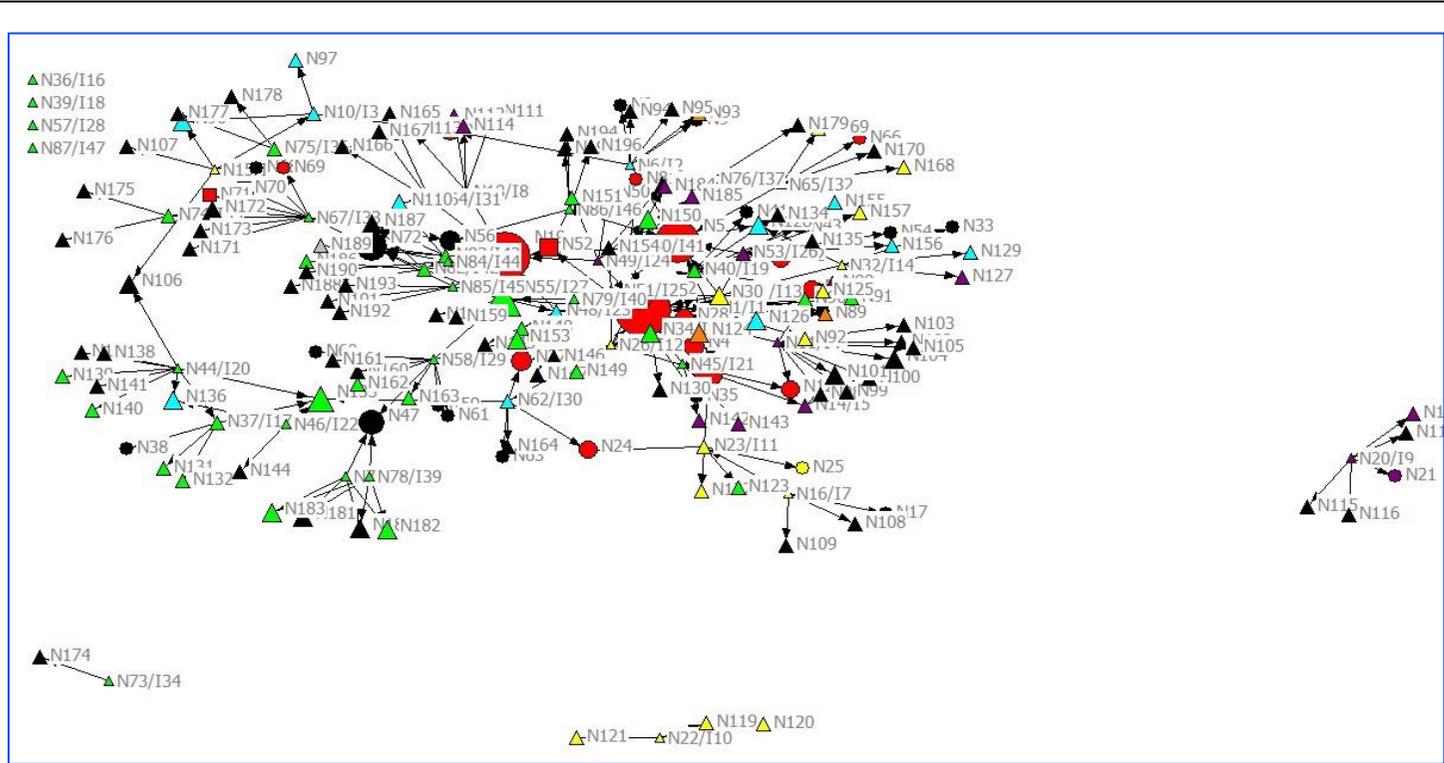


In this figure, we see the Working Group members (in blue) are the most central nodes in the network. Two FQ staff (large blue circles central to the image) are the most frequently contacted nodes within the network. This confirms the thematic findings that Working Groups and core FQ staff are central to communication between PFS and FQ. There are also PFS Working Group members that bridge between other non-working group members (e.g., N133 blue triangle in the bottom right of the central cluster).

This visualisation demonstrates the importance of Working Group membership as there are three small cliques in the bottom right of the image, and each of them have their own networks, and are not connected to the larger network. None of these nodes are Working Group members, and none reported to communicate with either Working Group members, although one node (N20/I9) reported to speak with one FQ staff member (N21).

Working Group	Number of nodes in network	Node colour in visualisations
Yes	49	Blue
No	147	Black

Box 1: FQ and PFS network map



Eight distinct regions are represented in this visualisation. These are Brisbane, Gulf, Mid-North [Rockhampton-Townsville], Mid-South [Noosa-Rockhampton], North [Townsville-Cooktown], South [Border-Sunshine Coast], WA and Other.

As the data was derived from interview data, there are a significant number of nodes with regions being unclear. Often interviewees might name individuals they spoke too, however not always mention where they resided. Although this leaves some of the regional data opaque, there are some interesting observations when looking at information transfer between regions.

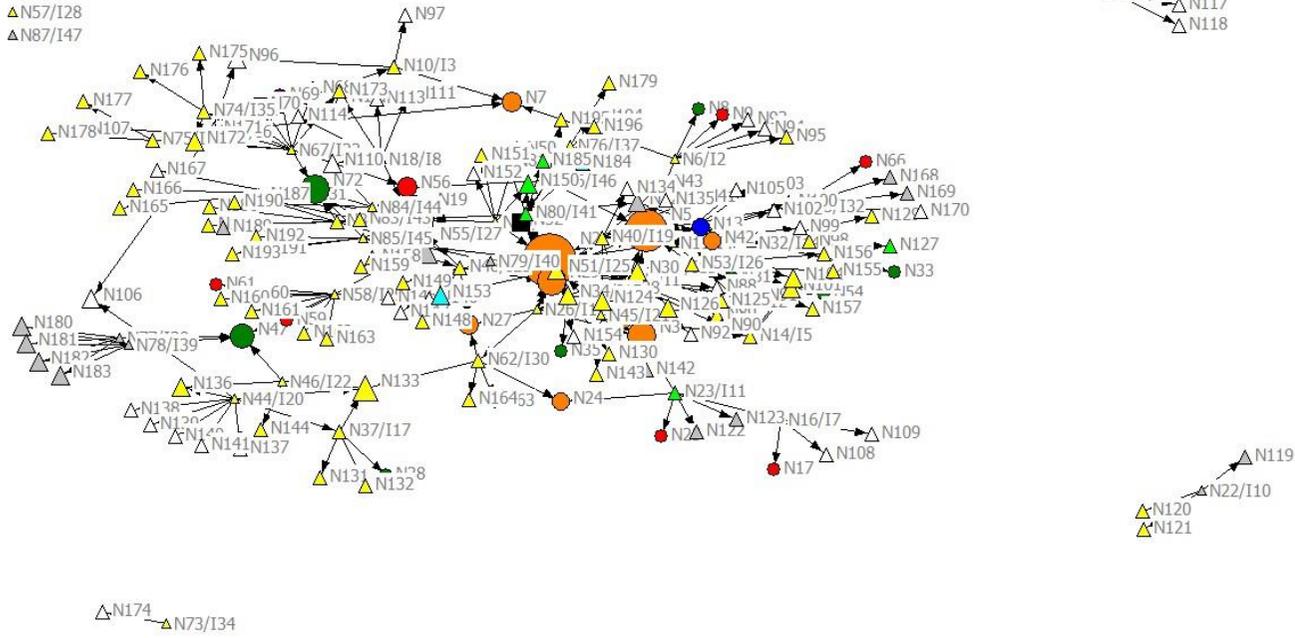
Although FQ and DAF have offices in regions, those mentioned were situated in Brisbane (see red nodes in centre of image). This is normal practice for many government offices around Australia. In additional the green triangles in the top left who have mentioned no communication channels all come from the Mid-South (Noosa – Rockhampton), and there is a small clique in the bottom of the image, all from the Mid-North (Rockhampton – Townsville).

The table below has a summary of the colour legend and region breakdown of the network above.

<b>Region</b>	<b>Number of nodes in network</b>	<b>Node colour in visualisations</b>
Brisbane	20	Red
Gulf	3	Orange
Mid-North (Rockhampton-Townsville)	17	Yellow
Mid-South (Noosa-Rockhampton)	46	Green
North (Townsville-Cooktown)	14	Blue
South (Border-Sunshine Coast)	19	Purple
Unclear	76	Black
WA	1	Grey

**Box 2: N1 Node attributes - In-degree (size) Organisation (shape) Working Group membership (colour). Table is N1 Node attributes - In-degree (size) Organisation (shape) Region (colour)**

- ▲ N36/I16
- ▲ N39/I18
- ▲ N57/I28
- ▲ N87/I47



When exploring roles, nodes were sorted into twelve different categories (Table below). The roles with the highest number of members were those engaged in fishing (86) and Post-harvest (20). In the visualisation you can see the fisheries management nodes (12) outlined in orange are highly prevalent and important to interviewees when accessing information (size of the node). The central location of the orange circles (fisheries management staff from FQ) demonstrate their central importance to the network.

This diagram thus confirms the qualitative data that shows that that FQ managers remain core to information flows between PFS and FQ. This indicates that managers can be used as key agents at the boundary of government and industry, as both the SNA and the qualitative themes show that they are critical to information flows. In addition, we see that those in fishing speak

with other fishers (yellow triangles) and also Post-harvest (Grey triangle). For example in the bottom of the cluster, we see that N62/I30 speaks with other fishers, as well as Fisheries Management (N24). This Fisheries Management node (N24) is also communicated with by N23/I11 (categorised as both Fishing, Post-harvest). N23/I11 also engages with other post-harvest nodes (grey triangle) and compliance officers (red circle).

This finding indicates that post-harvest stakeholders may play important communication channels and act as a bridge between fishes and FQ.

<b>Role</b>	<b>Number of nodes in network</b>	<b>Node colour in visualisations</b>
Compliance	10	Red
Conservation	1	Pink
Fisheries Management	12	Orange
Fishing	86	Yellow
Fishing, Post-harvest	6	Light Green
FQ (other)	11	Dark Green
Industry (other)	2	Light Blue
Licensing	1	Dark Blue
Monitoring	2	Purple
Post-harvest	20	Grey
Research & Monitoring	3	Black
Unclear	42	White

**Box 3: N1 Node attributes – In-degree (size) Organisation (shape) Role (colour).**



<b>MATRIX</b>	<b>Number in network</b>	<b>Node colour in visualisations</b>
A1	8	Red
A2	1	Orange
A3	4	Yellow
B1	14	Green
B2	8	Blue
B3	11	Purple
NA	150	Grey

**Box 4: N1 Node attributes – In-degree (size) Organisation (shape) Matrix (colour)**

These visualisations in Boxes 1-4 Network 1 show insights into how the industry is communicating across various dimensions, specifically through Working Group, across regions, roles, and levels of engagement (matrix).

The following section “SNA Metrics” presents the quantitative metrics. The affiliation matrices that were made in order to create the visualisations and the attributes prescribed to each node have been run through a series of metrics which provide greater insight into the network structure. The following will outline results from multiple cohesion measures, Betweenness and Key players metrics for Network 1. Each metric will be defined and then results detailed.

## SNA Metrics

### Multiple cohesion measures

Within Multiple cohesion measures, we will focus on average degree, density, fragmentation, closure and diameter.

- **Average degree** is the average number of links in the network. The average degree was 1.276. This is a low average degree in general for a network of this size.
- **Density** is the total number of connections divided by the total number of possible connections in the network. The density for the network was 0.007.
- **Fragmentation** measures the lack of connectivity in the network. The more fragmented the network, the more vulnerable it becomes to change. The fragmentation for this network was 0.988; this indicates a highly fractured network.
- **Closure** measures the degree to which “the friend of my friend is likely to be my friend.” Network theory considers nodes, dyads (two nodes) and triads (three nodes). This measure counts the number of triads divided by two. The closure measure of the network was 0.162.
- **Diameter** is a measure of the number of steps to reach everyone in the network, i.e. ‘Bacon’s Law’ and ‘six degrees of separation’ (Cunningham et al., 2017). The diameter of the network was 5. Although this network is highly fragmented, there are some central nodes that allow for individuals to connect through the network. However, if these individuals were to leave, it may splinter the network completely.

**Table 10: Network 1 Multiple Cohesion Measure Metrics**

Metrics	Nov/Dec 2018
Average degree	1.276
Density	0.007
Fragmentation	0.988
Closure	0.162
Diameter	5

## Betweenness

Betweenness is a measure of centrality that explores how central each individual node is compared to every other node. It looks at what nodes stand between other nodes. For example, if A and B speak to each other, and B and C speak to each other, while A and C do not speak to each other, B would have higher betweenness.

Nodes with higher betweenness numbers show their brokering power through the network.

In this analysis we see that those with higher betweenness are predominantly stakeholders with higher levels of engagement with FQ (from Group A1 and B1 of fishers), and further are Working Group members. Table 5 outlines the individuals in the network with the highest betweenness scores for Network 1.

**Table 11: Network 1 Betweenness score for nodes**

Node	Betweenness	Org/Matrix/WG
N55/I27	53	Industry / A1 / Working Group member
N30/I13	46.5	Industry / B1 / Working Group member
N51/I25	45.5	Industry / B1 / Working Group member
N34/I15	39	Industry / B1 / Working Group member
N40/I19	36.5	Industry / B1 / Non-Working Group member
N83/I43	29	Industry / B2/ Non-Working Group member

## Key players

Individual diffuse algorithms were run for each network. The key players were all interviewees, however they held different positions within the network. These nodes did not have the largest networks, however they did have unique networks and although they had access to those nodes with higher in-degree (larger circles), the key players were thus able to contact some of those nodes that were difficult for the more central nodes to reach.

**Table 12: Network 1 Key player (diffuse)**

Metric	Key player query run	Node	Org/Matrix/WG
Key players – Diffuse	1	N26/I12	Industry / B1 / Working Group member
		N67/I33	Industry / B1 / Working Group member
		N85/I45	Industry / B2 / Non-Working Group member
Percentage of nodes reached	26.943%		

The summation of these metrics demonstrates that this is a very fragile network. Working group members provide key connections for information transfer between FQ and DAF staff and other fishers.

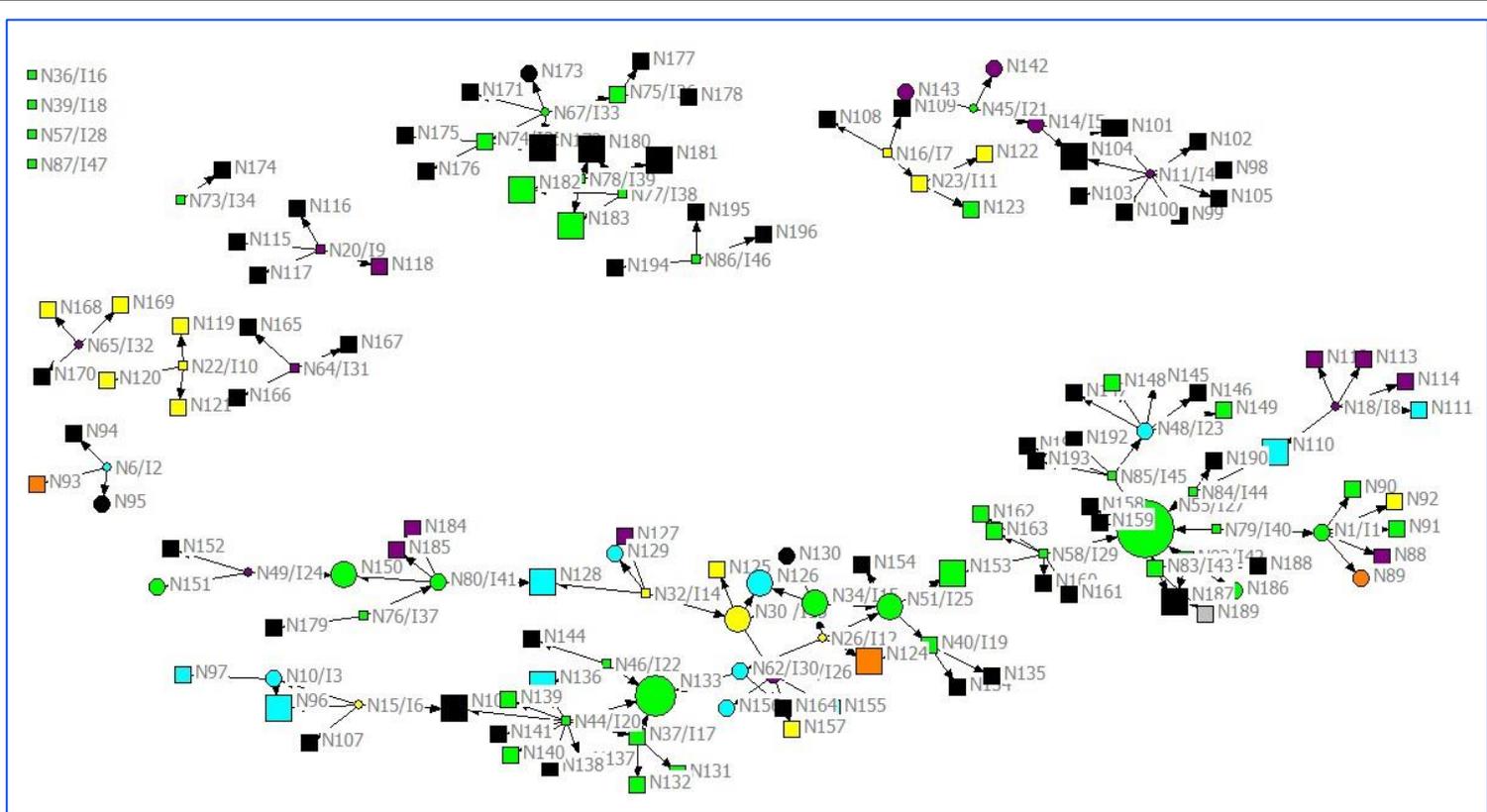
## Network 2: Internal Industry Communication Network

### Network size, attributes and visualisations

For Network 2, the same 47 interviews were used to make the affiliation matrix to explore the communication flow within the industry. From these 47 interviews, our communication points were mentioned, and each are attributed to be a node (same procedure as Network 1). In Network 2 a total of 156 industry individuals were nominated (including the 47 interviewees) and all of these individuals were from the Professional Fishing sector. This gives us a total of N-156 for Network 2. Of these 156 nodes, 33 were Working Group members and 123 were not (see Table 13). As in Network 1, the size of the node indicates the number of nominations a node has received from interviewees (“in-degree”).

**Table 13: Node attributes - Working Groups**

<b>Working Group</b>	<b>Number of nodes in network</b>	<b>Node shape in visualisations</b>
Yes	33	Circle
No	123	Square



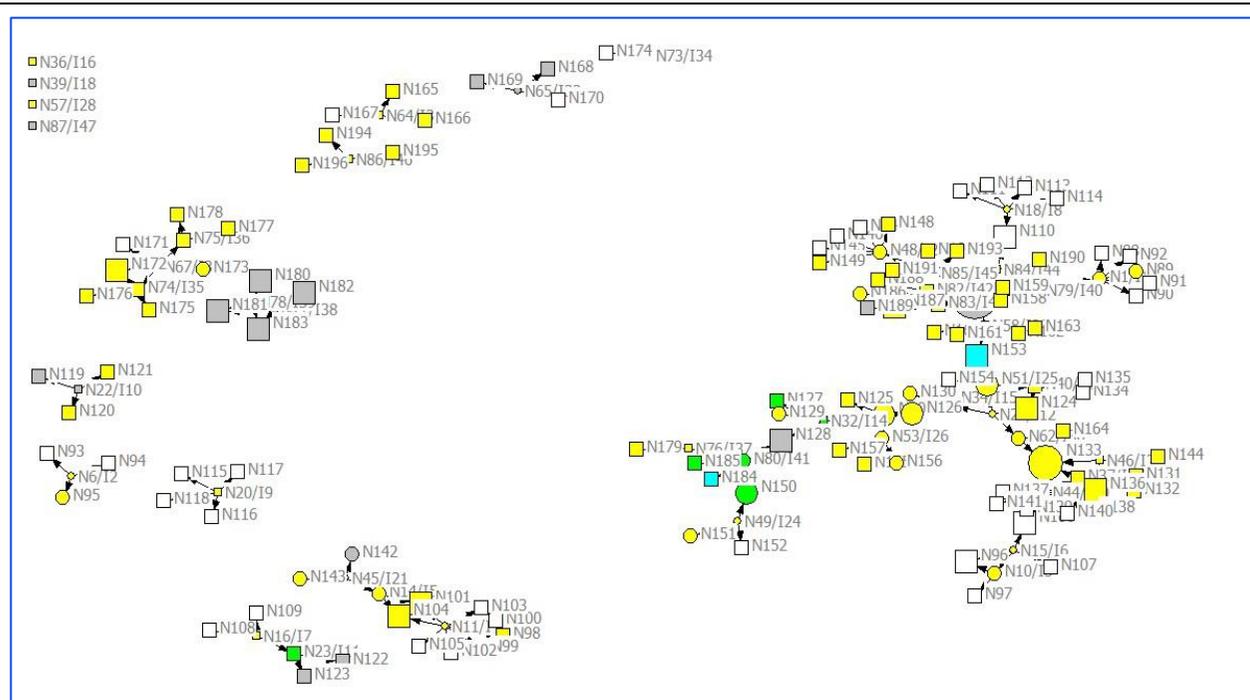
For Network 2, nodes came from seven distinct regions of Region (Gulf, Mid-North [Rockhampton-Townsville], Mid-South [Noosa-Rockhampton], North [Townsville-Cooktown], South [Border-Sunshine Coast], WA and Other. Below outlines the number of nodes in the network from each area. Regarding the unclear regions, the rationale remains the same to Network 1 as interviewees did not always nominate where their communication networks resided.

However, from this visualisation we see that many fishers have small local networks, and then have contacts in other regions. For example, in the bottom of the image, N62/I30 (small blue circle) Working Group member talks to other Working Group members in other regions N30 (yellow circle)

and N133 (green circle) as well as other non-Working Group members such as N157 (yellow square). In the top of the image there are a series of small cliques. For example in the left N6/I1 (blue circle) from North (Townsville-Cooktown) region speaks with N93 (orange square) from the gulf.

Region	Number of nodes in network	Node colour in visualisations
Brisbane	0	Red
Gulf	3	Orange
Mid-North (Rockhampton-Townsville)	16	Yellow
Mid-South (Noosa-Rockhampton)	46	Green
North (Townsville-Cooktown)	14	Blue
South (Border-Sunshine Coast)	18	Purple
Unclear	58	Black
WA	1	Grey

**Box 5: N2 Node attributes - In-degree (size) Working Group (shape) Region (colour)**



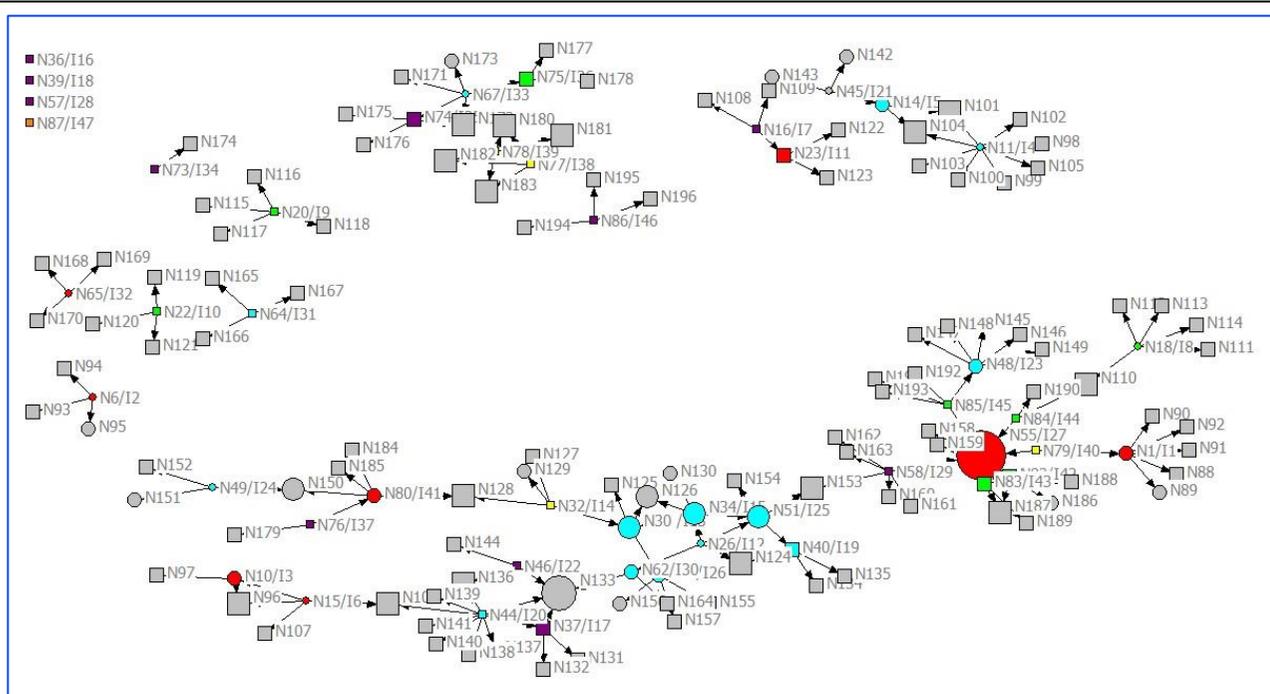
As this network is industry only, the role categories diminished from a total of 11 in Network 1, to 5 categories in Network 2. The number of those engaged in the industry remain the same as Network 1. To reiterate, the number of those engaged in fishing (86) and post-harvest (20) were the highest in this network.

In Network 2 you can see the interaction within the industry, in particular the relationship between fishing and post-harvest. In this figure we see fishers (yellow) often interacting with some other fishers (yellow circles and squares) as well as post-harvest (grey), and Fishing, post-harvest (light green).

These small networks made of fishers from different region and in different roles may demonstrate the need to retain competitive advantage regionally. Fishers share information with a small group of fishers locally, however they interact regularly with those working in post-harvest. This confirms findings from the qualitative analysis.

Role	Number of nodes in network	Node colour in visualisations
Fishing	86	Yellow
Fishing, post-harvest	6	Light Green
Industry (other)	2	Light Blue
Post-harvest	20	Grey
Unclear	42	White

Box 6: N2 Node attributes - In-degree (size) Working Group (shape) Role (colour)



When exploring the interaction between stakeholder types, this visualisation shows Network 2 coloured by matrix type. The image shows the visual representation of A1 members (red) playing significant bridging roles in the network.

For example N55/I27 (large red circle) was nominated by interviewees numerous times as someone they speak to. It is interesting to note this node is a member of a Working Group. This node therefore may be able to share information between nodes categories in other stakeholder groups, including those less engaged such as N79/I40 (yellow square).

Similar to Network 1 analysis of stakeholder groupings, A3 (yellow) and B3 (purple) indicate less engaged fishers. In the top left, we can see this confirmed with three purple square nodes (N35/I16, N39/I18 and N57/I28) each reported to not communicate with anyone. In addition in the middle of the top portion of the image purple square

N86/I46 speaks with three other uncategorised fishers, none of whom are connected with other fishers. This makes them less easy to connect with.

In the left of the image, green square N22/I10 also only speaks with three other non-Working Group members, however when compared with the image above, we see their role is post-harvest and they communicate with others working in post-harvest and two fishers.

<b>MATRIX</b>	<b>Number in network</b>	<b>Node colour in visualisations</b>
A1	8	Red
A2	1	Orange
A3	4	Yellow
B1	14	Green
B2	8	Blue
B3	11	Purple
NA	110	Grey

**Box 7: N2 Node attributes - In-degree (size) Working Group (shape) Matrix categorisation (colour)**

These visualisations (Box 5-7) of Network 2: Internal Industry Communication Network show insights into how the industry communicates within itself across the same dimensions as Network 1; specifically through Working Group, across regions, roles, and levels of engagement (matrix). Visually the Network 2 splinters into smaller groups when compared to Network 1.

The following section “SNA Metrics” outline the quantitative metrics outlining the similarities and differences between these networks. In the same way as Network 1, the structure is interrogated using multiple cohesion measures, Betweenness and Key players metrics. Each metric results are detailed followed by a short summary.

## SNA Metrics

### Multiple cohesion measures

- Within Multiple cohesion measures, we focus on average degree, density, fragmentation, closure and diameter.
- **Average degree** was 0.994. This is a low average degree in general for a network of this size, and notably lower than Network 1. This is reasonable as the FQ and DAF nodes have been omitted from this network.
- The **density** for the network was 0.006; slightly lower than Network 1.
- The **fragmentation** for this network was the same as Network 1, 0.988.
- The **Closure** measure of the network was less than Network 1 0.100
- **Diameter** of Network 2 was the same as Network 1 being 5.

**Table 14: Network 2 Multiple Cohesion Measure Metrics**

Metrics	Nov/Dec 2018
Average degree	0.994
Density	0.006
Fragmentation	0.988
Closure	0.100
Diameter	5

### Betweenness

Nodes with higher betweenness numbers show their brokering power through the network. In this analysis we see that those with higher betweenness are predominantly stakeholders with higher levels of engagement with. Table 15 outlines the individuals in the network with the highest betweenness scores for Network 2.

**Table 15: Network 2 Betweenness score for nodes**

Node	Betweenness	Matrix/WG
N55/127	38	A1/Working Group member
N83/I43	26	B2 / Non-Working Group member
N30/I13	25	B1 / Working Group member
N34/I15	24	B1 / Working Group member
N51/I25	23	B1 / Working Group member
N40/I19	14	B1 / Non-Working Group member

### Key players

Individual diffuse algorithms were run for each network. The key players were each interviewees, however they held different positions within the network. These nodes didn't have the largest networks, however again, they have unique networks. Further two key players from Network 1 also appear as key players for Network 2.

**Table 16: Network 2 Key player (diffuse)**

Metric	Key player query run	Node	Org/Matrix/WG
Key players – Diffuse	1	N26/I12	B1 / Working Group member
		N44/I20	B1 / Non-Working Group member
		N85/I45	B2 / Non-Working Group member
Percentage of nodes reached	26.943%		

Network 2 is as fractured as Network 1, however it maintains the same diameter of 5. This means it still takes 5 steps to access all members of the network (particularly the large component in the bottom of the image). The fragmentation may be a representation of the geographical breadth of this network, and generally the tyranny of distance meeting factors of industry norms (e.g., individuals in the sector spending a lot of time in small groups on a boat at sea). However we do see Working Group members playing a role in communicating information through the network, and across regional boundaries. Further, the key players in both Network 1 and Network 2 share two of the same nodes. These have been identified as key players as they reach a number of nodes that are unique within the network; nodes that no one else can reach. Next we discuss insights from the results from both Network 1 and 2.

## Discussion of social network analysis

### **Strength of networks between industry and FQ and insights that emerge into the relationships with FQ staff and particular sections of FQ (e.g managers, monitoring, licensing, patrol)**

The SNA analysis demonstrates that there are connections between FQ, DAF and the Professional Fishing sector (Network 1). From the SNA interview questions, we understand the majority of the communication is between FQ, DAF and fishers are through email and phone calls from regional areas into Brisbane (SNA interviews and N1 Node attributes – In-degree [size] Organisation [shape] Region [colour]). Although phone and email is a one on one and personal interaction and further, from the SNA it was reported that this correspondence is direct to some senior FQ & DAF staff. From an organisational perspective, this is not an efficient mode of correspondence; however this verifies from the qualitative interviews that many fishers most appreciate face to face, phone or email communications.

When delving in to which particular sections of FQ PFS interact with, findings from Network 1 indicate there are significant connections between PFS and Fisheries Management. Working Group members do share information through the network, however this is limited by the number of Working Group members, and further encourages those who are already engaged rather than those stakeholders who are less engaged.

**‘Cold pots’ in these maps show the weak networks that exist outside main networks.** Overall, these networks are very fragile. Not only is the network geographically dispersed, but the members discuss having both positive and negative interactions with other fishers and FQ & DAF staff. Although SNA has the capability of demonstrating negative ties (e.g., I don’t trust x, I don’t communicate with y), this was not the focus of the study and as such, only existing communication channels have been included in this analysis. Regarding hot-spots for fragmentation, we see from Network 2, this level of fragmentation may be a combination of both geographical (Queensland being large) and industry norms (e.g., individuals in the sector spending a lot of time in small groups on a boat at sea) mixed with a range of levels of stakeholder engagement (e.g., some fishers don’t wish to engage, see Network 2 matrix). Finally, we do see Working Group members playing a role in communicating information through the network, and across regional boundaries.

**‘Hot spots’ in these maps that show strong networks and positive relationships, and use this as the basis for recommending a method that could build on this strength.** An interesting finding was the relationship between fishers and post-harvest nodes. These relationships are consistent throughout the regions, as of course fishers need to come into port and pass on the catch to processors. The post-harvest point may be a site for FQ to invest further energy as these may be considered part of the industry, but apart from politics and internal professional competition. It is a place where fishers come in and catch up on what is happening off the water. As expected, the Working Groups also offer a communication channel between PFS and FQ. Maintaining and improving Working Group inclusivity and reach is discussed in the Engagement Methods Report.

**Forms of communication that are most salient to stakeholders (for example, face-to-face, email, etc), and gauge whether these communication methods can be used to improve an aspect of engagement.**

Interviewees reported that their preferred modes of communication were face to face, email, text/sms or email. SMS may become an interesting mode of communication in

the future (e.g, 5G internet speeds in some services), as this will allow for communication while fishers are on the water for significant periods of time. When they are in port, they appreciate face to face interactions. Online processes are difficult as not all have access to fast internet and appropriate computational hardware and software to complete mandatory reporting. Further assistance may be required for further uptake of digital information sources such as Fishermaen's Portal.

### **Study Limitations**

Due to the limited scope of this project not all node individuals interviewees mentioned could be interviewed. This results in an incomplete dataset because not all potential reciprocal ties are listed. In addition, FQ staff were not asked to participate in the SNA analysis. From a methodological perspective, nominations of communication ties in this study are considered to be directional and unique rather than automatically reciprocal ties (e.g., Node 1 speaks to Node 2. Node 2 is not interviewed. We don't assume Node 2 speaks to Node 1). As such, there are some missing values. The approach taken in this project is acknowledged as standard for this kind of contract research situation. The limitation is then missing values, and a potential bias towards interviewees.

### **Conclusion**

From the visualisations we see the importance of the Working Groups in order to share information between FQ, DAF and fishers. From this dataset we see that not all fishers are connected to Working Group members, meaning that there may be engagement gaps within the sector. From the regional visualisation, we see that there is Brisbane-centric governance. This is an organisational norm for many government departments in Australia, however, it may impact how the industry relates to FQ and DAF. This verifies comments from both interviews and surveys wherein fishers wanted more understanding from FQ and DAF regarding the sector, rather than governing from "air-conditioned offices".

From the exploration of roles, we see in Network 1 the importance of the fisheries management staff and in Network 2, the key role of post-harvest.

When exploring the quantitative measures, from the analysis, and in particular the average degree measures, we can see that fishers are sharing information in small networks. This may allow for local level interactions between fishers and post-harvest nodes; while keeping competitive advantage (fishers who live in Bundaberg speak regularly to a similar fisher in Cairns). This small network and desire to connect when in port on a face to face level may link back to the occupational identity within the fishing sector.

A potential opportunity for FQ may be to work with post-harvest and processors to be a source of information to the sector, in particular the less engaged fishers. Although Working Group members are providing a knowledge broker role, they are not always the key players in the network (see Network 2 key players).

# Summary of Analytical Report

The results of the historical analysis, in depth interviews and social network analysis point to a current state of engagement between FQ and PFS that is fractured, vulnerable and experiencing indications of considerable stress. The concerted effort by FQ to address their engagement practices is timely and crucial, given it appears the relationship between FQ and PFS is at further risk without targeted and meaningful action. Despite this there is evidence of some positive signs of strengths within the existing situations. These include:

- Interpersonal relations between FQ staff and PFS appear to be fundamentally strong, with many positive assessments of the efforts on individuals within FQ to engage to relate to PFS
- The re-establishment of Working Groups appears to be significant step forward in terms of engagement practices, with the interviews and SNA indicating that these are playing a crucial role in connecting PFS and FQ
- PFS seem, in general, willing and interested in engagement, however are dissuaded from doing so due to a range of systemic factors including a lack of trust and scepticism as to whether their opinions will be taken on board.

These findings provide an important basis for the development of engagement methods. In particular two major conclusions are drawn from this analysis:

- 1) The problems with engagement between FQ and PFS are fundamentally, organisational, not operational or interpersonal. Nor are they due to a *lack* of engagement, with numerous efforts to engage documented in the historical analysis. The issues are about processes and documentation of the value of engagement to PFS, along with wider structural organisational issues.
- 2) The strengths in the existing networks and methods of engagement lie in the more “hands on”, personal, relationships focused, and on the ground approaches, given the strong preference of PFS for face to face or one on one modes of communication.

These two findings lay the basis for the development of our recommendations for methods of engagement outlined in the Engagement Methods Report. In particular we focus on methods for improving the relationship between FQ and PFS at an organisational level, with an emphasis on empowering PFS, moving towards a partnership approach to fisheries management and strengthening the skills of FQ in organisational listening and collaboration.

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## Appendix 1: Semi-structured interview guide

The protocol will begin by participants being made aware of the information sheet and to provide consent to participate and be recorded, as per our ethics application.

### 1. About you and your business

- Could you please tell us a little bit about yourself and your fishing business?
- How long have you been fishing?
- Why did you start fishing?

### 2. Relationship with DAF

We would like to hear about how you engage with the Department of Fisheries (including the Boating Patrol).

- What is the main way you find out information from DAF? (look up website, read newsletter etc)
  - What type of information do you obtain **and** wish to obtain from DAF?
- What is the main way you communicate with DAF? (eg attend working groups, meetings, face to face, letters etc)
- Can you tell me the names and role of 3 people you talk to in DAF?
- How often do you talk to them? (eg once a week/month/quarter)
- How do you communicate with them? (phone, email, face to face)
- Why do you communicate with them?
- Have you found this to be helpful? Why/Why not?
- From a scale of extremely low (1), to extremely high (10), how would you rate your relationship with DAF?
- From a scale of extremely low (1), to extremely high (10), how would you rate the way DAF communicates with you?
- Can you give me an example of a good experience you have had with dealing or interacting with DAF? What was it about that experience that made it good?
- Can you give me an example of a challenging or non-successful experience with DAF? What do you think could have been done to make it better? (Prompt here for 'what does listening look like?')

### 3. Relationship with the fishing industry

Next we would like to hear about how you engage with other fishers or other parts of the fishing industry (including the representative bodies).

- Are you a member of a representative body – if so who? Why/why not?
- What is the main way you find out information about what is happening within the fishing industry? (look up website, read newsletter etc)
- What is the main way you communicate with other sections of the fishing industry? (eg attend working groups, meetings, face to face, social media)
- Can you tell me the names and role of 3 people you talk to in your industry?
- How often do you talk to them? (eg once a week/month/quarter)
- How do you communicate with them? (phone, email, face to face)
- Why do you communicate with them?
- Have you found this to be helpful? Why/Why not?
- From a scale of extremely low (1), to extremely high (10), how would you rate your relationship with others in the industry, regarding a) communication of information b) decision making

#### **4. Defining 'good' engagement and identifying ways of improving the relationship**

- Can you give me an example of a good relationship you have with someone in your industry? Prompt: That could be with a fellow fisher, a person in government or an industry rep.
- What is about this relationship that makes it good?
- From a scale of extremely low (1) to extremely high (10), how would you rate the level of trust between your industry and DAF?
- What kind of information about yourself, your business or your industry do you think DAF should know? How should they gather that information?
  
- What could DAF do to improve the way it communicates with and relates to the commercial sector?
- Beyond communication, can you please tell us what engagement means to you?
- What is the best way for the commercial sector to organise itself, to improve the way it communicates with and relates to DAF?
- To what extent is it suitable for DAF to be the facilitator of industry engagement, or should engagement be led by another group?