FRDC
FISHERIES RESEARCH & DEVELOPMENT CORPORATION

What's stopping you from protecting your mates?

Identifying the barriers to the adoption of workplace health & safety, management systems and equipment in the commercial fishing industry

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"Identifying the barriers to the adoption of work, health, safety management systems and equipment in the commercial fishing industry: What's stopping you from protecting your mates?"

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Dr Kate Brooks
Principal Investigator

Abbreviations

AFMF	Australian Fisheries Management Forum
AIS	automatic identification system
AMSA	Australian Maritime Safety Authority
DCV	domestic commercial vessels
EPIRB	Emergency Position Indicating Radio Beacon
FIAC	Fishing Industry Advisory Committee
FRDC	Fisheries Research and Development Corporation
PFA	Professional Fishermen's Association
PFD	personal floatation device
PI	Principal Investigator
RAC	Research Advisory Committee
RIRDC	Rural Industries Research and Development Corporation
RMS	Roads and Maritime Services (New South Wales)
SEM	Socio Ecological Model
SMS	safety management system
WHS	work health and safety
WISA	Women in Seafood Australia
VMS	vessel monitoring system

Executive Summary

Background

Undertaken by a team of researchers, workplace health and safety specialists, industry association and Australian Maritime and Safety Authority (AMSA) representatives, this project responded to an industry and Fisheries Research and Development Corporation (FRDC) research call on the issue of identifying and addressing barriers to adoption of safe(r) workplace health and safety practices. The key Research Advisory Committees (RACs) supporting this issue were those of Western Australia and New South Wales; facilitating field work with sectors in each of these states.

From 1 July 2018, AMSA was tasked with delivering a harmonised safety standard across Australia with a view to creating greater engagement with safety in Australia's commercial wild catch fishing fleet, under the National System for Domestic Commercial Vessel Safety. This occurred mid-way through the project, confusing some of the findings; for example, fishers may be referring to regulators and 'managers' of safety other than AMSA at the state level, who held primary or frontline responsibility for fishers' safety prior to 1 July 2018. However, the findings regarding how fishers have culturally responded to the safety regulations remain valid. These provide an excellent opportunity for a review of workplace health and safety in the industry, at this juncture of AMSA's relatively new role.

Previous research into the effectiveness of workplace health and safety training in the Northern Prawn Fishery identified that traditional training approaches were effective initially in altering behaviours, but people returned to pre-training behaviours over a 3-month period. This provided an explicit example of why more training is unlikely to be the sole answer to removing barriers to safer behaviours amongst fishers, and further highlighted a deeper issue at play in the culture of safety amongst fishers, which needed to be identified.

Research projects and safety programs have made short excursions into this territory of safety training effectiveness; however, they have not specifically investigated the cultural barriers to adoption of positive workplace health and safety practices, or how they may be overcome in the Australian context.

Aims/objectives

The objective of the project was to identify why fishers' behaviours and attitudes were not changing positively, despite training, information and coronial pressure to adapt existing workplace health and safety approaches. The key question to resolve was the reason for fishers' unwillingness to adopt new and safer behaviours in the face of continued accidents and incidents in the Australian wild catch fishing industry.

The original aim was to actively create change in fisher behaviour during the course of the project. However, respecting fisher revelations in stage two of the project (the survey), we modified the project to minimise potential negative psychological effects on fishers and the culture of safety, while maintaining a focus on project objectives. We conducted extensive industry engagement throughout the project to raise awareness about safety and to examine the culture of safety at work (particularly relevant to addressing the disconnect between policy and regulatory objectives and actions, and industry experience). This involved distributing interim reports and seeking feedback from key stakeholders, to ensure that recommendations were as appropriate as possible for all parties and to address the project objectives. In this way, the original intent of sharing learnings with industry and associated stakeholders in an attempt to gain 'buy-in' to the research recommendations, was maintained and optimised.

Methodology

The project was framed around case studies in Western Australia and New South Wales, undertaken with the aim of extrapolating recommendations for workplace health and safety approaches nationally.

To bound the project, the focus was on small-scale (1–10 person) commercial fishing operations, with a view to 'scale up' the lessons learnt and inform the industry generally.

The project had a three-stage approach. First, we reviewed previous industry (and wider) approaches to improve workplace health and safety practices and develop strong(er) safety cultures. This review included literature on modifying workplace health and safety behaviours in the fishing industry in Australia and internationally, as well as across a broad range of industry sectors, such as road and rail transport, aviation, healthcare and education in Australia and elsewhere.

The second stage of the project – the survey – arose from the review, and aimed to identify the current safety 'climate' of the industry (a 'snap shot' in time of the industry's workplace health and safety culture), as an agreed proxy for safety culture. The survey was undertaken between 1 April and 30 July 2018, with the objective of identifying behaviours, which might offer the greatest opportunities to improve the safety culture overall, potentially generating the greatest benefit. The survey had 360 respondents, of which 219 provided valid and complete responses. One hundred and twenty-nine surveys were conducted face-to-face with fishers in Western Australia (North West Prawn Trawl) and New South Wales between Sydney and Ballina (incorporating inshore, offshore, estuary and beach haul fisheries). A further 90 fishers voluntarily completed an online version of the survey. This was facilitated through industry association promotion and the opportunity to 'win' a personal floatation device via a random draw from participants who agreed to supply contact details on completed valid surveys. The survey was otherwise anonymous, and while it collected some socio-demographic and industry data, these were not associated with trends in safety climate responses.

Subsequent to the analysis of the survey results, the third stage, undertaken between 1 October and 15 November 2018, was the implementation of focus groups with fishers in the two case study regions. These focus groups engaged approximately 69 fishers across the regions and explored the survey results for a more comprehensive understanding. The key objective of the focus groups was to explore and uncover possible measures to address the concerns and issues raised, to readdress areas of poorer safety culture, and to commence a change in attitudes and workplace health and safety behaviours.

Concurrent with the second and third stages, a further stage, added opportunistically, involved a small mini pilot of actions to engage fishers (skippers in the first instance) in greater workplace health and safety awareness. This project ran over 10 weeks. Although it was too short to elicit cultural change, the results offer some insights into the complexities and opportunities of the workplace health and safety culture in the fishing industry.

Findings

The **literature review** found that;

- Generally, the Australian seafood industry has focused on safety as paper-based training/certification and identified it as a compliance-based issue, targeted solely at fishers.
- In contrast, workplace health and safety research in Australia and internationally across a range of industries, has found that a strong safety culture is developed by a whole-of-industry chain of behaviours and influences (from regulator through to worker), and therefore requires a focus on the behaviours of all actors in the chain.
- The review recognised that the ultimate responsibility for compliance lies with the fisher and owner/operator, but identified that their ability and willingness to do so is heavily influenced by the socio-ecological environment, which encompasses regulators (of all types affecting the industry), industry associations and co-workers.
- A means to explore the socio-ecological element of safety culture was identified in the work undertaken in developing a 'safety climate' survey (i.e. 'safety climate' refers to the attitudes to safety at a point in time, which reflect the ideas and social behaviours that provide insights to the culture; it is a means to understand the culture, which evolved over long periods of time and can be dynamic) The safety climate survey identified five proxy measures of safety culture at the time a survey is undertaken: ***management*** (in this case perceived as owners or regulators);

supervision (skippers); ***co-workers***; ***competency to act safely***; and ***participation in safety systems development***.

The **safety climate survey** found that;

- Of the five elements, the least positive perceptions were of the commitment by 'management'[1] to create safe environments, and the ability of fishers to engage with the development of safety processes and programs.
- The most positive sentiment about the engagement with safety, was that of supervisors (skippers) and co-workers.
- Although there is room for improvement in all five areas, the conclusion of the survey was that, if all five areas are to be improved and a robust and healthy safety culture achieved, it is essential to raise the level of *perceived* commitment by 'management' (which includes all those identified in this category), and the ability of fishers to engage in the development of safety systems and programs.

The **focus group discussions** found that;

- Current culture and behaviours of the industry demonstrate that fisher's separate their behaviours in regard to keeping safe as they assess it, from the activities (paperwork) they undertake to maintain compliance with the regulations. They do not see these two activities as being closely related.
- As a result, the industry has largely become disengaged from attempts to improve safety outcomes through classroom training, safety management systems or other paper-based methods, as these are seen to be aligned with compliance paperwork, and often not relevant to fisher's lived experience of what happens on the water.
- It was noted that, although AMSA has adopted a range of tools on the regulatory continuum in addition to training, safety management systems and vessel survey process tools (which, depending on their execution, were largely positively recognised); the perceived focus and reliance on administrative paper-based controls has potential to be a further disincentive to improving fisher safety.
- The focus groups also identified that, traditionally, administrative paper-based controls are seen as having little effect on safety or in arresting rates of accidents and incidents (this was also endorsed by the literature review). This is because some employ workarounds to 'appear' compliant.
- Participants acknowledged that a proportion of fishers (and potentially respondents in this research) are recalcitrant offenders, despite the relevance of regulations, and are grossly negligent in regard to others' or their own safety, in spite of advice by AMSA or its agents.
- However, even fishers who were positive about efforts to improve the workplace health and safety outcomes for the fishing industry had the same advice and degree of concern regarding the ongoing 'management' of safety in the fishing industry.

The focus group discussions identified key reasons for industry ambivalence or unwillingness to engage with changing approaches to workplace health and safety behaviours:

⇒ ***confusion in messages and information being received by fishers*** in one sector versus another, about what they must versus should do to 'comply' with rules and regulations

⇒ ***increasing prescriptiveness has led to increasing irrelevance at the sectoral level*** as regulators seek a 'one size fits all' approach for ease of 'process'; this is complicated by fishers themselves seeking increasing prescriptiveness in attempts to address the confusion experienced in communication and information received

[1] The interpretation of 'management' was broad across the survey respondents. It included a variety of regulators, as well as boat owners, skippers, and in some cases industry associations and/or co-operatives.

⇒ ***unintended safety consequences of other regulations affecting the industry*** being left to fishers to resolve – fishers further disengage from workplace health and safety endeavours given the conflict it can create with other income-earning regulations; workplace health and safety regulatory arrangements are seen as a bureaucratic process rather than a genuine effort to increase safety given the lack of apparent consideration about other fisheries regulations that conflict with better safety outcomes

⇒ ***trust between fishers and regulators/ workplace health and safety experts around recommendations to improve safety outcomes*** (e.g. wearing personal flotation devices, taking care of crew fatigue) ***has declined*** due to these three issues and has stalled the workplace health and safety culture of fishing, 20 to 30 years in the past. This is potentially exacerbating accidents and injuries as the working environment is just as dangerous, if not more so, given longer distances travelled and time at sea than in the past.

Five positive actions identified in the focus group and other discussions could improve current attitudes towards active safety behaviours in the industry, and support further development and embedding of a positive industry safety culture. Two of these are actions that can be undertaken or initiated by the lead safety agency – AMSA – and will have the most direct, immediate and positive effect on industry engagement with safety. The other three, to increase engagement of industry members with the 'value' of safety through safety discussions and interactions, must be led by the industry, but will be optimised by collaboration with, and support from, state and federal safety agencies.

- *Improve perceptions of safety management practices* through increased coherence, sectoral relevance, and accessibility in relation to safety education and compliance information. Visible compliance enforcement should be reserved for non-compliance by recalcitrant fishers. AMSA has undertaken this approach (see *Working Boats* Issue 12, May 2018 'Better regulation, not *more* regulation'). However, from the fishing industry perspective it is still a new relationship. In the most immediate instance, a collaborative review with industry of regulatory arrangements to ensure relevance by sector, would increase industry understanding and improve perceptions of the relevance and fairness of approaches, and support increased voluntary adoption, through developing a greater appreciation by industry of AMSA.

- *Proactive collaboration amongst government agencies* (particularly fisheries management in each jurisdiction). AMSA in league with relevant state safety agencies, and industry need to collaborate to identify and resolve safety conflicts in regulatory direction. These regulatory directions involve both safety and, at times, fisheries management directives, such that state safety agencies and state fisheries management agencies may be able to collaborate on addressing unintended fisheries management safety issues. Currently these conflicts are left to individual fishers to attempt to mediate and/or resolve, often with safety taking a back seat to the threat of fisheries non-compliance fines.

- *Industry to share positive experiences and knowledge around safety issues* and how they are, or can be, positively and proactively managed or mitigated amongst fishers. The collation of this knowledge and the means to share it ***must be developed by fishers and active skippers***, so that it is well regarded and relevant to them. This may involve some form of communication support from safety agencies that endorse the positive safety stories shared.

- *Industry to identify 'safety leaders' in each state and sector* who can work with AMSA and state agencies to test new equipment and work flow patterns, and provide insights on ongoing regulatory relevance of regulations to operational conditions and in regard to intended versus likely outcomes of proposed approaches. Skippers are those who are most highly regarded amongst crews as being responsible for, and caring about, safety in the industry.

- *Industry to work with safety agencies to develop a point of engagement between themselves and safety information sources* (from AMSA, and state safety agencies) that is accessible (language, format etc.) for them. The objective is to have a clear ***layman's*** source of information for industry to receive and explore information and recommendations regarding new and improved safety behaviours and equipment that can assist them in improving workplace health and safely.

The findings of this report provide a clear pathway and opportunity to change how we approach safety and the development of workplace health and safely culture in the fishing industry, and to achieve significant improvements in outcomes for fishers and their families.

It is notable that as a result of being involved in this project and party to the information as it came to light, AMSA have been working on generating changes to approaches and engagement regimes, which are fully detailed in the *Extension and Adoption* section of this report. We hope that these initiatives help to establish more effective relationships between regulators and industry, with the effect of assisting industry to develop a stronger safety culture.

Keywords

Workplace health and safety; safety culture; regulatory compliance

Introduction

High rates of work-related injury and illness have long been acknowledged to exist within Australia's commercial fishing industry, and particularly so when compared to other (agricultural and food production) industries (Brooks 2011; King 2014; Franklin 2015; McBain-Rigg 2017; Adams 2009). A large proportion of workplace health and safety (WHS) approaches that have been developed and established have been ineffective in arresting and/or decreasing these rates of accidents and incidents in the industry. They appear to be either underutilised or ineffective in reducing rates of deaths at sea or injuries, understanding their efficacy is however, hindered by a lack of robust incident/accident data, as injuries are rarely reported and often just taken as a badge of honour or 'part of the job'. The FRDC Research Advisory Committees (RACs) – specifically in Western Australia (WA) and New South Wales (NSW) – identified that there was a need to explore how to affect cultural shifts that would increase the adoption of safe(r) work behaviours in the wild catch sector and improve outcomes for the industry.

The industry is averse to a strengthening of regulatory and compliance requirements. However, in the absence of alternatives, a stronger regulatory approach has been the recommendation of coronial inquests undertaken in 2019, into deaths at sea. The research – both in the literature and in this project – identifies that for regulatory tools to be effective, there is a need to identify the factors underpinning effective improvements in safety culture, behaviours and outcomes in the industry; that is, the socio-ecological environment. This is also recognised by Australian Maritime and Safety Authority (AMSA).

Fishing industry representatives identified the desire for any research in the area of WHS to simultaneously generate positive WHS outcomes through actively engaging research participants specifically and the industry more generally. Although the wild catch sector was the prime focus of this identified need, any knowledge generated by this project may potentially have applicability in the aquaculture and retail sectors; consequently, the project was aware of identifying where lessons may be 'crossed over' to these other sectors. The instigators of this research also identified a desire for the development of a set of principles (or code of conduct), to be promulgated nationally and utilised by industry to improve WHS outcomes. This would have the benefit of potentially minimising regulatory impositions.

Undertaken by a team of specialists (a sociologist, WHS specialist, and industry association and AMSA representatives), this project was undertaken in response to the FRDC call for identifying and addressing barriers to the adoption of positive WHS work practices. The key RACs supporting this issue were those of WA and NSW; both RACs expressed high levels of interest in being co-investigators on the project and in facilitating field work with sectors in each of these states. Although NSW and WA were prepared to actively support the project in-kind and participate as co-investigators, Queensland, Northern Territory and Victorian RACs all identified that, despite not being in a position to financially support the project, they were supportive of its undertaking and were keen to be party to its outcomes.

From 1 July 2018, AMSA was tasked with harmonising safety approaches across Australia with a view to creating greater engagement with safety across the commercial fishing wild catch fleet. At the time of project inception, AMSA had two projects specifically targeting high-risk commercial fishing operations, namely the wearing of life jackets (personal flotation devices; PFDs) and personal locator beacons. The focus on PFDs and float free Emergency Position Indicating Radio Beacons (EPIRBs) has continued, reinforced by the tragic deaths of six fishermen on the FV Dianne in October 2017. Research into the use of PFDs in the Northern Prawn Fishery (Jarrett & Laird, 2017) identified that traditional training approaches were effective initially in altering behaviours, but people returned to pre-training behaviours over a 3-month period. This provided an explicit example of why more training of the traditional class room-based approach, is unlikely to be the answer to removing barriers to safer behaviours amongst fishers.

Many previous research projects and safety programs have made short excursions into the territory of drivers of behaviour (King 2014; Kilpatrick 2012) providing some valuable contributory data to this project; however, as identified by King (2014), these have not been specifically focused on identifying *cultural barriers* to adoption of positive workplace health and safety practices, or how they may be overcome in the Australian context.

Objectives

There were three objectives of the project, aimed at fostering knowledge regarding barriers; explicitly identifying barriers to the adoption of safe(r) work practices; and understanding contributing factors. The objectives contained in the application were as follows:

1. *Generate knowledge to foster a stronger safety culture* in the wild catch commercial fishing industry, and identify relevant recommendations also applicable to the aquaculture and retail sectors.
2. *Identify the barriers* (environmental, behavioural, psychological, regulatory and market based) *to adoption and implementation of safer work practises*.
3. *Identify the specific factors contributing to improvements in industry safety culture*.

Although the objectives of the project remained the same, the scope of the project changed as a result of information that was gathered during its first two phases.

This project was initially conceived of under the hypothesis that it was the culture and behaviour of the *fishers* that needed to be modified, independent of any other actors or influences. Originally, subsequent to a review of the literature and past efforts by the industry in this space, the project envisaged identifying a suitable pilot for alternative education or communication strategies to improve long-term adoption rates of safe(r) behaviours. However, the results of the literature review and initial survey of the safety climate of the industry led to a shift in the means to achieve the objective. That is, it was recognised that the safety climate factors of perceived management commitment and industry engagement with the development of safety programs were the lowest scoring elements in the safety climate survey and also beyond the control of the industry. Consequently, it was deemed essential to understand the basis for this state of industry perception, before any further training or education methods were explored.

As a result, the project was recast to understand how these two safety climate factors (perceived management commitment and participation in safety program development) may be affecting the development of the safety culture, and to identify the specific barriers to change and improvement factors in industry work health and safety behaviour.

Methods

Given the potential sensitivity of data that may well have been uncovered during the project, all project investigators signed a confidentiality agreement, which was co-signed by the Principal Investigator (Dr Kate Brooks), or in the case of Dr Brooks, by the Program Manager of the Human Dimensions Research Sub Program, Dr Emily Ogier. All project investigators signed confidentiality agreements by the end of November 2017 (Appendix 2: Confidentiality Agreement).

The project involved a four-stage process over the period October 2017 to May 2019 (Figure 1). Note that the numbers expressed in the diagram refer to the sequence of the activities, each of which is described in detail in the following sections.

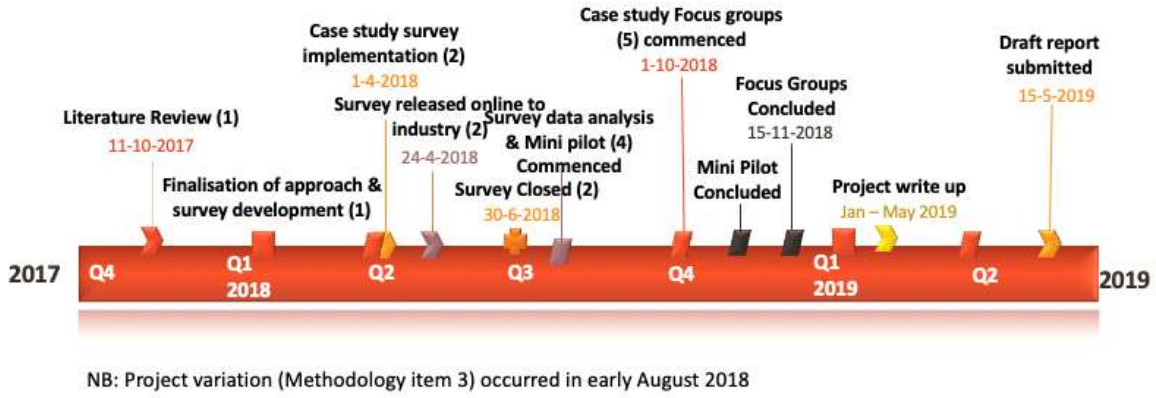


Figure 1: Project Time Line

1. Literature review

The purpose of this literature review was to synthesise the relevant existing literature and identify knowledge (and gaps in knowledge) to help clarify how to address the research issue, and also explore theoretical frameworks to help develop the research question and methodology.

The literature review stepped through the terminology used in the field and identified the terms the project would use. It then turned to the broad body of literature in Australia and internationally on the factors that have been identified to affect WHS outcomes. This included the review of a number of theoretical models on safety culture useful in the context of the research problem. The review also covered research undertaken on WHS in the Australian fishing industry, to identify the known factors and the remaining gaps. The focus then broadened again to see if those gaps had been filled elsewhere, globally, in relation to regulatory approaches, industry leadership, training and perceptions of risk. Finally, the review explored the factors that affect people's behavioural choices in regard to adoption generally, both psychological and environmental. In the course of the literature review, a hypothesis was formed, and a methodology of investigation identified, which involved utilising the socio-ecological model. This relies on looking at the work and/or organisational environment in which an individual operates, and also the broader policy and enabling environment.

The hypothesis that the literature review clarified was:

Barriers to the adoption of safe work practices are related to the influence of interpersonal community, organisational and policy regulatory factors, which shape fisher attitudes and beliefs about WHS. Therefore, identifying the key elements of interpersonal and community factors affecting attitudes and

behaviours within fisher groups, will provide clarification in how to best affect adoption of safe work practices of fishers.

The method identified from the literature review to explore this hypothesis was the safety climate survey to explore the different elements of safety culture amongst wild catch fishers, and identify any areas that were stronger or weaker than others, the results of which could be unpacked through focus groups.

Subsequent to the literature review, a summary was released to interested parties, and from this point on, all extension activities of the project invited comment and feedback to project investigators on the direction and findings of each stage of the project. Several conversations and emails were received during the project and they have been incorporated into the following discussion and project report.

2. Safety climate survey

The key method used to gain insights to the safety culture of the wild catch industry in 2018, was to implement a safety climate survey, which provides a measurable proxy for culture. This survey was implemented primarily utilising targeted individual face-to-face interviews in case study locations. In consideration of the safety of the investigators, at no time were either of the two investigators operating alone; they were accompanied either by another member of the research team or by a key contact of the industry as identified by one of the investigators. In addition to the face-to-face administration of the survey, it was also made available online, for voluntary (self-selected) completion by those in the fishing industry, from 15 April to 30 June 2018. The survey was fully completed by 219 people across Australia. The majority of these (74%) were located in NSW and WA, where the case studies for the project were located (Figure 2).

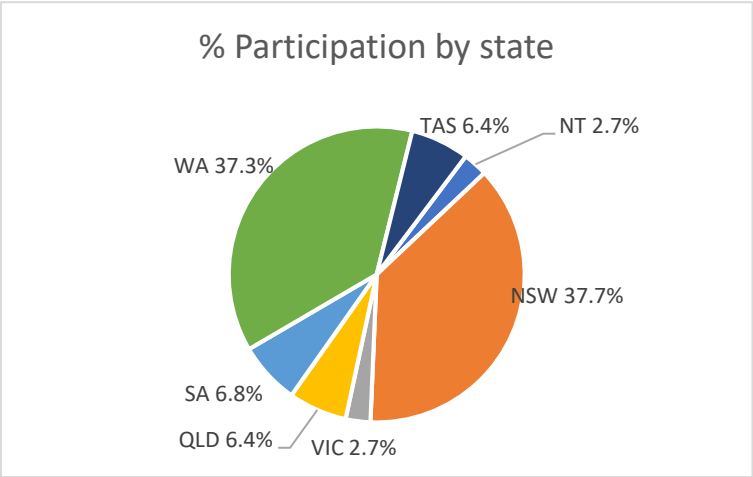


Figure 2: Survey participation including case study locations

Figure 2 shows proportional state participation in the safety climate survey adjusted to exclude case study locations, hence identifying the largely uniform voluntary state/territory survey participation (Figure 3).

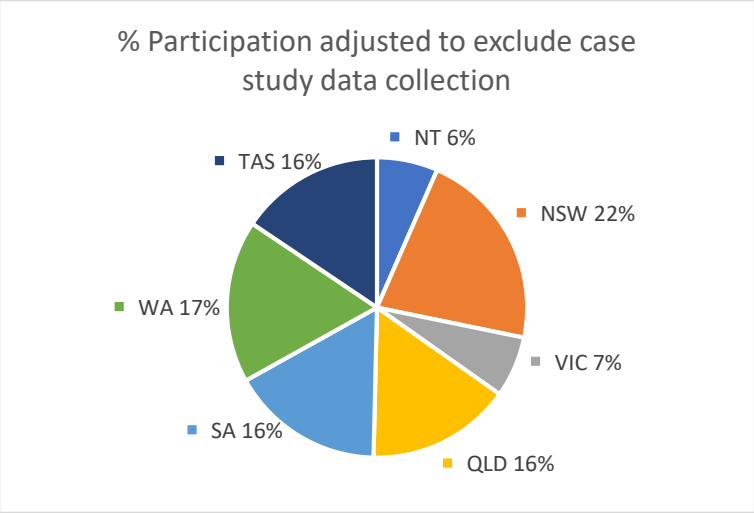


Figure 3: Survey participation adjusted to exclude case study locations

An incentive to complete the survey was provided, with eight life jackets/personal floatation devices (PFDs) were awarded to respondents, randomly selected from all those who completed the survey between mid-April and 30 June 2018. All recipients of PFDs agreed to waive the confidentiality of their participation for the purposes of promoting the survey. The recipients of these were:

- Brenton Osborne – Cowell, SA
- Michael Jensen – Carnarvon, WA
- Paul Jordan – King Island, TAS
- Lyall Mills – North Geelong, VIC
- Michael McDonald – Peregian Beach, Qld
- Michael O'Brien – Darwin, NT
- Jason Vidler – Woodburn, NSW
- Sean Glass – Linsdairne, TAS (fishes in NSW)

Figure 4: PFD Winners, J Vidler, NSW (left) and M O'Brien, NT (right)

All eight recipients of the PFDs received the award very positively, with two providing proof not only of 'receipt', but also the 'fit' of the PFDs (Figure 4). A media release with these details was emailed to the list held of those interested in project developments in 4 July 2018.

For the interviews to be administered face-to-face, two case study locations were selected (as nominated by the NSW and WA industry associations). These comprised a prawn trawl fishery in north west WA, where surveys were undertaken on 3 and 4 April 2018. The second case study region comprised a cross section of fisheries, represented by largely owner-operator and small-crew fishers, on the NSW northern coast (Sydney to Ballina), who responded to the survey between 28 May and 8 June 2018. The WA participants were approached through the Port of Carnarvon, while NSW fishers were made aware of the survey through flyers and announcements in newsletters, social media (FRDC and various industry associations) and email alerts by a variety of industry associations. Media releases were also utilised and were taken up by AMSA (*Working Boats* magazine); and other industry media (*Fish Magazine)*, as well as state industry association newsletters and social media. It was also taken up by ABC Radio, with an interview undertaken for ABC Rural Hour SA, broadcast on 4 June 2018 discussing the background, objectives and availability of the survey. Refer to *Extension and Adoption* section of report.

The safety climate survey was originally developed for the US grains industry (Seo 2005; 2004), and as a result, was revised to be relevant to the Australian fishing industry, while maintaining the integrity of the questions as originally designed. A small voluntary pilot of the survey was undertaken with five fishers in NSW, WA, Vic and SA and a number of further changes to wording, language and scales were undertaken to improve comprehension as a result of that pilot.

The survey comprised two elements: a set of 35 questions designed to reveal safety climate amongst respondents (as a proxy for safety culture), as developed by Seo (2004), and a set of 21 socio-demographic and sector questions, and safety focussed questions covering experience, training and recency, and perception of incident causes.

The online administration of the survey, utilising Survey Monkey, procured further voluntary participation by industry members, nationally (N=89). Overall, the survey secured a total of 219 complete and valid responses with a further 139 partial responses not included in the survey results. The total number of valid responses represent approximately 1.9 per cent of the total fisher population (based on N=11,000 active fisherman).

Responses from NSW (N=66) and WA (N=64) case study areas were comparable in size and basic demographics, but comprised different fishing sectors. The responses from the online administration of the survey covered all sectors and mirrored the demographics represented in the case study regions.

The data were analysed by each case study area and the national voluntary results to identify any variation by region and/or across nation responses, on both the safety climate survey data and the industry socio-demographic data.

3. Mini Pilot

This project was initially conceived of under the hypothesis that it was the culture and behaviour of the fishers that needed to be assessed, to identify ways to modify *fisher* behaviour. That is, the project was conceived of on the basis that the ability to modify the culture, was wholly and completely in the control of the fishers.

It is the latter element of the hypothesis – that the culture of fishers is developed in complete isolation from any other actors or influences – that was highlighted as problematic from the findings of the safety climate survey. These findings identified that while the culture amongst fishers was positive in relation to safety and regard for its importance, attitudes toward the relevance of regulatory safety approaches to fisher's perceptions of safety were not positive, and was a more likely opportunity for change.

This triggered a review of the project elements, approximately half-way through the project, in relation to the objectives and proposed outcomes. The objectives of the project were largely addressed by the initial findings (as articulated in the full report on the survey findings, see Appendix 4: Survey result report). By contrast, the outcomes sought by the project were seen to be better addressed by modifying the initial approach to one that clarifies and articulates how changes in government regulatory processes (AMSA; state departments of primary industries; and safe work agencies) and industry association approaches could be the more efficient and effective means by which to address fisher behaviour and improve safety outcomes. As such a mini pilot was included in the project that south to explore the potential effects of alternative management actions in regard to fisher identified safety issues.

The objective of the mini pilot was to 'opportunistically' explore the potential effects of alternative management actions in regard to safety issues identified by contracted skippers and crews. It was undertaken by owners who generously offered to participate, under the recommendations and guidance of the researchers. The objective was to embed alternative behaviours and improved communications. As it was not a planned intervention, long-term interaction and participation by researchers in the field had not been budgeted for; hence it was regarded as an 'opportunistic' pilot undertaken by and with the cooperation and good will of vessel owners.

On reviewing the results of the survey, the lower management score identified an opportunity to explore potential reasons and means to address this. Consequently, it was agreed to explore issues and potential 'fixes' to these in a program of collaborative discussions between vessel owners, skippers and crew members. It was undertaken with those crews and skippers where they reasonably interpreted 'management' to be the owners of the vessels.

One of the challenges identified by all vessel owners of the pilot is that, while they are required to, and do, provide "*skippers and crews with all the information, guidance and instruction … once the vessel is at sea, the reliance is on the skipper to provide their crew with the correct training and instruction"* (Vessel Owner, 13/2/2019).

The following steps were identified for vessel owners to undertake/facilitate, along with a list of suggested actions[2] to be undertaken as a pilot. These were based on the analyses of the survey data, observations and incidental discussions with skippers and crews during field work. The key changes that could be made immediately to improve WHS culture included the following:

- Skippers were identified as the most well regarded performer by crews in the area of safety. Therefore, engaging skippers more actively as key influencers of crews was seen as a key step in improving safety. What the crews see them doing, they will value. The highest positive attitude perception of safety related to supervisors (skippers/direct supervisors).
- Increased active participation by skippers and crews in the development or sign off of safety processes rather than being given pre-determined processes. The lowest positive attitude perception was in the ability of respondents to participate in the development of safety in the industry/their working environment.

The following six actions were identified and scheduled with allocated responsibilities for implementation:

1. 'What scares us at sea' – call to skippers/crews to identify the three key things that were scaring/worrying them at sea, and set up a conversation about how they ideally want to or think these might be addressed. Times to do so were during breaks on board, during pre-departure preparations, and undertaken as a 'casual' chat, to allow crew to show/demonstrate issues and talk about possible remedial actions. Feedback was then to be provided to both skippers and crew on reported issues and actions taken to address them. All crews were to be alerted to this new process,

[2] The implementation of a pilot was based on the good will and intent of the project participants.

so they could 'keep an eye out' for issues, and owners were to ask skippers and crews, to hold them to it.

2. Provide skippers and crews with monthly/trip update of what safety-related work owners had undertaken or were planning on and how this was expected to affect them. Skippers and crews were to be asked for feedback – 'do they agree or not?' – either anonymously or identified, via a suggestion 'box'; responses to all the suggestions to be included in a monthly update. The key focus was not just on letting them know that something was actually being done, but to seek feedback on actions and telling crews what owners are doing with crew feedback. The aim was to set up a continuous circular loop of communication.

3. Review by owners with skippers, optimal processes for minimising and mitigating identified risks and issues, in light of 'What scares us at sea'. The objective of this action was to be an ongoing review to look at longer term improvements.

4. Seek a mental health counsellor that skippers and crews could contact anonymously for support on an 1800 number (i.e. free or minimal cost). Provide all skippers and crews with a one-pager of key signs to be self-aware of in regard to post-traumatic stress disorder (PTSD) (e.g. major trauma events), depression or anxiety (due to financial/relationship/work/other stressors). A range of providers were identified on the Employee Assistance Professional Association of Australasia website.

5. Review of safety risk assessment processes with skippers, to identify how these could be generate safe procedures in their daily operations, and then ensure these are documented into a safety management system (SMS) that meets AMSA requirements. This is to address the template approach that many fishers have adopted due to a variety of reasons. It should be undertaken informally and in a collaborative way, to identify and enhance the benefits to skipper and crew, of having an SMS.

6. When developing any safety measure or action as a result of the feedback received from 'what scares us at sea' (via suggestions received via suggestion box or directly, or from things observed or overheard on the wharf), the owners were to provide an outline of the proposed approach, why, and how it is believed it will affect/benefit crews. They were asked to seek comment or feedback from crews on the proposals.

Recommendations were for owners to seek feedback from skippers and crew on the pilot action plan on commencement of their next trip, identifying that it was just a pilot for the next 3 months, to be reviewed after that time. Further, owners agreed to:

1. Plan monthly follow up on actions and tracking of responses.
2. Resurvey all crews and skippers who participated in the first round with the first 35 questions of the survey (Safety Climate component) to identify any shifts in perception.
3. Ensure as far as possible skippers and crew to be available to participate in focus groups to explore changes in survey results and perceptions of actions and safety.

4. Focus groups to investigate survey findings

Focus groups and interviews were conducted between 2 October and 15 November in north west WA and in NSW across a variety of fisheries between Sydney and Ballina.

Participants were sourced utilising open invitations and following up from expressions of interest to be involved in focus groups, made during the surveys. Participants were also recruited through industry bodies, companies and fishing co-operatives, utilising industry association newsletters, flyers on fishing co-operative notice boards and in co-operative pay packets (See Appendix 4: Survey result report).

Participation was entirely voluntary, and no incentive was offered, with the exception of a BBQ breakfast in Coffs Harbour, as a means to draw fishers together in that location.

Sixty-nine individuals from both WA and NSW, comprising skippers, crew members, owners and co-operative and industry association representatives, participated in the focus groups. Where individuals were unable to attend a group or it was inappropriate, they were interviewed individually. The names of participants in focus groups were not collected for privacy reasons, and all participants were given the assurance that they would not be individually identified in any of the data reported.

Focus groups and interviews lasted between 30 and 90 minutes, depending on the number of participants and the time that they had available. They were all undertaken by either or both Dr Kate Brooks and Ms Alex Thomas, utilising the same focus group guide. Refer to the Focus Group Guide on p.67 of Appendix 5: Focus Group Findings Report. This included a full disclosure of the project, and the use of the final report, along with assurances and details of how the anonymity of contributors would be maintained.

A number of themes were explicitly explored as a result of the survey: the involvement in safety program development, safety values and attitudes affecting decision making, and effects of management approaches to safety. A further theme was explored as a result of the research of effective learning identified in the literature review, and concurrent FRDC research in the form of 'SeSAFE' relating to the use of online learning (FRDC project 2017-194); for any pertinent information to be passed to the project leaders. All other themes emerged as a result of discussions with and amongst respondents, either in further exploration of the survey themes or in direct response to the focus group discussions.

The report on the focus group findings (see Appendix 5: Focus Group Findings Report) drew conclusions thematically from the frequency of opinions and perceptions, and on this basis explored potential means to address issues raised with participants. These responses and findings formed the basis of the preliminary recommendations contained in the Focus Group Findings Report that was widely promoted for review, comment and feedback through:

- email to all participants who had provided contact details
- promotion via a media release to all industry associations to advise members as appropriate through emails, newsletters and social media
- Women In Seafood Australia (WISA, previously WINSC)
- Australian Fisheries Management Forum (AFMF)
- Fishing Industry Advisory Committee (FIAC)
- Bureau of Meteorology
- NT SafeWork
- email to relevant stakeholders

Results

The findings from each of the three components of the research were reported in milestone reports as per the project requirements and are attached as appendices. This section summarises those findings, and reflects the reports and subsequent insights gained as a result of further engagement with industry and a range of regulatory agencies.

1. Literature review

For the full literature review, please see Appendix 3.

Briefly, to date, approaches towards improving WHS in fishing have targeted 1) managing the physical risks associated with the work environment (i.e. tools and equipment, personal protective equipment, technology), and 2) the development and implementation of WHS management systems (or administrative controls – policies, procedures etc.). However, while these approaches have been well intended, the research identified that the following factors are most relevant to improving WHS outcomes and safety cultures generally, in both fishing and a range of other industries:

- A ***focus on team work and communication is most effective*** in reducing errors and improving safety culture and WHS outcomes (see Appendix 3: Literature review, p. 3).

- Further, ***systems that*** encourage this approach not only between workers, but ***include the broader operating and policy/enabling environment in open discussions of relevance of approaches to workers, are more effective in modifying the culture*** of an industry through the chain of influence to create lasting change. As highlighted by various incident causation models, the Socio Ecological Model (SEM) and safety culture models, there is a complex, non-linear interplay between people, their work environment and structural systems (regulatory governance). Without an appreciation and an investment in common agreement across people, organisations and legislative regulations regarding safety objectives and the means to achieve them, achieving safer outcomes will remain a challenge (see ibid, pp, 3–7).

- It is ***necessary to set up committees and stakeholder groups who are able to link regulatory developments with lived experiences***. Within the Australian fishing industry, the Fishing Industry Advisory Committee (FIAC) was set up by AMSA to provide advice and has been credited with creating a focus on building compliance with WHS legislation, linking regulatory processes more effectively with the lived experiences of fishers. Cultural change is directly influenced by policy, and the organisational management of influencing regulators. A secondary factor in this influencing process is that of involvement of industry management and community (skippers) in safety development programs. To this end, FIAC is a very positive step.

- The research identified that ***increasingly, workers are obtaining their information about WHS from the internet/social media, rather than formal sources, such as government and regulatory agencies with whom they have no relationship***. Additionally, workers find that physical interaction and demonstrations are the most effective way to communicate and embed WHS issues and management (ibid, p. 8).

- ***Familiarity with risks alters the perception of risk; particularly between those taking risks and those observing***. This occurs due to regular exposure to risks and normalised means to mitigate them, which alters the perception of risk to a lower level than someone observing activities for the first time without awareness of mitigating elements. Consequently, the risk perceived by the 'on looker' (public or regulatory authority) is much higher than that of the fisher, who is very familiar with the task and mitigating elements. However, it was also noted that risk amongst fishers is commonly seen as 'necessary' ('I know the risks and to fish you just

have to accept it') to achieve the benefits to be gained from working in the industry, and can be done if one mentally disengages with the risks (ibid p. 10). ***Further, it was identified that awareness raising does not effectively act as a means to mitigate risk*** (see Appendix 3: Literature review, section 5.4).

- The ***nexus between industry leadership and adoption of safe work practices is largely*** deductive (there is not current empirical evidence). However, considering the tapestry of elements (personal, behavioural and environmental) as identified by Geller (1994) and others, the positive role of leadership in a number of quarters is evident.

- The research also identified the ***need to contextualise regulations and associated training, by industry and sector***. Franklin et al. (2015) identified that 80 per cent of barriers to improving WHS outcomes related to environmental relevance, costs, leadership and time taken to implement legislative requirements. There is an extensive body of work beyond Franklin et al. (2015), identifying that training alone is entirely inadequate to effect change in WHS behaviours.

- The work of Provan et al. (2019) identify that a ***partitioning often exists between 'safety work' and the 'work of safety'***. 'Safety work' refers to organisational activities related to 'managing and reporting on safety' (e.g. having an SMS; having undertaken training certification). By contrast, the 'safety of work' refers to the goal-directed activities which solely focus on the immediate prevention of injuries (see Appendix 3: Literature review, pp. 5–6). This relates to the barriers identified by Franklin et al. (2015), whereby a focus on 'safety work' by regulators disengages workers due to its lack of relevance in their experience with the 'safety of work'.

- Psychological safety was explored as a factor that either inhibits or motivates behavioural change. The research identified that ***non-questioning reliance on administrative controls (SMS/checklists etc.) can deliver a level of psychological safety (e.g. regulatory compliance provides the psychological safety of avoiding penalties)***. However, without open and transparent blame-free communication about those controls, to build collaborative awareness of risks and potential responses, such reliance is ***unlikely to deliver effective change in WHS culture and practice in the work***.

- Lastly the work of Seo (2005), Geller (1994) and Provan et al. (2019) can be expressed collectively to identify the **safety culture of an industry or group as the complex interplay between a range of factors**, as articulated in Figure 5, the combination of which is expressed as the safety climate when it is measured at a point in time, and is a useful proxy to understand the overall culture.

The review concluded that these approaches and the findings all fall within, and are potentially explained by, the Socio-Ecological Model (SEM) theory. This theory articulates that ***an individual's behaviour is nested within, and responsive to,*** the following ***relationships and structural pre-conditions***: interpersonal (co-workers); community (skippers); organisational (participation in safety development – through industry or the regulators); and policy/enabling environment (how the industry is managed) (See Figure 4, p. 17 of Appendix 3: Literature review)

In conclusion, the literature review led to the hypothesis that: ***barriers to the adoption of safe work practices are related to the influence of interpersonal community, organisational and policy regulatory factors, which shape fisher attitudes and beliefs about WHS***. Therefore, identifying the key elements of interpersonal and community factors affecting attitudes and behaviours within fisher groups, will provide clarification in how to best affect adoption of safe work practices of fishers.

Consequently, Seo's (2004) approach, which would identify the elements within the socio ecological environment of the fishing industry that were the weakest, would assist in identifying barriers, and therefore opportunities, to improve the safety culture of the industry and therefore safety outcomes.

Figure 5: Safety culture; expression of the components as identified by 'safety climate'

2. Safety climate survey

For the full report on the survey component of the project, including detailed data analysis, refer to Appendix 4: Survey Result Report.

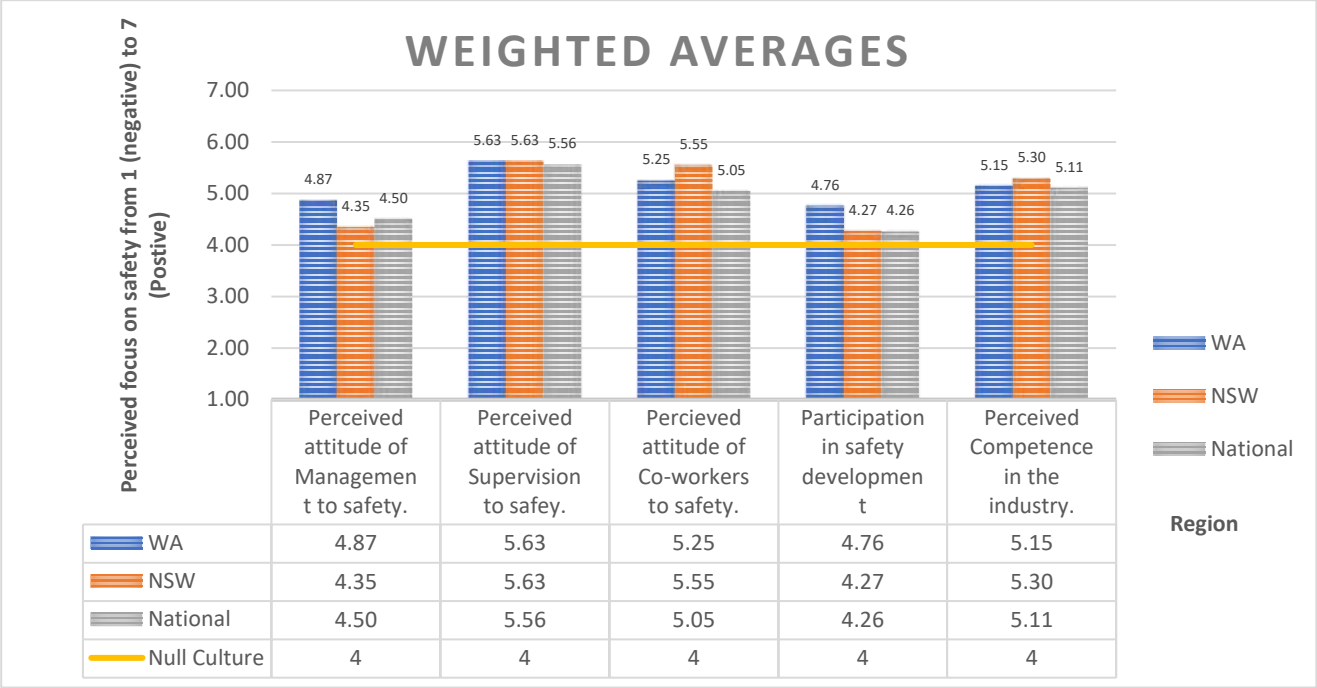
The ***key objective of the survey was to identify the safety climate (being a recognised proxy for safety culture*** (Seo 2005; 2004) of the commercial wild catch fishing industry, in the context of the categories of the Socio-Ecological Model (SEM). Further objectives were to gain insights to the general parameters of the industry in the context of training recency, coverage, perceived incident causes, experience in the industry and sector. It sought to establish an industry baseline of safety climate, as a proxy for the safety culture of the industry from which to work towards an improvement of safety outcomes. In regard to the project's objectives (being four, a - d), the survey of fishers found:

a) Generate knowledge to foster a stronger safety culture

The survey indicated that the industry, nationally, has a marginally positive safety culture (average 4.9 across all five categories where 4.0 indicates a null[3] safety climate), with the NSW and WA case study results demonstrating slightly higher results, than the national weighted average at 5.02 and 5.13 respectively (see Figure 6). Across all regions, the key areas of potential for improvement are those of;

- perception of ***management*** activity in ensuring safety, and
- fisher ***participation*** in the development of safety management programs and processes.

[3] Null = neither positive nor negative. The scale is from 1 ('very negative') to 7 ('very positive'). In this case 4.89 errs towards a 'slightly positive' (4) climate.



	Perceived attitude of Management to safety.	Perceived attitude of Supervision to safey.	Percieved attitude of Co-workers to safety.	Participation in safety development	Perceived Competence in the industry.
WA	4.87	5.63	5.25	4.76	5.15
NSW	4.35	5.63	5.55	4.27	5.30
National	4.50	5.56	5.05	4.26	5.11
Null Culture	4	4	4	4	4

Figure 6: Weighted averages for safety climate in the fishing industry

The noteworthy difference between the two case study regions is that those from WA had higher overall levels of safety climate in all categories than those of respondents in the case study response group of NSW. This may be attributable to the largely centralised environment in which that fishery operates, despite still being share fishers, and where fishers have a clearer line of sight to what a proportion of them see as the 'management' of their operations.

By comparison, the NSW case study respondents, who were self-employed skippers and crew working mainly in single boat operations, had overall lower scores of safety climate in the areas of perceived levels of management safety culture and participation in development of safety systems. By contrast however, they had higher perceived levels of safety culture amongst co-workers and of their competence to operate safely.

It is noteworthy that nationally, this trend of the lowest scoring categories of safety climate was maintained, with perceptions of management and participation in safety development. These are the two most formative areas for the development of safety culture according to socio-ecological theory (Lee 2017). While it was noted that the term 'management' was very open to interpretation, and that despite AMSA being the single most commonly cited agent (at 27.6%) perceived responsible for safety and its management, AMSA do not recognise themselves as the 'manager' of safety in the industry. However, this did highlight the opportunity to 'unpack' this and understand the interplay between those whom fishers identified as 'mangers' of safety in the fishery and fishers' interaction with them in the realms of safety.

In the main, where an explanation of the perception of AMSA being the manager of safety in the industry was given, it was due to the role of legislation and regulation implementation and compliance enforcement. The next most commonly identified category of 'Management' by respondents was 'Skippers and Owners' (at 15.3%) being perceived as the responsible agent or entity for fisher's safety. The category of 'Myself', was the third largest category at 12.8 per cent of respondents, and may have included sole operators, who are therefore skippers of their own vessels (see Figure 7), however a number of respondents of 'Myself', were simply crew members.

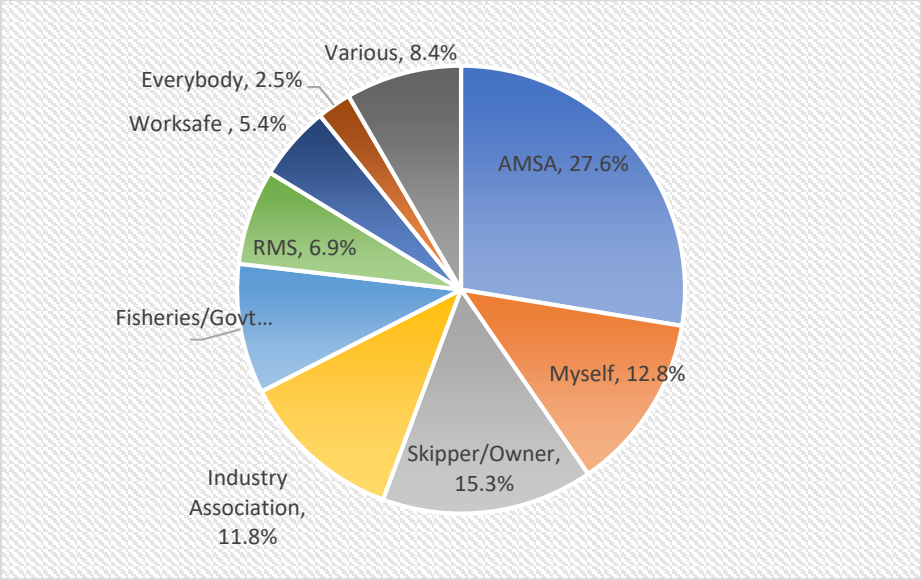


Figure 7: Percentage of perceived responsible body for safety management and promotion (N=203)

The use of the term 'Management' was a challenge in the survey instrument as in this instance, 'Management' to a skipper in a corporatised environment is the vessel owner; but management to crews is more likely to be interpreted as the skipper as they are the ones who contract them. In other fisheries, the interpretation of Management varied between ASMA, RMS, industry association, fisheries management and skippers. This highlights the relevance of the SEM to the industry, being that all actors in the industry have a role to play in safety management.

b) Identify barriers to adoption and implementation of safe(r) work practices

The key barriers to adoption and implementation of safe(r) work practices appear from the data collected from the survey, to be:

- Aa lack of engagement with 'management' (safety agencies, owners, and some skippers);
- A regulatory structure that fails to 'make sense' to fishers in regard to improving their safety, given their knowledge and fishing processes and methods;
- A perception of a 'one size fits all' approach to safety, which lacks relevance to the variety of commercial fishing sectors that operate across the country.

c) Identify specific factors that would contribute to improvements in safety culture

The survey results and comments received suggest that:

- *Increased active wharf side involvement of fishers in the discussion about and development of regulatory processes and WHS management systems (rather than primarily with industry association executive officers)* will have the greatest immediate impact on the overall WHS culture of the fishing industry. Exploration of the factors as to how this could be achieved is the subject of focus group discussions.
- *Review of environmental, policy and organisational aspects of fisheries management that may have unintended WHS impacts* on fishers would be greatly beneficial in re-engaging fishers. Areas where issues were specifically identified as presenting opportunities, were in regulations that generate fatigue through 'pressures to fish'. Conflicts with attempts to improve safety were also identified in fisheries management requirements, such as in the inability to have a non-fishing observer on board in inshore/estuary fishing; or the inability to modify trawl by-catch grids to prevent or minimise the likelihood of injury to crew from falling debris from grids.

- *Promotion of skipper best practices which are publicly acknowledged to be so*, identifying pathways (financially and ease of workloads) in adoption for others.

These initial findings also identified areas for further investigation through follow up focus groups that were held in the last quarter of 2018 with fishers in case study areas in WA and NSW.

d) Identify issues and areas to explore in more detail in case study focus groups

The questions identified from the survey for further investigation via focus groups encompassed the following areas:

- How could fishers gain a greater say in the development of safety systems to ensure that they are more sector specific and relevant (e.g. what aspects about the current engagement to assist fishers tailoring their own SMSs are not working)?
- How do fishers go about interpreting safety and fisheries management regulations and guidelines which are communicated in highly legalese language?
- When does safety take priority over getting the job done?
- How do fishers go about identifying what risks can be managed when at work?
- What do you think about SMSs?
- How would fishers like safety to be managed to improve outcomes?

Refer to Appendix 8.2, p.65 of Appendix 5: Focus Group Findings Report.

Survey conclusions and next steps

The survey results point to the suggested conclusion that while the safety climate is only just positive (being –0.5 to 1.5 above null or '0' which is neither good nor bad), the industry perceives it is 'doing the best it can' given the environment within which it operates; both natural and constructed in the form of legislations and regulations.

The project originally proposed that it would, as a result of the survey and focus groups, identify an alternative method of training communication to improve the safety culture amongst fishers. The first section of the survey (safety climate) findings identify, however, that the key stumbling blocks to improvement of industry WHS outcomes are the industry's perceptions of 'management' actions and commitment to safety, and the industry's inability to meaningfully participate in the development of safety systems and programs. The largest identified single group in the perceived category of 'management' being AMSA at 25 per cent of respondents.

Both of these areas of culture are structurally outside the immediate control of fishers. Therefore, it was decided that it would be inappropriate (particularly given the mental health issues facing the fishing industry) to impose further requirements upon the industry alone, without meaningfully exploring the structural elements impacting the ability of the fishing industry to improve their overall safety culture. As a result, a variation to the project was sought, which entailed deleting the training communication pilot activity component of the project, moving directly to a focus group stage of deeper investigation as to the causes and potential means to address them. However, there was an opportunity, utilising the findings of the survey, to implement a much smaller pilot in a restricted region of one of the case study regions.

While the survey generated a safety climate profile of the industry, from the sample of respondents, as with all quantitative data, prior to being able to make substantive conclusions, further questions and areas of investigation were highlighted that needed to be explored. This was undertaken through focus groups conducted with fishers in the two case study regions, exploring both their specific issues, and the national positions generated by the survey, to delve into 'why' these responses were being recorded.

3. Mini pilot

For the purposes of the mini pilot, the term 'management' was taken to refer to the owners of the vessels. The objective of the mini pilot was to investigate if different approaches to engaging crews in safety procedures and issues would generate more positive engagement and outcomes. Liaison with willing owners and skippers in regard to the suggested pilot, resulted in the pilot, which picked up on issues identified by crews in the fishery, and was added to by actively asking crews for feedback on what scared them most when they were at sea. The pilot resulted in the following actions being undertaken. The outcomes generated, were minimal, due to the short time frame of the pilot itself, and while could not be credited with creating significant change, did generate some new ideas for safety approaches for owners that they intended to follow up in the following season.

It is very important to reiterate, that this pilot was not ideally set up, but rather was an opportunistic attempt to introduce interventions based on the feedback of the survey and skippers and crews to actively engage them in safety discussions and reviews. The three months over which it was undertaken was an entirely inadequate time frame to see significant changes in behaviour and culture, which normally takes at least two to three years (Fajak 2018; Johnson 1992). The following details the actions undertaken and discusses the outcomes perceived by management (owners) and skippers and crews.

1. **'What scares us at Sea' – Call to skippers to identify the three key things that are scaring /worrying them at sea, and setting up a conversation about how they ideally want to or think these might be, addressed.** Skippers and crews were asked to complete a form asking them to identify the top three (or more) things that scared them most at sea, and 22 responses out of 38 (skippers and crew) were received,

RESPONSE FROM SKIPPERS (AND CREW): The key recurrent issues that were identified by skippers and crews across the fleet were:

- A lack of man-overboard drills and/or lighting for searching;
- Lack of ability to communicate with family and friends;
- First aid currency specific to sprains/breaks/lacerations and stings;
- Stings and bites and the lack of provision of thicker gloves to prevent these; and
- Items falling from by catch exclusion grids – and a need for mitigation or prevention options (trawler specific)

RESPONSES FROM MANAGEMENT: The ways in which these were addressed are as follows:

- ***Man-overboard drills and lighting for searching***;
    - Hand held spotlights were provided.
    - Skippers were encouraged to conduct at sea safety drills as outlined in the Safety Management System.
    - Man overboard drills were identified as a key activity to work out how to undertake while avoiding other dangers (e.g. sharks in harbours).

- ***Communications with family while at sea*** – inadequate mobile coverage;

REPONSE FROM MANAGEMENT: Where relevant, Telecom boosters were provided to allow fishers to use their phones at sea, though this has been limited due to generally patchy phone reception.

- ***Inadequate first aid knowledge*** to deal specifically with sprains/breaks/lacerations and stings;

RESPONSES FROM MANAGEMENT: One crew member reported undertaking a first aid course update as a result of the discussions. It was reported by one owner that in 2019 first mates (in addition to the skipper) will be provided with first aid training, at the commencement of their contract.

- ***Concern about stings from sea creatures***;

RESPONSE FROM MANAGEMENT: Thicker gloves to prevent stings based on feedback from crew after having trialled different types and have now made these available in the gear equipment store for all crew members.

- ***Falling rocks and other objects from grid*** – mitigation or prevention options

RESPONSE FROM MANAGEMENT: Bike / skate helmets and hard hats were made available for crew to use, as gear reconfiguration is not an option given Fisheries Management regulations.

2. **Provide skippers and crews with monthly/trip update of what safety related work is being undertaken or planning to be done on their boat and how you expect it to affect them – *ask for feedback – 'do they agree or not?'***

RESPONSE FROM MANAGEMENT:

- A suggestion box for crews was set up but had very little engagement;
- A phone number for crew to text if they had any safety concerns was also implemented;
- Safety was an action point for outward bound pre-departure meetings, but limited feedback was provided by skippers or crews.

With initial changes of processes there is often little feedback – or can actually be 'pushback'. In this case, the fact that there was no pushback was potentially positive, but would be proven over time, assuming that the same skippers return after the current contract. This highlights a further challenge of vessel owners, being to retain consistency of skippers and crews in a contract and catch share environment when seasons vary from one year to the next. Skippers and crews will move to regions where they perceive they are likely to get the biggest catch share.

3. **In light of 'What scares us at sea' review with skippers the optimal processes for minimising and mitigating risks and issues.**

REPONSE FROM MANAGEMENT: No actions were taken on this, but acknowledged as an ongoing opportunity.

4. **Seek a mental health counsellor that crew and skippers could contact anonymously for support**

RESPONSE FROM MANAGEMENT:

- Provision of a 24-hour service exclusively for crews was found to be very expensive, and owners identified that crew were contracted to the skippers, so technically their responsibilities.
- One owner advised that they were investigating the cost of programs on skippers/crew behalf and look for co-funding from the skippers/crew insurance that they pay.
- Other considerations were promoting the use of free services such as Lifeline
- No further action was reported on this

5. **Review of SMS requirements with skippers, to identify how these could be turned into living breathing documents** – internally and in ***an informal, collaborative way*** to enhance the benefits of having an SMS to skipper and crew.

RESPONSE FROM MANAGEMENT: SMS documents are reviewed with the skipper at the commencement of their contract and updated with latest news and notifications from AMSA. Owners identified that the SMS was unique to the vessel and it is the skipper's responsibility to review the SMS and ensure that it is correct and followed prior to departure and updated during each trip.

6. **Seek feedback from skippers while developing measures to address safety concerns**

REPONSE FROM MANAGEMENT: No action was reported on this.

While a number of items are recorded as 'no action was reported' it must be noted that there was a very short time of the pilot (three months) in which to generate actions and outcomes.

The key challenge was to hold crew and skippers for safety conversations either before or after a trip when they are not paid for that time and are either keen to get out fishing or are tired and focussed on getting home. While skippers and crews made little use of such opportunities as the suggestion box, this is a cultural change issue, that they likely need to take time to trust that the skipper and owner behaviour is genuine and not just a knee jerk reaction to a 'research project'

iv. Re-survey of skippers and crews to assess the effect of the pilot on safety climate.

The first 35 questions on the five safety climate categories only, were re-administered in an attempt to identify any significant variations between pre and post the pilot of modified safety responses conducted. The objective was to identify any shifts in safety climate which in time may lead to a change in safety culture.

The survey results in regard to "Perceived attitude of Management to safety" in the post pilot results were initially somewhat disappointing given that the owners admitted that they had been "*more active than ever before this year*" (owner, Nov 2018) in regard to identifying and addressing safety concerns of crews, and the hope would have been to see an immediate shift in the safety climate (Figure 8).

It must be noted however, that to compare the data is challenging given that there were a little over half the number of respondents in October (N=38) compared to April (N=64). The remaining skippers and crew were much more 'hardened' crew of long-time experience with potentially higher expectations, compared to many new crew who may well have been presuming attitudes of management, in their responses. It is reasonable to conclude that given the lack of physical proximity of management (onshore) to the operation (off shore), in addition to the hierarchy of skippers over everyone else, vessel owners encounter significant challenges in influencing the attitudes and behaviours of crew whilst at sea. Further to this, structurally, under the contractual arrangements of share fishing, the owner only has a direct responsibility for the safety and welfare of the skipper; and the skipper is responsible for the crew – a situation which has resulted in a large degree of responsibility avoidance.

Positively, the weighted average of four of the six components of the climate survey had increased during the trial. The exceptions were the "Perceived attitude of Management to safety" and "Perceived competence in the industry". The safety climate reported by the respondents had improved during the trial period in the areas of attitudes to; supervision of safety; co-workers to safety; and participation in safety development.

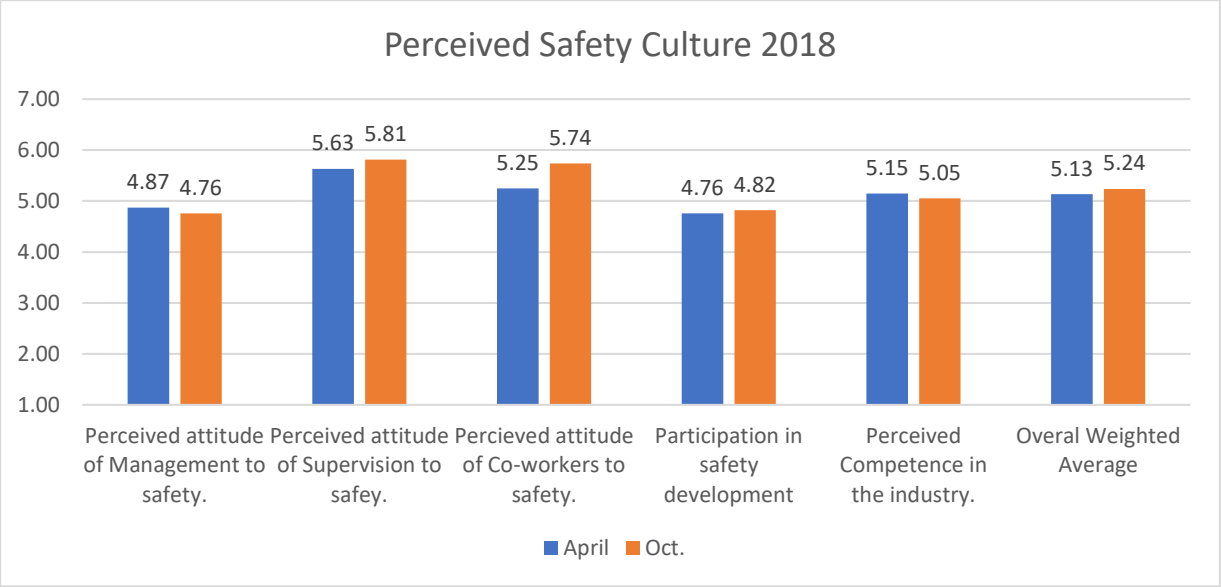


Figure 8: Pre & post pilot safety climate scores

Interestingly, when breaking down the category of 'Perceived attitude of Management to Safety', by the responses to the individual questions, the findings are potentially illuminating (Figure 9). Improvements actually did occur in four of the eleven indicators in the perceived attitude of management, and remained neutral in one.

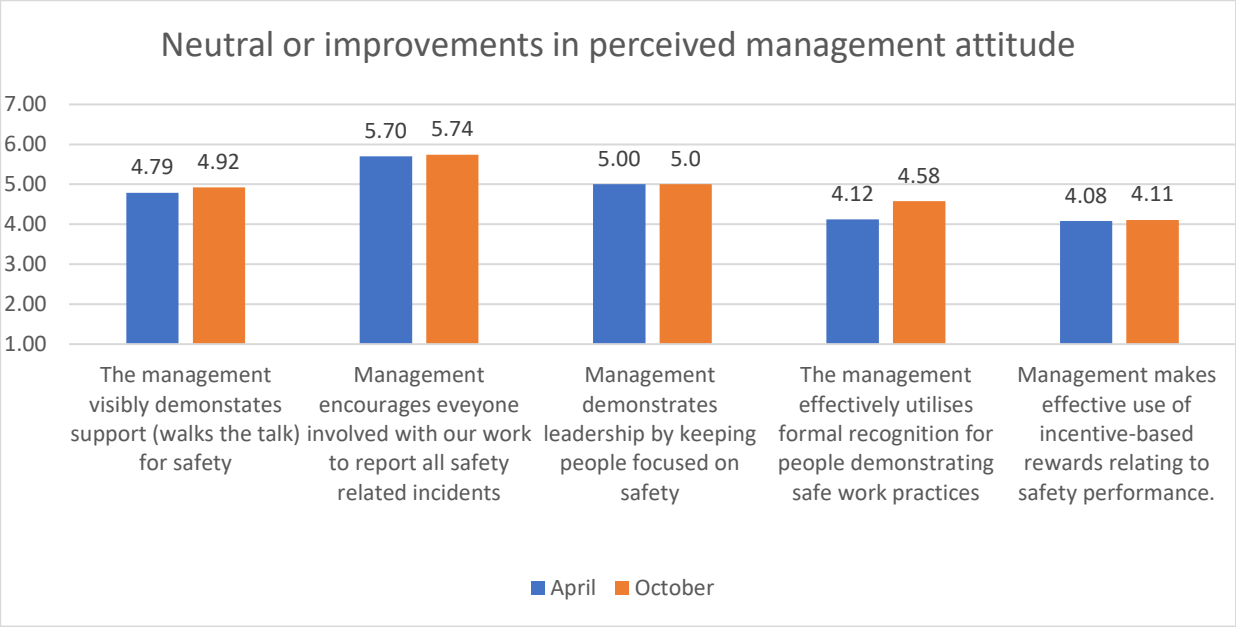


Figure 9: Perceived improvements in attitudes of management

It is noteworthy, that the areas where improvements were perceived, were those of leadership in relation to safety (Figure 9). The focus on cost management during the season because of poor catch rates may well have coloured the responses in those areas where management attitude was perceived to have decreased.

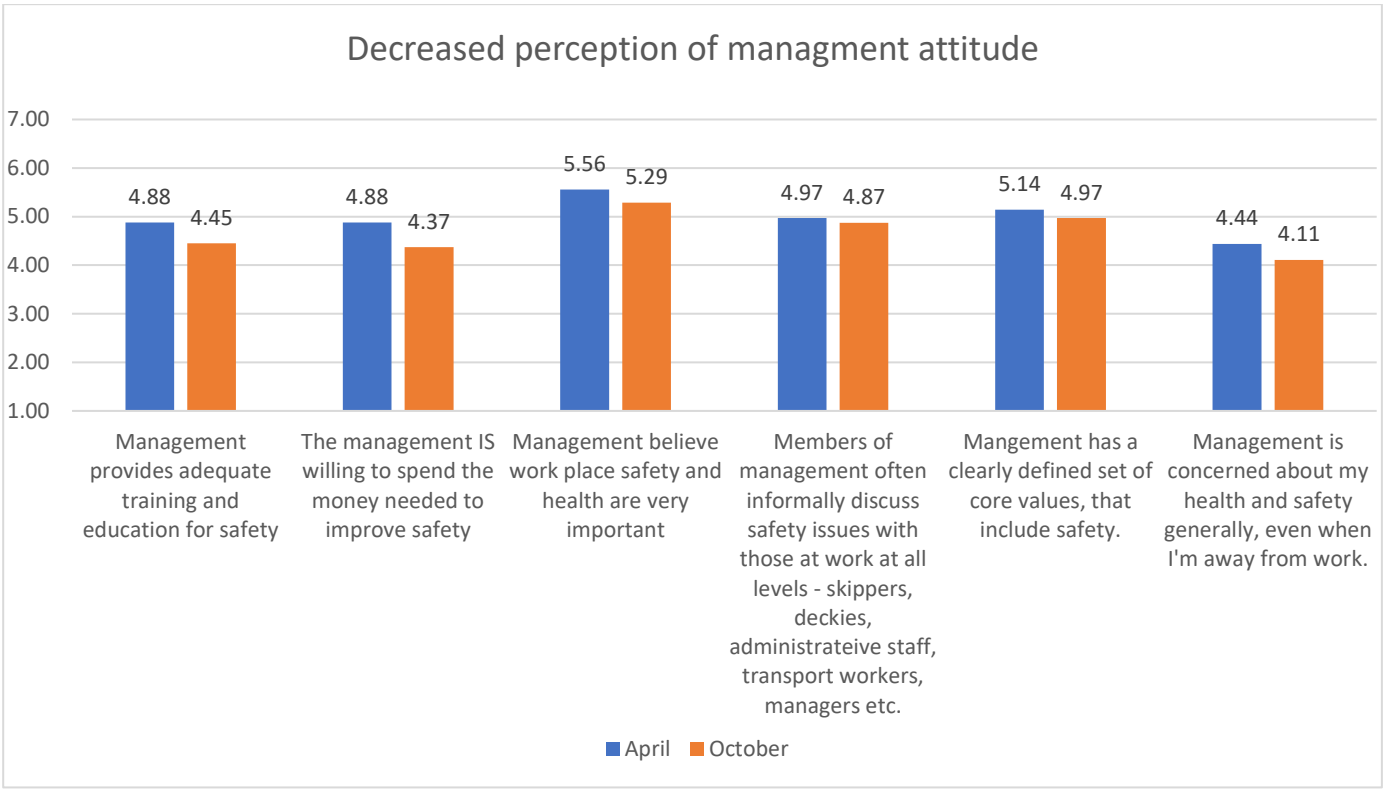


Figure 10: Decreases in perception of management attitudes to safety climate

This harsher critique of management may have in fact been added to by the increased focus on safety, and attendant expectations of significant changes. This interpretation is potentially positively reflected in the improvements in the perception of attitudes of supervisors, co-workers and participation in safety, but the decreased confidence in their competence across the industry, generated by a greater awareness of risks and opportunities to mitigate them. That is, a heightened awareness of on board of safety and discussions about it have focussed them on risk assessments and unmitigated risks. The lack of feedback from owners about actions they were considering or trialling on some vessels would likely have contributed to the declines in four of the six categories.

This more nuanced interpretation of the results is supported by the focus group feedback which included the comments (skippers and management October and November 2018);

"Oh for sure, they got, they got those footies we can throw, we got, we got all these bits and pieces we can throw…

"…it's definitely stepping in the right direction…"

"There is a communication to and fro going on, there definitely is [better] *from what it used to be …*"

"Yeah, yeah, yeah I believe they've stepped up."

"Well it got people thinking about it… that's the main thing. I mean if you weren't here and we weren't doing anything it'd just go nowhere."

"With these guys I've found … and girls … yeah I think without reinforcing it and reminding them that safety is a factor ummm it just gets… they forget about it again."

"The reminding is just a start"

However, increased awareness potentially leads to less forgiving judgements when results are not forthcoming, and a focus on safety as an equipment-based response only means WHS is treated as being dictated by economics. The opportunity to utilise continuous feedback communication loops to engender confidence in the processes, and to identify and assess potential risks is not being utilised to potentially mitigate economically driven short falls through the identification and use of different work flow behaviours;

"I did my first aid course last month and I'm doing a few things down there, I've asked for some information …he's looked into it, and dunno (sic) what he found …"

"We've still got …we've still got no way of getting up in the rigging. We've got a flimsy ladder that WorkSafe'd have a heart attack…"

"We've asked for a certain way to get onto the vessel … and, then the money's not here…"

The focus on costs to modify or procure safety equipment does underline an industry wide focus on equipment (i.e. Personal Protective Equipment, PPE) as the primary line of defence in safety, potentially at the expense of maintaining a focus on safety leadership, awareness, conversations, altered work flow practices etc. This was reinforced by the activities that were focused on across the board, in response to questions of the crew as to 'what scared them at sea', the majority of the actions that were taken were either equipment or training based.

However, there were a number of things that were undertaken, that were not equipment (per se) focussed, but were either not enacted by the end of the pilot, or there was an inadequate amount of time (two and a half months) for the perception of a significant benefit. These included:

- ***General safe behaviour on board***

RESPONSE FROM MANAGEMENT: One owner remunerated their skipper to utilise the skipper's own drone to film on board behaviour of the crew with their knowledge, to identify both safe and dangerous operating practices. The objective was to highlight to crew desired and, more importantly, safe, work practices, that are contextually relevant to them. This was completed at the end of the 2018 and was planned to be used on future trips.

- ***Monitoring of safety on board and skipper implementation of good WHS***

RESPONSE FROM MANAGEMENT: Instigated by skippers, so they can see what the crews are doing, and also partly prompted by Worker's Compensation claims, one owner agreed to the installation of on-board cameras. This action, discussed with crews, identified benefits to crews, skippers and the owner. It was envisioned that such equipment had the potential to make crew, as well as skippers, more accountable for on board behaviour; it was envisaged as not only addressing on board mechanical safety issues, but also issues of bullying behaviours by skippers and/or crew members.

Summary comments from owners in regard to the pilot (paraphrased)

Participating owners were appreciative of the efforts to 'shine a light' on safety issues in fishing but thought an opportunity was missed to address some of the core issues as to why fishers do not openly embrace a safety culture. They entertained being part of the project as they envisaged a study that would "*get to bottom of why fisherman don't openly embrace a safety culture, not a report giving fisherman the opportunity to pass on responsibility to anyone but themselves*".

They did not necessarily agree with all the findings within the report, but appreciated the feedback about their own organisations, noting that any opportunity to improve safety should be embraced, and that "*safety is a journey, not a destination"*.

They sought to understand the next steps of the project and are still keen to know why there is not take up on the following safety provisions by crews:

- Crews are provided "*with the best possible PFDs available on the market coupled with personal locator beacons. This has been paired with state of the art AISs…. Yet crew refuse to wear them*".
- A range of helmets for crew to protect themselves against falling debris from the grids in the nets. Crew recognised the safety issue, so the company provided the protection they requested. Yet crew refuse to wear them.
- They felt that the report suggests owners do not really listen to feedback on safety. They argued that skippers and crew are uncomfortable with providing feedback on safety in a public forum, or on a one on one basis because they think there might be repercussions in contracts. But they still want to be heard, so we provided an anonymous suggestion box. Yet skippers and crew refuse to provide anonymous feedback.

The challenge that this response from the owners identifies, is that while one party might step up and change their behaviours, it takes time for associated parties to trust that the behaviour is genuine and that to engage with it, will not disadvantage them, socially or economically, if the situation returns to the previous pattern. Fundamentally, change goes through a series of phases, which takes time. While owners who invest, or regulators create drivers of change, desire immediate results, we all take time to adjust to new ideas and ways of behaving – this is what has been clearly demonstrated in this pilot – to return to pre-pilot behaviour simply because skippers and crews did not respond immediately would be naive and very damaging to long term safety outcomes.

The advice given to the participants in response to concerns was:

- Previously PFDs were hot, cumbersome and uncomfortable. There are still a large number of fishers who have no experience of wearing the new style of PFDs or are aware of the range of types available to suit their particular operating environment. Crews defer to their skippers. If their skippers do not wear a PFD and the social norm has been not to in the past (because of past experiences of old-style PFDs) – despite the provision of them – they are very unlikely to wear one. However, discussions with an owner identified the idea of talking with skippers about colour coding the decks, with areas where PFDs must be worn – including the skippers themselves – because of the highest risks of being hit by something that will send them overboard. This was a positive move in the direction of changing those norms. That way, being protected when they are most at risk will, over time, become 'normal', particularly if elements such as wearing a PFD is modelled by skippers. Consequently, for it to work – the skippers have to buy into the idea – not just agree to it – but they must be the ones to identify where it is most dangerous on vessels – that way they are enforcing their own risk assessments and it is maintaining their power and control of the vessel, rather than being perceived to erode it.

- In focus groups some crew members expressed their appreciation of the move to make wearing PFDs mandatory by skippers. Over time a different behaviour can become the norm – if it is maintained and reinforced. It is important that the skipper agree with that 'fix' that is identified in relation to a safety issue, otherwise they will not enforce and maintain it. Possibilities must exist for feedback after observations if skippers have other ideas about how to address and issue.

- The lack of feedback and utilisation of the anonymous suggestion box is likely for a number of reasons. Again, it was a very short period of time between implementation and the end of the pilot and skippers and crews are not comfortable with trusting the new behaviour. Unfortunately, when the focus groups with the skippers were conducted the low response to the suggestions box was unknown – so the question was not posed. It was suggested that the suggestion box be maintained and the roll out of the activities are continued with skippers and crews being continued to be asked what they think about the changes; with probing questions such as 'could they be different or better?'; or, 'Is there something new or different that is a safety concern for you?'. This way crews will see that this a permanent cultural change from the top down and will, over time, trust and respond to the behaviour.

SUMMARY FINDINGS OF RELEVANCE BEYOND THE PILOT

The need was identified, to broaden conversations about safety and welfare beyond equipment, and to include workflow patterns, how and why activities are undertaken in the ways they are, and how they could be improved to make them both safer and easier. The primary responses to the things that scared skippers and crew members most at sea, were most often conceptualised and expected to be equipment based – and safety is judged by skippers and crews on the basis of equipment (evidenced by the low score of crews in the repeat survey, who felt the *'money was not there'* to focus on safety). Cost is a major stumbling block in safety discussions, with the need to overcome the cost issue, before any safety initiative is considered by owners, skippers and where relevant, crew. Establishing the 'why' (as explored under the *Discussion* section) in terms of how it significantly decreases their current risks compared to the cost, is essential. Skippers contracted to owners and crews contracted to their skippers, all valued safety and keeping each other safe, but appear to have conceptualised safety as equipment related only, and consequently judged attitudes to safety via the provision of, or change to, equipment.

A key challenge to be taken up by safety agencies is that of identifying the easiest and most amenable means for skippers and crews to receive safety information, updates and accolades for safe behaviour. It is noteworthy that the pilot items that involved communications and feedback loops to keep skippers and crews up to date with activities being undertaken by owners and the reasons for them, did not appear to have either had a chance to be implemented or to have gained traction – this is likely due to the short period of time between identification and the end of the pilot. In one instance an update in the form of a document was given but was not received as well as expected, due to the inordinate amount of paperwork skippers already had to do/read at sea; making it just another 'task' which the skippers were reluctant to do. Keeping up with paperwork more generally, was a key issue highlighted by all fishers in the focus group discussions across both case study regions.

The potential exists for cost efficiencies to be achieved in improved outcomes which needs to be recognised by owners and skippers. This pilot did highlight that, more broadly, it is important to look beyond spending money on new and improved equipment, as the industry may also find equal and cost-efficient safety outcomes, along with the further development of the industry's safety culture, if;

a) ***Constant discussions are engaged with – either directly face to face with crews as well as skippers or via online chat rooms/social media.*** Such discussions do however, have to acknowledge the hierarchy of the skipper /crew relationship and should not seek to actively undermine this largely positive relationship.

b) ***Unsafe practices are identified and made part of common understandings about unsafe behaviours, through increased frequency of conversations about alternative work flow practices and behaviours to share learnings and explore safety concerns*** across crews and to prevent accidents or incidents re-occurring.

c) In owner/contractor environments, both owners and skippers must be ***vigilant in the demonstration of due diligence in compliance with work health and safety legislation. This includes having a good understanding of the hazards and risks associated with the work, how they're managed, and verifying mitigation or risk removal processes, but with the overt discussion and reinforcement of the benefits of adhering to these measures with crews***. A non-acceptance of known unsafe practices amongst owners and skippers, and therefore crews, is the beginning of positively further improving the safety culture.

d) ***Strong and ongoing collaborative relationships are developed between safety agencies and the industry*** (fishers directly, through their peak bodies and advisory groups) to work together on improving safety in relevant ways for the sectors, rather than a reliance on compliance enforcement as the basis of such a relationship.

e) Further, ***for industry, AMSA and state agencies to collaborate on communicating with other government agencies about unintended safety consequences*** of regulatory requirements of the industry.

This is not to say that a focus on the best available equipment is not a key option to adopt wherever possible. However, as one fisher noted in the general focus group conversations, while "*you might want all the safety equipment (airbags etc.) on a 2018 Commodore, at the end of the day you've got a Toranna and you can't afford to upgrade to a Commodore, so you have to do the best you can"* (paraphrased).

While there are benefits in focusing on preventative equipment (e.g. guards) which are more likely to stop someone from getting physically injured, and may reconnect fishers with what is important to them in managing risk in the context of their operation, there are risks in these actions being the only focus. If an industry's primary focus is on equipment, rather than the interplay between equipment, safety leadership *and* systems (the safety implications of workflows and the pressures of fatigue etc.), it is unlikely there will be significant change in safety outcomes in the industry.

To this end, this case study also highlighted the unintended consequences of fisheries management regulations that were to be articulated in the general focus groups. These included but were not necessarily restricted to; equipment directives (e.g. design of bycatch grids) as well as the fatigue impacts engendered in catch share contracting and the pressures to fish during the moon cycles. The tensions these factors contribute to the complex operating relationships existing between organisations/owners, skippers and crews cannot be underestimated in the safety outcomes experienced by the industry.

4. Focus groups to investigate survey findings

The focus groups and interviews generated a rich source of data in regard to the issues for, and perspective of, fishers in relation so safety. In the generation of the focus group report, an endeavour was made to communicate the fishers' voices faithfully through extensive use of quotes to articulate points being made. The key findings from the focus groups were:

- ***Fishers believe they have a good culture of safety***, in the context of their own operations, though are quick to acknowledge that there are outliers within industry, who do not demonstrate safe operating practices or good care in regard to crew welfare. The industry does not believe it is being as negligent as agencies or others ***not*** in the industry / fishing work environment, might perceive.

- The ***industry is open to improving safety***, but believe that new and different approaches that deal with the 'why' of the necessity for change in individuals' safety related behaviours, are required which are also specific to their sectors/ operating environments.

- A ***partitioning of industry attitudes*** exists between what they perceive as regulatory and operational requirements. The current status quo, expressed in Figure 11 is a reflection of the difference in 'Safety Work' and the 'Safety of Work' as articulated by Provan et al. (2019) (see page 6 of Appendix 4: Literature Review).

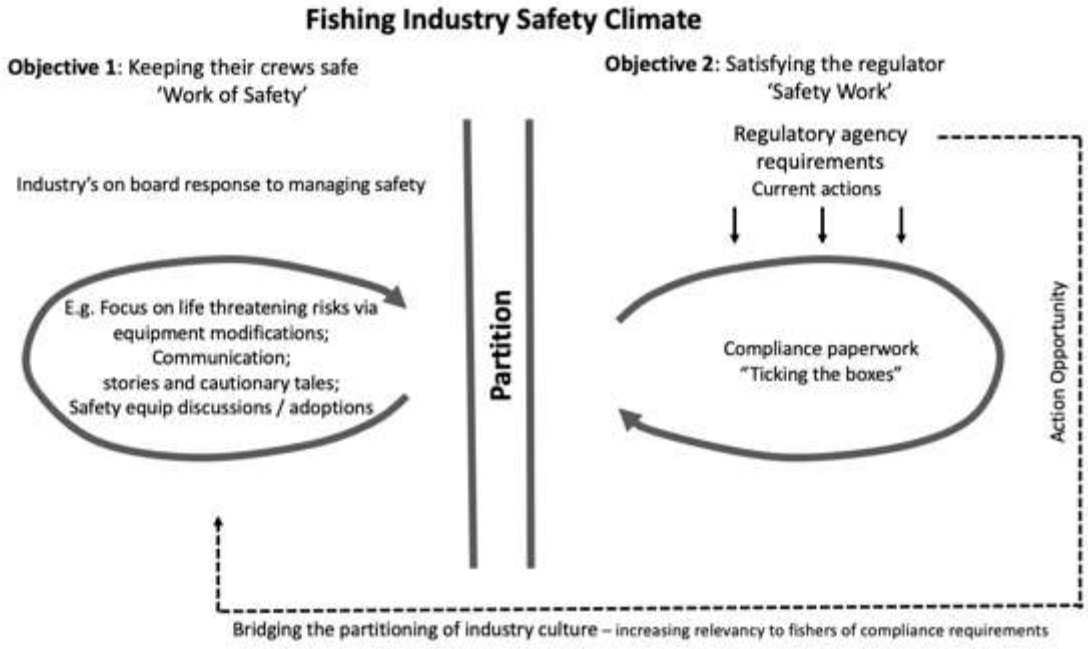


Figure 11: Current fishing industry safety climate partitioning. Source: Brad Roberts (AMSA, primary instigator) in collaboration with Project team.

- This ***partitioning is largely brought about by the lack of perceived relevance of the majority of safety regulations*** in specific sectors of the industry (e.g. deep-sea offshore trawl, compared to inshore trawl/ purse seining / mud crabbing / mesh netting / long lining / bay and inlet fishing etc.). Consequently, opportunities exist to modify safety agency approaches, to bridge the partition that exists in the industry's safety culture.

  "It's like saying to someone you've got your 1970 Torana, if you just write and document everything down it's going to be safer. But no, today's car built today with all the safety equipment and collision avoidance, that's what's making it safer. The paperwork is not making it safer."

- The ***industry currently has little (psychological) capacity for further adaptation due to ongoing structural changes and pressures in regard to a social license to operate***. Consequently, acknowledgement and positive endorsements of past endeavours by industry leaders in safety would encourage positive change behaviours. Change management skills may be required to work both with industry and regulators to negotiate these changes in behaviours over a long period to allow new approaches to be valued, accepted and embedded.

  "I'd suggest if there is lax safety on some boats it is because; 1. Increasingly onerous and expensive compliance costs and obligations from across a range of State + Federal Govt. Departments and others. i.e.: sometimes not enough hours in a day. RABID ENGOs and Amateurs make us feel worthless... so why bother with Safety compliance."

- In the same vein, ***effects of other regulatory actions detract from the ability of fishers to focus on safety.*** That is decreased accessed and/or increased access costs though changes in quota and license arrangements requires resources – both mental and financial – to be directed to the priority of maintaining a profitable business.

  "Fishing reforms have made the industry more dangerous. Capped the number of nights we can operate (day/night quota), therefore we are forced to work in bad conditions when the fish are there due to financial strain. They've created the monster."

- There are also ***unintended safety consequences of agencies and departments which interact with the fishing industry*** which are not traditionally seen as being safety related. Fishing regulations for example, where the length of a net that can be carried is increased without reflection upon the inevitable effects that this would have on the weight and balance/stability of a vessel – both before and during operations.

  "Lots of suggestions made as part of the fishing reforms feedbacks, some have been taken up but a lot weren't, and would be good. E.g. grace given around sunset/sunrise setting of nets would reduce dangers of returning to or leaving wharf in the dark. Fishing regs could be modified to improve safety in regard to the number of observers allowed on a boat without having to have double shares."

- ***Weather is perceived by fishers as one of the most dangerous elements of their operating environment***, and was perceived as notoriously difficult to predict. Many fishers in focus group discussions identified that they most often utilise the general Bureau of Meteorology phone app (or similar) for the weather forecasts in their area, without referring to any specific maritime forecasts. Alternatively, they rely on area conditions as broadcast and communicated by fellow fishers, and make 'on the spot' decisions about whether to fish or to continue to fish on the basis of these in concert with general weather forecasts and personal observations. This could be viewed as a basic form of triangulation of data, to determine the best decision in regard to weather conditions for 'safe' fishing.

  "You can get two or three different weather apps and they can be different, so what are you going to do? You just got to try and make an educated guess."

While these are the key headline 'take aways' from the research, the full report contained in Appendix 5: Focus Group Findings Report, is far more comprehensive and detailed in the nuances of the issues that were identified and underpinned the survey responses.

The key areas highlighted by the survey and which were explored in depth in the focus groups were those with the greatest scope for improvement. These were affirmed to be those of 'management' (in its various interpretations) engagement with industry safety; and in increased acknowledgement of fisher perspectives and involvement in the development of safety procedures and protocols for their individual sectors. Further, according to socio-ecological and total safety culture theories, incorporation and acknowledgement of the interconnectedness of actors associated with the industry and its safety culture – the fact that all actors associated with the fishing industry hold a level of responsibility – is essential to the generation of a positive overall safety culture.

Discussion and Recommendations

When WHS is discussed – as reflected in legislation – it is in the context of a contained and single organisation that has certain clearly defined roles, responsibilities, influences and control over WHS outcomes (e.g. corporatised industries). In contrast with this concept of the WHS environment, the fishing industry is fragmented, decentralised and incorporates a range of small family businesses, further complicated by the contracting arrangements inherent in it, which blurs WHS responsibilities within the one operating environment (vessel). This means that the simple application of WHS models as previously developed for corporatised, medium to large organisations is largely not possible, and would be very inappropriate. This is even further complicated by overlapping and increasingly prescriptive regulations by a variety of regulators of the industry, dominated by a focus on administrative controls, which has only increased the complexity of this operating landscape. In all fairness, the level of prescription has resulted from calls by fishers, in an effort to address the confusion created by conflicting regulations (either between departments or within levels (state and federal) of the one type of department). This has set up a culturally destructive and perpetual cycle for fishers, disconnected from any intents and efforts to improve safety outcomes by AMSA, other state safety agencies, or fishers themselves.

The following discussion, utilises the results of this research to make relevant recommendations, while also being cognisant of the frustration of agencies and individuals who have been travelling this pathway for five and more years. In an endeavour to simplify the discussion, it has been contextualised by the objectives of this project, and is dealt with under those headings.

1. a) To generate knowledge to foster a stronger safety culture in the wild catch commercial fishing industry.

The research has contributed significantly to the existing knowledge in regard to how to understand the current safety culture of the wild catch commercial fishing industry, through bringing together the existing literature and research together with the lived experiences of fishers of their safety culture currently.

Previously, safety in the wild catch commercial fishing industry has been conceptualised as a single actor (fisher) issue, that can be altered/improved by increasing training and establishing a sense of urgency, such as in the statistics and approach utilised below (Figure 12).

Figure 12: Fisheries statistics. Source: http://www.Seasafe.com.au (Accessed 8/5/2019)

While these approaches do have an important role to play in developing awareness and knowledge, this research has identified that modifying the culture of safety in the commercial fishing industry is much more complex, and involves a multitude of actors who exert influence on that culture.

What has been established is that, the current culture of fishers is strongly influenced by the perceived 'manager' of their work or business, be that the skipper, owner, or state or federal regulatory agency.

This is in terms of, not only the immediate compliance requirements (paperwork and mandatory equipment) placed upon them in order to stay in business or to be able to be employed in the industry, but also the level of 'care' expressed by these 'managers' in establishing the relevance of requirements or pieces of equipment, to individual operating environments. Where this is not established, there is no 'why' that drives the 'what' or 'how' of implementing changes in their environment or behaviour, to improve safety[4]. This finding is endorsed by the low score in the survey in the category of participation in the development of safety processes; that is, fishers felt that they had little input to the processes that they are required to comply with and hence they may often make little sense to them.

One attempt promulgated between approximately 2008 and 2010 to get across the 'why' of safety practices that appeared to be well researched and consequently 'pitched' in regard to being visually coherent and appealing to fishers, was a poster developed by the Farming and Fishing Health and Safety program of the Rural Industries Research and Development Corporation (RIRDC, now AgriFutures Australia) (see Figure 13). However, it appears it was never effectively promoted to the industry for uptake, or perhaps more pointedly, was not in an appropriate format to be located where it could affect the greatest level of engagement and adoption. According to one industry association member, as it was an A3 size and only on coated paper, it was not suitable for on-board positioning. When asked for feedback on it and its possible effectiveness, one industry person noted that they had "*definitely not [seen it] in the wheelhouse (not that I go in many!). Possibly seen it in government buildings*". Other industry association representatives had either not been seen at all, or at best noted that, "*We had a pile of them in the office some years back. We placed them in strategic locations (TSIC Office, Seafood Training Tasmania (RTO), St Helen's Marine Rescue (we have meetings there)) from memory and printed in magazine (I think). Not sure what the actual impact or resonance with grassroots industry was though. I haven't seen any in wheelhouses / anywhere for some time."* What is noteworthy, is that when industry representatives sought to recall where they had seen the document, none could recall seeing it located on vessels where it could prompt the targeted behaviour and knowledge to be top of mind amongst fishers, when actually at work. Rather, they were recalled as being located in government or industry association or business offices, where fishers may not go.

In an endeavour to establish the 'why' of changing safety behaviours to industry, one method has been to create a sense of urgency by disseminating the 'bad news'; accidents that have happened; fatality statistics and coronial recommendations for increased regulatory surveillance (e.g. Figure 12). However, work undertaken by Sharot et al. (2012) identifies that people adjust their beliefs on the basis of good news rather than bad or negative information. Consequently, the motivator to change behaviour that is more likely to be effective, is the articulation of the safety practices of operators whose behaviours have saved them expense or time, or how altered safety practices have brought accolades or other positive recognition. Stories promulgated in safety magazines should focus on positive stories and examples within the same article, to counter the negative 'switch-off' effect of 'bad news' events in articles (e.g. AMSA's *Working Boats* Magazine, March 2017, "Tragic Examples" (March, 2017) versus "Making Safety work for you" (April 2019); or Alaska's *National Fisherman* "Drills to the rescue: five survive after classic schooner runs aground" (May 2019)) which are ultimately targeted at changing behaviours. Recently, there has been an increase in social media focused on commercial fishing safety by such groups as FISH Safety Foundation, however this also would potentially be more effective if the stories and focus given to issues were on endeavours to improve safety and the positive benefits of doing so.

[4] See Simon Sinek's 'The Power of Why'

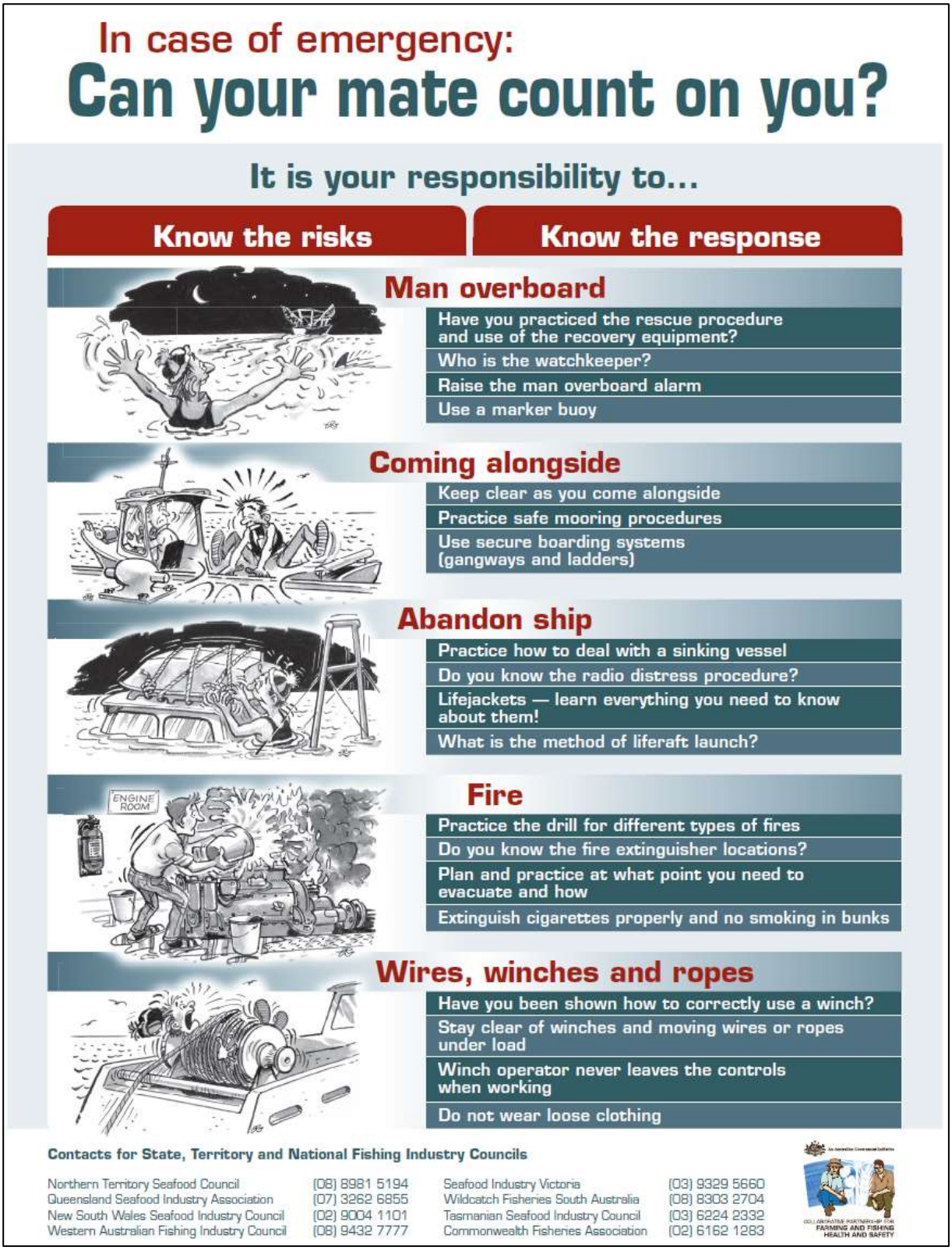


Figure 13: Can your mate count on you?

In some environments, the 'why' of safety might be established very quickly through routinised recruitment training and refresher courses, justified by the continuity of employment, and which has the added benefit of reinforcing safety standards with ongoing employees. In regard to culture, this is likely to be applicable to the aquaculture industry which is by the nature of its infrastructure requirements,

often amendable to corporatised approaches. However, the wild catch industry, with its base in catch share contractual arrangements – therefore effectively self-employed individuals – individuals generally only respond to dictums to avoid regulatory compliance costs, not to make decisions about behaviour change, especially when they operate in an environment where they are generally not observable. Making the 'why' about keeping your job only incites the belief that the owner or skipper does not really care about the person's safety – just about the liability of the operation. It is also perceived as autocratic and erodes the feedback loop. Sustainable changes to behaviour need to happen both at home and at work (particularly in relation to personal health and safety), thus the 'why' needs to be very personal – i.e. to go home to your family and what matters to you (such as one of project SeSAFE's videos).

Behaviour change to avoid non-compliance costs may work in the short term, but cultural change – belief in the benefit of the behaviour change – will not be affected. In order to achieve cultural change, in the current wild catch commercial fishing environment, a multi-pronged approach is required.

The Focus Group Findings further confirmed the disconnect or separation that fishers experience between regulatory safety approaches and what they do in their day to day work to keep safe (see Figure 11). The majority of fishers who participated in the research, confirmed that they carry the required equipment and documentation, but many only checked it or located it when they knew that they were going to be 'audited' and wanted to ensure they avoided any fines for non-compliance. In many cases, they did not, or could not, connect in their minds, the relevance of the paperwork or mandatory equipment requirements with the safety of work in their own specific operations. Without this relevance, there is very little chance of changing or 'improving' the current safety culture of the fishing industry. It was clearly identified by fishers through their perceived lack of coherence of regulations; or to understand the connections and pathways of regulatory decision making in regard to safety regulations for their environment. The result is that changes currently being made at this level are difficult to be effectively transmitted and cogently regarded by fishers.

Additionally, there were a number of examples of unintended safety implications from the regulations or actions (or lack of) of other government departments. The effect of this, is to further embed the fatalistic concept in the fishers' minds that their safety is largely out of their hands and at the whim of the 'elements'. In this same vein, weather, one of the biggest perceived risks for fishers, is not articulated in a manner relevant to fishing operations. Most individual operators who participated in this research, pointed to the general Bureau of Meteorology or Weatherzone mobile apps as sources of their weather forecasts; not the more sophisticated and regionally specific maritime forecasts that are available on the internet[5].

The Focus Group Findings report was widely distributed, and presentations given to both industry groups and regulatory agencies for comment and input. No written comments or responses were received from fishers, fishing representative groups, or government agencies on the data distributed or presented. A presentation given to the Australian Fisheries Management Forum (AFMF), elicited comments that the information provided a previously un-illuminated area of overlap and effect, that could potentially be given greater attention. Further, a presentation to FIAC resulted in the findings presented being verbally endorsed by the industry representatives in attendance. The Bureau of Meteorology, who had also been at the FIAC meeting, subsequently reviewed the full Focus Group Findings Report, and contacted the Project Investigator to discuss methods to improve engagement with fishers to generate more specifically appropriate weather forecast advisory systems/methods to the industry's needs.

Despite efforts by AMSA and others such as the RIRDC Farming and Fishing Health and Safety Program, to educate and engage with the industry to improve safety, and minimise compliance enforcement ('big stick') approaches as much as possible, the general sentiment is that this had not seen any shift in behaviour, let alone culture in the last decade. The frustration of these parties is palpable,

[5] There are numerous NOAA, Canadian and European Apps available for both offshore and lake fishers that are available in the apple app store for example, but none that could be identified for Australian waters.

and completely based in concerns that the levels of fatalities and injuries do not continue at the same levels, but decreases. While it is acknowledged that there is always a 'tail' of non-compliant members in every industry (hence the need for the ability to take recourse to strong regulatory enforcement where recalcitrance is evident), it is important to acknowledge that the recommendations in this report acknowledge that attempts have and continue to be made to educate and increase awareness around safety by AMSA, WorkSafe agencies and fisheries related bodies. What this report is focussed on, is drawing attention to those means of education and engagement, to ensure that they are:

- Consistent
- Coherent
- Information is easily accessible and in layman's language (versus the legal-ese of many government documents and information sources), otherwise they rely on information from other fishers and can easily be misinformed
- Most of all, while noting that this is potentially the most challenging given the heterogeneous nature of the industry, to ensure relevance of safety directives and requirements to fishers in their particular operating environment.

Further, it is essential to highlight and be aware of the crucial component of the fishing industry that is largely unique and sets it apart from traditional industries in how WHS is implemented; that is, it is fragmented, single operator or contract based and, by its nature, low surveillance. Consequently, where in other industries, cultural change may take two to eight years, it is to be expected that cultural change in the fishing industry will take significantly longer – and may well be reliant on generational change.

It is noted in regulatory WHS research that despite the best intentions of regulators, and "even if the purpose is sound, interventions implemented without due consideration of fairness [and relevance], risk a loss of reputation for the regulatory agency" (Braithwaite 2011:3). More importantly, regulators risk the legitimacy of the agency and its purpose. Further, that "doubts about benefits and justice undermine cooperation at a number of levels" (Ibid: 4). What this study has found is that because of the lack of apparent relevance of rules and regulations, many in the fishing industry question the fairness of them, and therefore are reticent to comply. That being said, there are an increasing number of fishers who are prepared to engage with safety agencies to improve relevancy of the rules that they comply with. Generally, in this study, these were found to be younger fishers more comfortable with current governance processes. Industry bodies have also noted the resources more recently put into the safety messaging by regulatory bodies, and perceive this positively. However, industry has also highlighted that if the messages are not appropriate to industry then it can often be seen as a "tick and flick" effort, and will be and is, ineffective in comparison to the intent. Industry has highlighted the need to appropriately resource and engage actual industry experts to deliver targeted safety messages. Industry bodies also noted that there was damage being created by the conflicting messages from the various state and regional regulatory bodies – what the field officers were delivering versus the "trust and verify" message of AMSA.

This research does not promote that; where coherent, relevant and consistent information is being made available to fishers, and requirements placed upon them are reasonable and fair to comply with in their specific operating environments, fishers should not be subject to the full force of regulatory compliance where they fail to comply with requirements. For example, fishers should be prevented from taking a vessel to sea, where non-compliance presents excessive risk to protect themselves and others. Even responsive regulatory models identify that compliance enforcement is a last resort that *must* be made available, for those who are incompetent or irrational in their behaviour, per the following Figure 14.

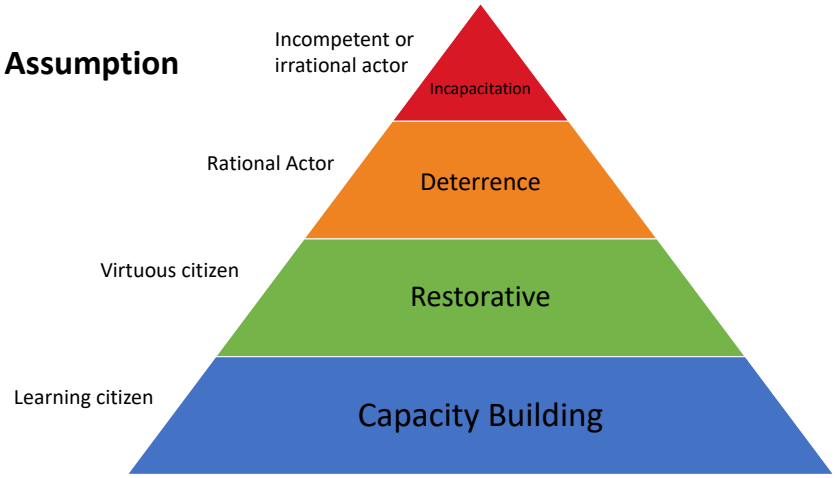


Figure 14: Responsive regulation pyramid Source http://johnbraithwaite.com/responsive-regulation (Accessed 10/10/2018)

Hudson's ladder (Figure 15) assists in understanding where individuals, or groups/industries as a whole, sit in regard to being 'Learning'; 'Virtuous'; 'Rational' or 'Incompetent' citizens in the context of the responsive regulatory model (Figure 14). The majority of the industry as found in this study might be classed as in the 'reactive' stage, in that they think safety is important, believe they are safe (for a number of reasons already discussed) and will respond if there is an accident in their sector and close geographical proximity. This places them both at the point where they are open to building their capacity (Figure 14), but are instinctively still reactive, rather than calculative (Figure 15). This was evidenced in the fact that after one fisher lost an arm to a winch in the Yamba region, the majority of fishers in that region have since put guards on their winches, and disparage anyone who does not; they moved into 'learning' mode. Some of the younger fishers are moving to the 'calculative' stage (Figure 15) where they become good examples for fellow fishers (or 'virtuous citizens' as per Figure 14), whereby they have engaged with SMSs and other safety systems in a conscious and context relevant manner, to ensure their systems work to benefit them. However, the majority are still in the 'learning' citizen (per Braithwaite's model Figure 14), with a smaller number operating at the 'virtuous' citizen level. This does not discount that there are a small number, as with any industry, who are not only at the 'pathological' end of Hudson's ladder, but should be treated as 'irrational actors' with the full force of regulatory compliance and prevented from fishing to protect themselves and others.

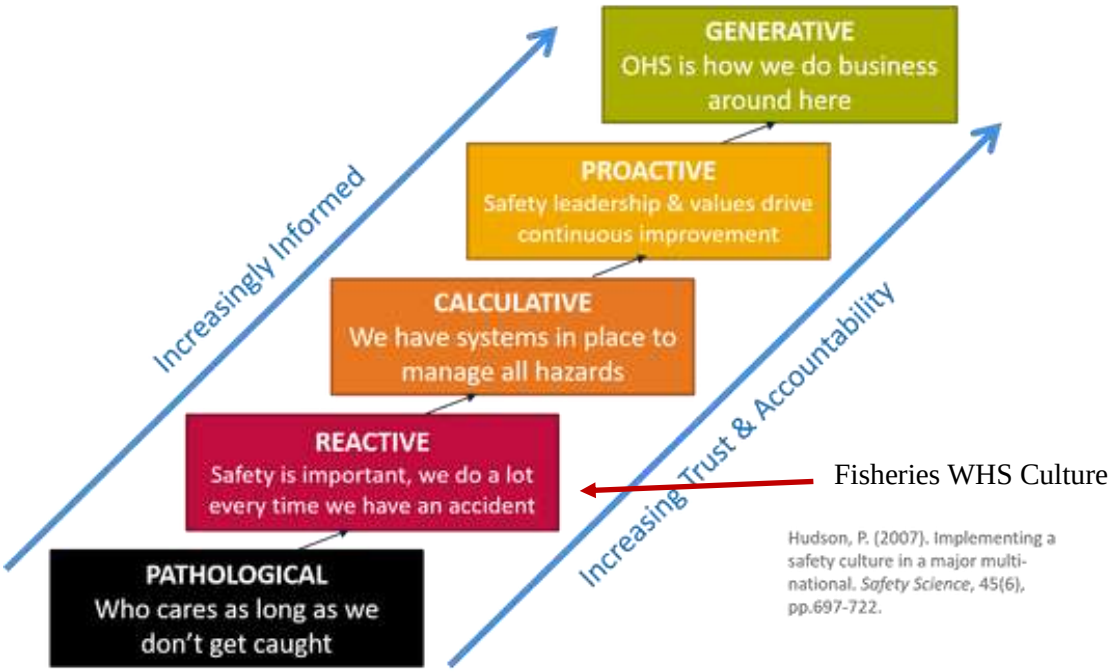


Figure 15: Hudson's Safety Culture Ladder. Source http://markperrett.com.au/2017/12/13/hudsons-safety-culture-ladder-what-rung-is-your-organisation-on/ (Accessed 8/12/2018)

With the transition to the national safety system for the commercial fishing industry, under AMSA on July 1, 2018, the opportunity has been seized by AMSA to more instrumentally drive the industry to the 'calculative' space, with the enforcement of SMSs which have been in place across much of Australia for many years, and a requirement on all NSW fishing vessels since 2012. However, this research identifies that despite the best efforts of AMSA to continue to educate the industry, this capacity building process has not been optimised due to issues of coherence and perceived relevance, along with potential inconsistencies in advice received by state and federal agencies[6] or other fishers. Further, the change process, as articulated in Figure 16, which identifies that it is not a smooth or orderly transition process when it comes to change. While the old status quo may not have been any better for all the same reasons than the current experiences of fishers, they at least 'knew' it, and when there is no logical driver for change in their minds ('why' or 'how'), they will continue to be reticent to move away from current behaviours. According to the research findings in this project, while 'resistance' may have been the primary response pre-July 1, 2018 when the national system came into play, it may reasonably be posited that it has since moved to 'chaos', as they see it in regard to accessibility, consistency and clarity of advice.

The opportunity now exists for AMSA and industry to work collaboratively to aid industry in finding their way 'up the other side' of the change process (Figure 16), and continue to build capacity for the industry move collectively up Hudson's ladder (Figure 15) from being reactive to not only 'calculative' but potentially 'proactive' and 'generative'. If regulations and proposed safety actions are considered 'fair' (Braithwaite 2011) and potentially even beneficial to their business and/or lifestyle, fishers will, over time, come to consider safety a 'transforming idea'(Figure16), to be integrated into their businesses.

[6] AMSA has different responsibilities and legislative frameworks from state WHS regulators. Both AMSA and WorkSafe agencies work together to improve safety, utilising their different powers and responsibilities. Although AMSA has MOUs with state workplace regulators, these focus on information sharing and some investigative aspects. Each agency has its own authorised inspectors and AMSA employees do not have authority under state-based work health and safety acts, nor do WorkSafe (other equivalent state based agencies) employees have powers to enforce the National Law for Domestic Commercial Vessels

Understanding where the industry is now and knowing that this is a process to be worked though by all actors collectively, can help parties persist, refine the programs and activities that have been developed to date, and understand how these might be modified or enhanced to improve safety outcomes.

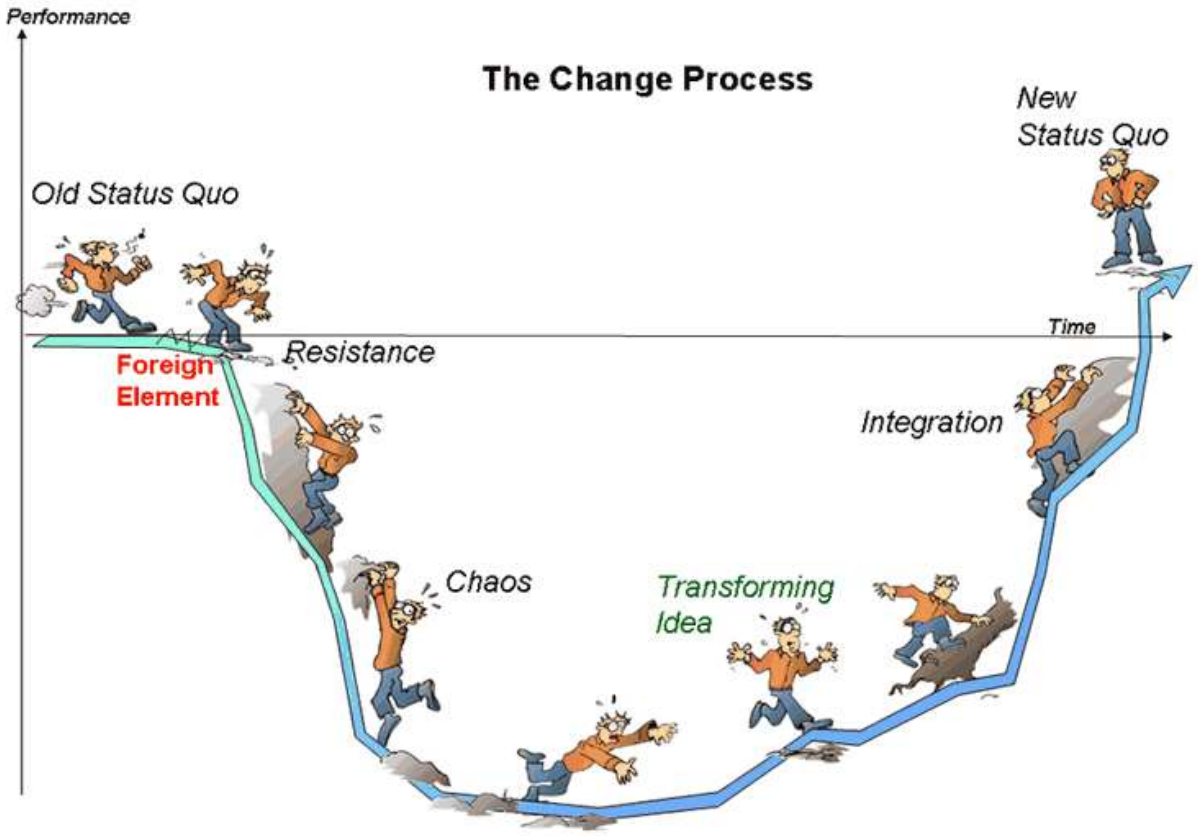


Figure 16: The Change Process (Scheninger (2016) A Principal's Reflections. Reflections on teaching, learning and leadership. URL: http://esheninger.blogspot.com/2016/07/the-process-of-change.html). (Source http://10minutehr.com/wp-content/uploads/2013/09/Virginia-Satir-change_process-by-Michael-Erickson.gif)

1. b) Identify relevant recommendations also applicable to the aquaculture and retail sectors.

The elements of the research identified relevancy, coherence, positive regard, and being subjected to unintended consequence of other actors as being all equally applicable not only to aquaculture and seafood industry retailers, but any worker.

The fundamental difference between wild catch commercial fishing and the aquaculture and retail seafood sectors is employment styles, levels of casual surveillance (visibility), and WHS risk profiles. Aquaculture and the retail sectors are both organised in more traditional employment models; workers within these sectors are 'employees' and are clearly covered by the rules and requirements of employment regulations, and lines of sight to roles and responsibilities are clear; one of the key factors in changing and developing cultures within organisations or industries (Kotter 1995). By contrast to the wild catch sector, where only new entrants or those fishers wishing to upgrade to larger vessels and new grounds are required to undertake training, the aquaculture and food retail sectors have training courses delivered through RTOs that often have Workplace safety sections within their training. Consequently, it is strongly recommended that the aquaculture and retail sectors maintain this employment structure. Additionally, while the wild catch sector largely operates out of sight of the regular public, 'managers' or regulators, the aquaculture and retails sectors, are highly visible, if only to their immediate management structures and therefore oversight of activities and behaviours is much higher, creating greater opportunities for active and consistent conversations about safety. In summary, these sectors by the nature of their structure are not subject to the same challenges of a fragmented workforce and industry in altering or developing the safety culture.

In regard to recommendations relevant to the aquaculture and retail sector, while some safety processes can work well in corporatised or traditional employment environments, they do not always do so. Relevance to workers in their particular environment is still fundamental to their engagement with new or modified safety practices, achieved through getting workers involved in the development of safety rules and regulations so that they understand the relevance of safety directives in their particular environments.

2. Identify the barriers (environmental, behavioural, psychological regulatory and market based) to adoption and implementation of safer work practices.

Lack of relevance = Providing the WHY

Some might say that the 'why' of the need to ensure one's own safety for fishers, is provided in the number of deaths in the commercial fishing industry and likelihood of fatalities compared to the mining industry (see Figure 12). However, this research reported found that fishers generally feel they are quite safe and can, in many cases, confidently say that no one in their sector has died in recent history that they know of; so, the 'why' of WHS demands to improve safety is not perceived as relevant to them. The primary lack of 'why' is that the new rules and regulations they are being asked to comply with, will not – they believe – keep them any safer. As detailed in the Focus Group Findings Report, there are then secondary issues such as expense, being laughed at by family members and mates; conflicting messages from state versus federal agencies and so do not feel confident that if they change behaviours it will be 'right' or the best option. These issues compound the lack of a reasonable 'why' (in their minds) they should change.

So, what 'why' would be relevant to them? While SeSAFE has hit on the 'Why' in their video "what if you don't come home?' in which a 'why' is articulated. In the Sinek framework it could be broken down as:

- **Why?** – 'to go home to my family'

- **How?** – 'by doing things that are relevant to keeping me and my mates safe', and
- **What?** – is by wearing a PFD that suits my working environment; not working with less than 6 hours sleep in a 24hour period; and other items that they have identified keeps them safe in their working environment.

This research has identified that while they understand the why – they all want to get home safely – ***'relevance'*** is their biggest stumbling block. It was often asked 'but how do they want us to be safer?' If fishers can't perceive the relevance of actions they're asked to undertake, to their safety, they can't make the leap from 'why' to 'what' it is they are being asked to do. If WHS management systems are not relevant (generates a demonstrable improvement in the safety of their specific operating environment) or easy and reasonably cost efficient to employ, then there is no driver to adopt a changed behaviour.

Skipper = Most Influential

The research identified in both the survey and the focus groups that the hierarchy, in day to day fishing operations, places the skipper above all others. They are the ones who are relied upon to get the vessel and all aboard her, home safely. If the skipper is not convinced as to the worthiness of the 'why' or the 'how' to adopt new or modified behaviours, while they may tell their crew to do so, they will not model that behaviour and therefore it will not be adopted by the crew in the long term. Hence, it is assumed that by changing a skippers understanding and behaviour will change that of the crews'. This factor is potentially exacerbated by contract employment relationships whereby it was expressed that everyone is responsible for themselves.

There is currently a lack of leadership in the industry in the safety space. Potentially due to a history of safety always being something that is attended to as a result of 'bad news' so few want to be associated with it. However, that being said and aside from some larger operators who are working diligently to improve safety in the industry, there are a number of quiet achievers (individual operators and skippers of small crews), who are intent upon being safe and doing the right thing, but currently do not feel it appropriate to promote their behaviours..

Coherent, open and meaningful engagement = willingness to engage

The research found that, currently, generally fishers believe they are not only as safe as they can be (a level of fatalism and normalised risk acceptance), and consistently claim they do not understand how they can be any safer. This is the partitioning/separation that occurs when there is a high level of reliance of administrative controls (paperwork) that is not perceived as relevant to improving safety, or it is unclear as to how those controls increase safety in the context of an individual fisher's operation. While safety agencies have been attempting to communicate the safety requirements of the current regime through administrative controls, fishers who have been attempting to comply, repeatedly report being confounded by contradictory information received from agencies that are supposed to be working collaboratively, or are completely unable to procure information in a timely manner. This impacts the 'psychological safety' people have; if fishers think they are going to be penalised for failing, despite having tried, then they will move to a state of avoidance. More importantly, fishers are 'doing' people, they remember things by actively doing rather than reading. Pictures are also generally far more impactful than the written word or being told. As a result, behaviour change would be much more likely were fishers required to *show* how they comply, or know how to put on a PFD/reboard their vessel etc., rather than to present documents.

Recognition of unintended safety consequences = increases ability to mitigate risks

The research findings identified that a number of other agencies created unintended and potentially negative safety circumstances in regulatory directives that have other ecological or economic benefit. Most specifically, this related to fisheries management, where while focussed on the primary task of preserving fish stocks in economically viable fisheries, had at times through regulations created not only

pressures to fish, which has fatigue and mental health implications, but also ongoing structural adjustments, industry rationalisation, and modified fisheries regulations has had other unintended WHS effects. Another area where unintended consequences may be relevant is that of meteorology, in the identification of a lack of weather forecasts in suitable formats (i.e. apps on mobile devices as most commonly used by fishers), specific to issues faced by commercial fishers resulted in a missed opportunity to mitigate risks.

3. Identify the specific factors contributing to improvements in safety culture.

When looking at the change process, while it takes time (as noted previously, two years and potentially up to eight depending on how large the change is), it also cannot be forced and is much more effective the greater 'control' that individuals perceive they have in choosing to come along with the change. Based on this and the research undertaken here, the following specific factors are identified as being the greatest potential contributors to improving the safety culture of the fishing industry.

- ***Industry identifying safety leaders and applauding their behaviour, from the minor to the major.*** While large seafood industry organisations (such as Paspaley Pearls, Austral Fisheries, Mareterram, or Tassal) traditionally attract the focus, sole attention on such operators alienates the individual or small owner operators, who perceive that they are not in the same financial league and do not have the capacity to engage with safety (per the mini pilot results identifying an overriding mental connection between safety and investment). Industry associations who are closely connected to operators, would be well placed to identify suitable candidates to be promoted through Seafood Industry Australia (SIA), and magazines such as Seafood Industry Victoria's *ProFish* and *Working Boats* and the Facebook pages of the Industry Associations and to highlight, safety measures that they have undertaken which have notable effects on decreasing risk, but are cost minimal or neutral to implement, and may even lead to better operational outcomes, such as decreased fatigue.

  This could be further supported with more ***nuanced State and National Awards for safety improvement*** to be made at events such as Seafood Directions (bi-annually) that explicitly sought to identify and recognise smaller operators. This could be broken down to 'individual', 'skipper' and 'whole of crew' as well as businesses, to ensure as much positive recognition as possible is achieved. Stories of the changes made by the winners to be promulgated throughout the social media that the industry uses (Facebook and Twitter) rather than only the more traditional printed media. A significant opportunity exists to explicitly recognise skippers who are the most influential actors in the fishing safety arena.

    - ***RESPONSIBILITY: Industry (State Associations and SIA) with support from AMSA and state safety agencies***

- Potentially from winners of safety awards, ***identify active fishers, to provide advice in regard to relevancy to and build rapport between AMSA, state agencies and the industry***, with the objective of increasing trust and collaboration between the industry and the safety agency. The basis of that provision of advice must be at times and in formats that makes it as easy as possible for them – that is, verbally over the phone; wharf side at a time that suits them to examine and trial new equipment or processes etc. This should not be presumed to be based on meetings in a capital city or other bureaucratically framed format, rather the focus of gathering attitudes, information and advice from these fishers perhaps built into wharf and ship yard visits currently employed by a number of AMSA and delegate agency staff.

    - ***RESPONSIBILITY: AMSA, state work safe agencies and Industry***

- ***Review use of 'administrative controls'*** (i.e. paperwork requirements) ***to identify relevance to industry sectors.*** In some instances, relevance of controls may apply to only a number of sectors,

not all; or where no safety benefits are perceived to exist, clarity or alternative methods of communications need to be identified; or the barriers to the adoption of it despite the benefits, need to be identified at a sectoral level, and managed. The action to be achieved, being to either modify and improve, or remove, the requirement, or work with the sector to identify the benefits, and – where applicable – remove barriers to implementation.

  - ***RESPONSIBILITY: AMSA and state safety agencies with involvement of industry safety leaders.***

- ***Need for positive safety messages to engage fishers in modified behaviours***. A focus on the positive behaviours and achievements of members within the industry – rather than to keep telling them they are 'not safe' or could do better – will constructively recognise the 'virtuous' citizens among the industry and provide industry led examples of how to build safety capacity amongst the rest of the industry. This recommendation is per the research undertaken by Sharot et al. (2012) identifying that people ignore negative information and incorporate favourable views into their existing beliefs – known as the "good news/bad news effect" (ibid, p.17058). Consequently, rather than utilising fear or scare campaigns about accidents, incidents and deaths at sea, positive proactive stories and outcomes will move fishers towards the 'transforming idea' of a new safety culture faster (per Figure 16).
  - ***RESPONSIBILITY: ALL***

- ***Measure 'lead' indicators not 'lag'.*** To further encourage compliance, identify and report where fishers are achieving and becoming safer; rewarding the good behaviour. Lag indicators are numbers of deaths; compliance breaches; fines issued etc. By contrast, lead indicators are those that predict improvements in outcomes and would be those such as: percentage of scheduled risk controls for implementation, versus those actually implemented; number of attendees at a wharf safety demonstration, number of industry association meetings which include safety of the agenda + number of members participating, number of peer on peer safety reviews. Each sector could also explore and document their own risk profile, so as to understand, tailor, and benchmark their own WHS strategy.
  - ***RESPONSIBILTY:***
    - ***Industry to identify in collaboration with AMSA and state safety agencies suitable lead indicators.***
    - ***AMSA and state safety agencies to report on outcomes to industry***

- ***Review current and future unintended safety consequences of other government regulations that affect fishers***. This has been discussed in this final report and at some length in the Focus Group Findings report. The lack of regard that other government agencies are perceived, by fishers, to have for the potential and actual safety effects on fishing of non-safety regulations (e.g. fisheries management, transport), reinforces feelings of disengagement with safety requirements. Initial discussions have been held by AMSA and the PI with AFMF, and AMSA intends to continue and expand upon these to address this issue in collaboration with any agencies concerned.
  - ***RESPONSIBILITY: Industry, AMSA and all government agencies interacting with fisheries activities.***

- ***Creating a clear and industry developed point of engagement between industry and safety information sources*** (be they from AMSA, or other agencies). The objective is to have a clear pathway in regard to where and how industry receives and explores information and recommendations regarding new and improved safety behaviours and equipment that can assist them with ensuring they come home safely.
  - ***RESPONSIBILITY: Industry with support of AMSA and state safety agencies.***

Implications

Literature Review

Our previous focus on supporting and developing solutions that are focused – in any capacity – solely on operators within the industry are likely to be less effective than desired. The optimal means to bring about cultural and greater safety changes in the fishing - or any industry - is through a holistic approach to how safety is being tackled, involving and sharing responsibility amongst all those actors involved in the fishing industry.

The most significant implication of this is for regulators - safety, fishing and other interrelated government departments such as the Bureau of Meteorology - in terms of how they involve fishers in the development of rules and regulations, with a specific and explicit focus on the safety consequences of proposed developments.

Enforcement of regulatory compliance does have an important role in ensuring the safety of Australia's fishing fleet, however, it should be employed as the last line of defence, not the first or second. A sole reliance on regulatory compliance enforcement has been identified in the literature to have little effect on decreasing rates of incidents and accidents.

A greater focus by regulatory authorities on developing regulations, programs and applications, that 'make sense' to industry participants, will generate greater engagement and adoption.

Survey

There is significant opportunity to improve investments and safety outcomes by:

- Developing safety training that is more active and hands on it is approach, rather than book or classroom learning;
- Improving the alignment between what constitutes safety competence for fishers (which encompasses their risk appetite), with the perspective of safety management agencies (AMSA and various state work safe organisations who may be implementing regulation of the industry);
- New and different ways of talking about and 'doing' (not just reporting on) safety in the industry by both industry and regulators is required to improve the safety culture of the industry;
- Improving awareness amongst regulators of the mental health implications for fishers of a primary reliance on enforcement as a means to ensure regulatory compliance. A primary recourse to compliance enforcement mechanisms (i.e. fines) to achieve safer outcomes increases fisher perception of a lack of respect and disengagement. Such approaches increase frustration with the lack of recognition of their professional pride in their work, and years of success in the industry to date, resulting in decreased mental health and ability to engage with altered behaviours.

SURVEY LIMITATIONS:

- The use of the term 'management' was a challenge in the survey instrument as in this instance, 'management' to a skipper may be the vessel owner/fisheries management or a safety regulator; but 'management' to crews is more likely to be interpreted as the skipper as they are the ones who contract them.
- The timing of the survey, during a state of regulatory change, also had an unavoidable effect on the results, which needed to be mediated, and should be considered in any future comparative use.

Focus Groups

There is significant opportunity to improve safety outcomes through improved:

- Engagement of industry with safety information and inspections through utilising active participation in demonstrations of safety equipment and processes.
- Engagement with fishers at times and by means that acknowledges and considers their operating and rest requirements;
- Reviews of safety requirements to ensure that they are relevant both operationally and in the context of running a profitable business;
- Clarity and consistency of communications between AMSA, state safety agencies and fishers;
- Minimisation of bureaucracy for fishers to obtain information, from AMSA or state WorkSafe or safety bodies, and provide feedback (e.g. not having to complete a survey to be able to provide feedback to AMSA)
- Decreasing unintended consequences of regulations affecting fishing operations – i.e. fisheries management; roads and transport (per the Focus Group Findings Report)
- Increasing uptake of tools to improve safety, such as weather forecasting, by identifying more appropriate means to engage fishers with relevant forecasts.
- A dedicated safety engagement program run through industry to clarify language and relevance of safety directions and communicate to industry.

Overall

- **Communications:** Communications and messaging via media in industry associations and government body's needs to reconsider what the change is that they are looking for (is it simply 'compliance'? Or to prevent people from getting hurt?), and how engaging with a positive (rather than punitive) vision in the approach will generate improved outcomes. Moving away from written documentation to active participation in demonstrations and equipment trials, are shown to have greater efficacy in improving adoption and retention of information.

- **Contractual arrangements:** Fishing operations within the commercial fishing industry that engage contracted workers, need to consider the confusion over lines of responsibility given the provision of equipment etc. Improving awareness that all parties are responsible for WHS outcomes in the workplace and it is no one person's responsibility, is essential to addressing the culture of safety and creating positive outcomes, rather than creating a culture of blame in the safety aspect of fishing. Some (skippers and/or crew) may need assistance with reading/understanding paper based administrative WHS control measures. An increased reliance on actively demonstrated and effective risk identification and management (as per the hierarchy of controls) rather than paper based administrative controls, will improve safety outcomes. The unintended consequences of maintaining a reliance on paper based administrative controls will be a perpetuation and further embedding of the current partitioning of the industry from AMSA's safety intentions.

- **Training:** The need for the safety professionals and training organisations working with the fishing industry, to ensure their approaches are activity as well as paper based (per Southern Rocklobster Limited's Clean Green Program), rather than prescribing purely paper-based approaches. The Clean Green program is an excellent example of a program designed with large amounts of industry input and control. It may be considered to explore the opportunities to expand the Clean Green Program into other sectors.

- **Codes of Conduct:** This project was also asked to look at Codes of Conduct. A review of the 'codes of conduct' in the industry that include references to WHS, generally embed them within the broader operating Code of Conduct. More often, larger organisations have separate 'policies' related to the induction of crews and employees (Northern Prawn Fishery; South East Trawl

Fishery, Raptis Seafoods, Mareterram, Tasmanian Scalefish Code of Practice and OceanWatch). Where specific references to WHS are cited they are, in the main, simply focused on stating that operators must ensure compliance with regulatory requirements (maintaining insurances, and in accordance with AMSA mandated SMSs). Unfortunately, not only are codes of conduct not always dated and/or updated, and may consequently refer to regulatory arrangements that have been superseded, (e.g. the South East Trawl Fishing Industry Association does not have a date of publication on it, so it is impossible to tell if it is current), but importantly, they do not focus on the intent and spirit of WHS - that is to keep people safe. Nor do they identify the benefits of complying with WHS Codes of Practice, e.g. that it can decrease operating costs through decreased crew turnover etc. Similarly, the Marine Stewardship Council certification (Guide to Performance Indicators and Scoring Guideposts: Principle 3 Management) is focussed on "compliance with legal and administrative requirements", and is focussed on the management to ensure sustainable fishing practices - not WHS practices.

Mareterram has a broader 'code of conduct' for Directors, senior executives and employees, which refers to the provision and maintenance of a safe work place. However, fishers (skippers and crew) are (with the exception of 457 crew who are employed by the company) contractors either to the company (skippers) or to the skipper (crews), and hence may be perceived as not subject to this code of conduct.

A further example of a code is the Spencer Gulf King Prawns Fishery - the 'Skippers Working Code of Practice' - which has emanated from the management of the fishery by the Spencer Gulf & West Coast Prawn Fisherman's Association Inc., (and the Department of Primary Industries and Regions South Australia (PIRSA)). It was developed to ensure collaborative fishing across the fleets. This does reference a WHS issue - weather - and how the fleet will determine if it is safe to fish or not, and if it is deemed to be unsafe, no vessel will leave the port. However, this is the only reference to a safety element in the Working Code

By contrast the Southern Rocklobster Limited's Clean Green program does have an explicit focus on WHS, which encompasses a comprehensive list of WHS criteria, which have to be complied with to be certified and to maintain it. Based on our research, the effectiveness of the Clean Green program in decreasing rates of accidents and incidents in the fishery, is contingent upon its use as an 'active' demonstrated certification rather than one of paperwork, only to be reviewed at times of audit. To promote the use of a 'Clean Green' programmatic compliance list approach only, would obviate the effectiveness of this program, as it is the hands-on participation in demonstrations that were anecdotally identified as the most effective in change creation.

Extension and Adoption

Specific Actions undertaken by AMSA

A key extension opportunity identified by the project were actions that could be undertaken by AMSA to initiate a change in approach, ideas and means to develop and implement safety protocols. As a result, AMSA has, in response to the project's findings, actively undertaken, or initiated, a number of activities (excluding business-as-usual activities) since the survey component of the project was completed.

These actions are detailed as follows:

1. **Ensure ongoing engagement, support and communication at the local level. Ensure two-way communication that further provides a voice within AMSA for vessel owners, skippers and crews.**

   AMSA has extended the role of our Liaison Officers beyond NS transition to ensure communications at a local level. In addition, AMSA has opened a number of new offices to increase its regional presence.
   (Status: completed).

2. **Engage vessel owners, skippers and crews to ensure SMSs remain active systems for keeping people safe, rather than "checkbox" documents for compliance.**

   AMSA has developed a new Safety Management System workshop: 'Making your SMS work for you'. These workshops are being rolled out across Australia.
   (Status: underway)

   AMSA has developed a suite of guidance material, with a focus on making information sector specific, to help owners, operators and crew in developing and revising their safety management systems. This includes a new SMS guide (digital and print version), and new web content including; an online step by step guide; a range of templates for risk management and emergency procedures, crewing guidelines and a verification tool for vessels by class.
   (Status: SMS workshops completed with ongoing work on guidance materials)

   The July 2019 edition of AMSA's *Working Boats* is dedicated to safe workplaces – personal, operational and environmental safety. With a specific focus on safety management systems, 'take 5 – risk assessment process', general safety duties, SMSs and grandfathered vessels. AMSA is seeking to engage audiences in safety through relevant and relatable content not only from the regulator, but also through stories by seafarers and skippers themselves.
   (Status: Refocus completed with ongoing implementation in all future issues)

3. **Provide transparency around AMSA's approach to compliance and the consequences for non-compliance in enforcement terms.**

   AMSA outlines its approach to compliance through its Statement of Regulatory Approach 2018, Compliance and Enforcement Strategy 2018-22 and the AMSA Compliance and Enforcement Policy (2018). These important documents were communicated to fishers (amongst others in the regulated community) via www.amsa.gov.au and an *AMSA Update*. An increased focus has been placed on the discussion of the AMSA compliance approach with both liaison officers and marine inspectors to ensure consistency in their discussions with fishers. This consistency is being pursued during inspections, and education activities such as wharf side conversations and SMS workshops.

   Release of the Statement of Regulatory Approach 2018 ***(Status: completed)***

Release of the Compliance Strategy 2018–22 (***Status: completed)***
Release of the Compliance and Enforcement Policy 2018 ***(Status: completed)***

4. **Provide deep insights into Domestic Commercial Vessel (DCV) segments, including what they value, what is important to them and how best to engage with them.**

   AMSA continues to conduct stakeholder analysis of DCV sectors to understand the demographics and mindsets of our regulated community.
   (Status: ongoing)

   - AMSA's 2019 biennial stakeholder survey is underway (as of July 2019) with in-depth interviews and quantitative surveys now complete. Data is currently being collated for analysis and reporting. The survey will provide insights into what is important to AMSA's stakeholders and their performance against a range of key functions and operations across the organisation.
   - The Queensland University of Technology has been appointed to undertake research to build a detailed audience profile of the domestic commercial vessel industry to help inform communication and engagement activities and education safety campaigns. The research methodology includes a desktop review (which the Final Report for FRDC 2017-046 will form part of) and follows a user-centric co-design approach to create a profile of the different 'personas' that make up the commercial vessel industry—including what they value, their barriers and motivators, and some initial insights into communications. This research is the first step in building deep insights of the maritime industries and will identify gaps and opportunities for future research.

5. **Provide a granular level of engagement and communication, at the state level, around vessel and operational safety.**

   AMSA is developing a framework to establish Regional Safety Committees at the state level, of which commercial fisheries will be represented if industry support can be procured, representing DCV stakeholders.

   (Status: in development)

   AMSA has a calendar of rolling industry and community engagement activities for the next 12 months (available on www.amsa.gov.au and promoted through the *AMSA Update* and social media channels). Using third party channels and events provides AMSA an opportunity to interact with the regulated community and public about maritime safety at a local and regional level. These include AMSA-led industry briefings and safety workshops delivered by AMSA regional staff. AMSA also participate in a wide range of industry events including boat and trade shows and maritime related community festivals in major regional centres and more remote locations including Torres Strait, Karratha and Ceduna. It is a focus of the 2019-20 Corporate Plan to focus on education and collaboration with the AMSA community.

6. **Provide accessible and easy to understand information regarding one of the major risks to the fishing sector - vessel capsizing and sinking due to stability issues.**

   AMSA has adopted an integrated approach in communicating with diverse audiences. This includes releasing content across multiple channels and formats so people can engage in a way and at a time, they prefer. AMSA aim to simplify complex information by using visual products such as infographics and video. Depending on the audience, content may be translated into other languages or simplified through infographics and video.

   Below is an outline of AMSA's approach to engaging with industry on stability issues, this commenced in early 2018 and will continue to be refreshed and with content reposted through AMAS's media channels.

(Status: complete, continuing)

- A guidance book outlining the basics of stability, buoyancy and gravity as well as the hazards to look out for. Over 3,000 copies were distributed through AMSA regional staff and compliance partners. The core message encouraged operators to know the risks and hazards.
- Content on AMSA's website provided additional information to explain the basics with links to other related information, including getting out of a hook up situation.
- An article was included in *AMSA Update* (their direct email newsletter) and distributed to over 30,000 subscribers to draw attention to the information.
- Digital advertisement tiles and video content is being posted regularly on Facebook and Twitter with high reach and engagement levels, with followers sharing content throughout their personal and industry networks.
- Fishing vessel stability – web content
- A guide to fishing vessel stability – digital and print copy
- A video about vessel stability is also being developed

7. Provide accessible and easy to understand information regarding one of the major risks to the fishing sector - vessel capsizing and sinking due to hook-ups.

A hook-up is one of the most dangerous situations for a trawler and can have fatal consequences. To educate operators about practical safety measures they can employ AMSA used technical knowledge and developed a range of easy to understand communication products, engaging content and quick reference resources, including:

- A short waterproof guidance book outlining the basic principles and steps needed to get out of a hook-up situation. Over 3,000 copies were distributed through AMSA regional staff and compliance partners. The core message encouraged operators to know the risks, undertake drills and practice their response times.
- AMSA distributed over 3,000 marine grade decals to trawler operators to place in their vessels. Content included the first four steps to be taken within 20 seconds—reduce power, get crew on deck and close hatches, alert other vessels and get lifesaving equipment in float free position.
- Content on AMSA's website provides additional information to explain the basic principles, roles and responsibilities of those on board and described the critical actions. The content links to other related information, including fishing vessel stability guidance.
- An article was included in *AMSA Update* and distributed to over 30,000 subscribers to draw attention to the information.
- Advertisements containing key messages were placed in the *Working Boats* magazine and sent electronically to 28,000 subscribers and 2,500 to third parties in hard copy.
- Video content was produced in multiple versions—full version (40 seconds), four steps (15 seconds) and a call to action to find out more (10 seconds). This content was distributed via social and digital channels.
- Digital advertisement tiles and video content is still being posted regularly on Facebook and Twitter with high reach and engagement levels, with followers sharing content throughout their personal and industry networks.
- Hook-up response for trawlers – guide, web content and video

(Status: completed, ongoing)

8. Ensure survey regimes are flexible, reasonable and cost-effective whilst maintaining vessel safety standards. Respond to DCV sectors call for reduced red tape and regulatory cost.

AMSA has revised the vessel survey regime to provide rationalised/cost effective survey arrangements, including the fishing sector (e.g. extending the non-survey category from 7 metres to 12 metres). There is also now an app 'MyBoat' which is a system to help fishers understand their survey requirements. All these activities have been communicated through both regular AMSA communication channels and field staff.
(Status: Initial activities completed; regular reminders are continuous)

9. **Provide a transparent, forward-looking plan for maritime regulation. Set the vision and clearly outline the reasons for future maritime reform.**

   AMSA is currently developing a regulatory plan from 2020-2030.
   (Status: in development)

10. **Foster responsible industry regulation that is mindful of its impact on safety at sea.**

    AMSA is engaging with state and national fisheries authorities to discuss the impact on fishing regulatory actions on maritime safety**.**
    (Status: underway)

11. **Provide deep insights into the current actual safety of DCVs. Ensure research is cost effective, focused and results in valuable/impactful outcomes.**
    AMSA is developing a Research Coordination processes.
    (Status: in development)

12. **Provide deep insights into DCV incidents and accidents. Ensure analysis is cost effective, focused and results in valuable/impactful outcomes.**

    AMSA is continuing to improving safety data analysis and reporting capabilities. Current monthly DCV incident data is published.
    (Status: underway)

General Extension Activities

Each of the project milestone outputs were extended to a range of industry stakeholders directly, and more broadly through media coverage using a range of media, including:

- Survey Flyers
- Magazine Articles in FRDC's *FISH* (Volume 25(4) p7) and AMSA's *Working Boats* (Issue 11, Feb 2018 p.36)
- Media releases – both industry specific and for more general audiences

The project also received media coverage in the run up to survey with a South Australian ABC Rural radio feature.

As a result of discussions about safety and opportunities to do more hands-on training with outdated equipment, Newcastle Fisherman's Co-operative initiated undertaking the organisation of safety days, where out of date flares, life rafts and PFDs are used by fishers in water or off the back of vessels to increase their familiarity with operating the equipment and reboarding their life rafts or vessels from the water. It is recommended that where this occurs, industry association newsletters and publications such as FISH or Working Boats provide extensive coverage.

Further the report findings will comprise a presentation at the 2019 Seafood Directions and the Principal Investigator will participate as a panel member in the 'Sustainability' component of the program, as the Steering Committee has recognised the significant role that positive WHS plays in generating a sustainable industry. Ongoing extension is also occurring with industry representative requests for assistance in review of implications of State and Territory Best Practice Reviews of WHS (e.g. January 2019 release of the 'Best Practice Review of Workplace Health and Safety in the Northern Territory' report').

Project materials developed

A *Safety Climate Survey* was developed as part of the project, and is contained in Appendix 4: Survey Result Report.

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Appendices

Appendix 1: Researchers

PROJECT INVESTIGATORS:

Principal Investigator:	Dr Kate Brooks, Director, KAL Analysis Pty Ltd
Co-Investigator:	Ms Alex Thomas, Director Alex Thomas Pty Ltd
Co-Investigator:	Ms Tricia Beatty, NSW Professional Fishermen's Association
Co-Investigator:	Mr Brian Hemming, Australian Maritime Safety Authority
	Mr Michael Drake, Australian Maritime Safety Authority
Co-Investigator:	Mr Michael Wooden, OceanWatch Australia
Co-Investigator:	Mr Alex Ogg, Western Australian Fishing Industry Council

FURTHER ASSISTANCE - Industry and Associated Organisations:

Mr Scott Razga	Mareterram Limited
Mr Brad Roberts	Australian Maritime Safety Authority (VIC)
Mr Chris Battel	Australian Maritime Safety Authority (WA)
Mr Craig Murray	Sydney Fish Market
Mr Ross Fidden	Newcastle Fisherman's Cooperative
Ms Danielle Adams	McClean Fishermen's Cooperative
Mr Andrew Mitchell	Coffs Harbour Fishermen's Cooperative
Mr Phil Hilliard	Ballina Fishermen's Cooperative
Mr Simon Clark	Spencer Gulf & West Coast Prawn Fisherman's Association Inc.
Mr David Carter	Austral Fisheries
Mr Phil Roberts	Raptis Seafoods
Ms Annie Jarrett	Northern Prawn Fishery
Ms Katherine Winchester	Northern Territory Seafood Industry Council
Ms Rebecca Oliver	Australian Fisheries Management Forum
Ms Karen Holder	Women in Seafood Australasia
Ms Jessica Andriac	Fishing Industry Safety Advisory Committee
Ms Lucie Blom	Bureau of Meteorology

Appendix 2: Confidentiality Agreement

Project Confidentiality Agreement

FRDC Project 2017- 046: "What's stopping you from keeping you and your mates safe? Identifying barriers to the adoption of safe work practices in Australian marine fishing."

Research Team Investigator: Dr Kate Brooks

As a member of this research team I understand that I may have access to confidential information about study sites and participants. By signing this statement, I am indicating my understanding of my responsibilities to maintain confidentiality and agree to the following:

- I understand that names and any other identifying information about study sites and participants are completely confidential.
- I agree not to divulge, publish, or otherwise make known to unauthorized persons or to the public any information obtained in the course of this research project that could identify the persons who participated in the study.
- I understand that all information about study sites or participants obtained or accessed by me in the course of my work is confidential. I agree not to divulge or otherwise make known to unauthorised persons any of this information, unless specifically authorised to do so by approved protocol or by the local principal investigator acting in response to applicable law or court order, or public health or clinical need.
- I understand that I am not to read information about study sites or participants, or any other confidential documents, nor ask questions of study participants for my own personal information but only to the extent and for the purpose of performing my assigned duties on this research project.
- I agree to notify the principal investigator immediately should I become aware of an actual breach of confidentiality or a situation which could potentially result in a breach, whether this be on my part or on the part of another person.

_____	_____	_____
Signature	Date	Printed name
_____	_____	_____
Signature of principal investigator	Date	Printed name

(or FRDC HDRS Manager)

Appendix 3: Literature Review

The full version of the *Fishing Industry Barriers to the Adoption of Safe Work Practices: Literature Review* can be accessed here: https://www.frdc.com.au/Archived-Reports/FRDC%20Projects/2017-046-Appendix%203_Lit%20Review.pdf

Appendix 4: WHS Survey Findings Report

The full version of the *Workplace Health & Safety Survey Findings Report* can be accessed here: https://www.frdc.com.au/Archived-Reports/FRDC%20Projects/2017-046-Appendix%204_WHS%20Survey%20Findings.pdf

Appendix 5: Focus Group Findings Report

The full version of the *Workplace Health & Safety Focus Group Findings Report* can be accessed here: https://www.frdc.com.au/Archived-Reports/FRDC%20Projects/2017-046-Appendix%205_Focus%20Group%20Findings.pdf