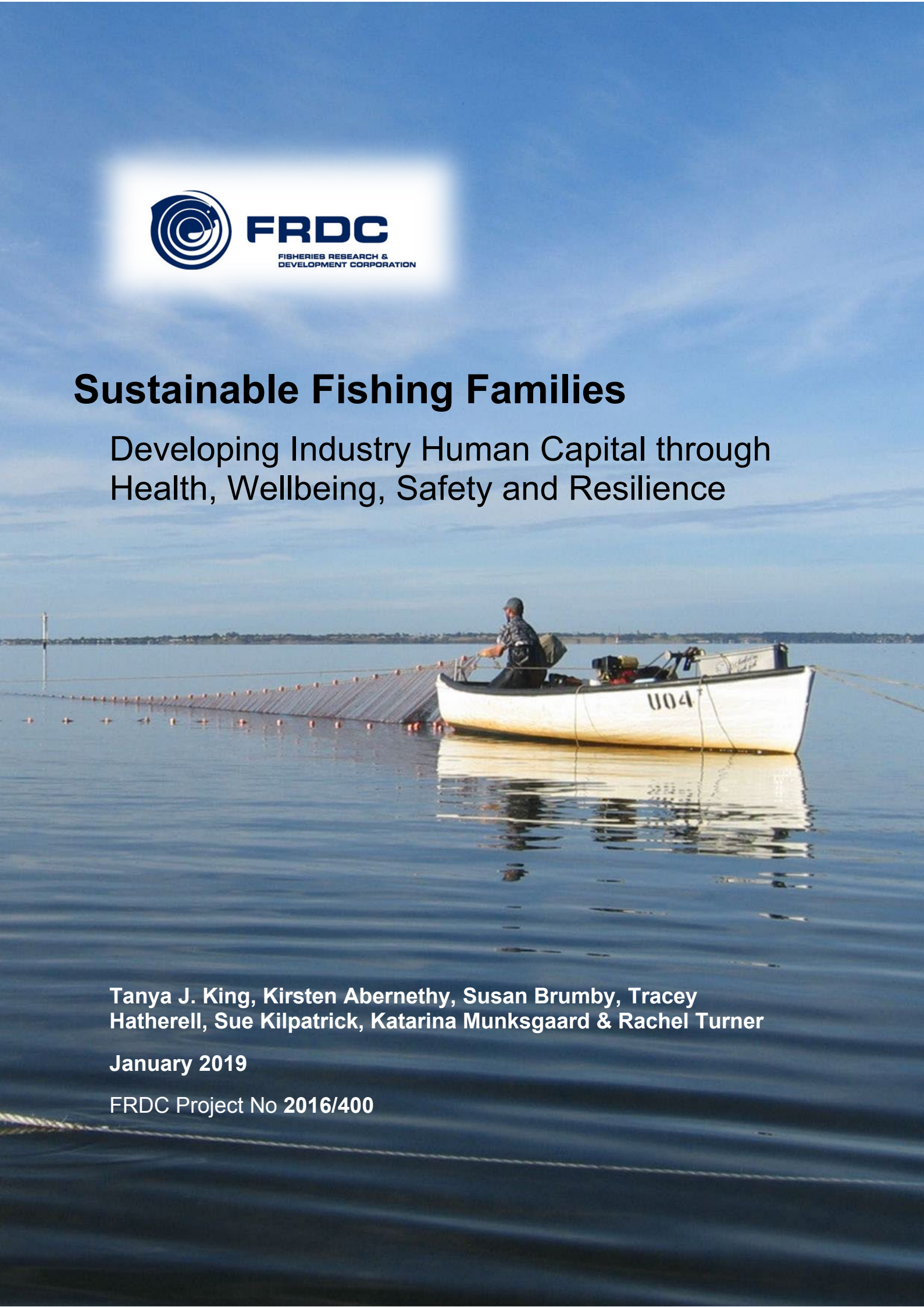

Sustainable Fishing Families

Developing Industry Human Capital through Health, Wellbeing, Safety and Resilience

Tanya J. King, Kirsten Abernethy, Susan Brumby, Tracey Hatherell, Sue Kilpatrick, Katarina Munksgaard & Rachel Turner

January 2019

FRDC Project No **2016/400**

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ISBN **978-0-646-98116-1**

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King, T., Abernethy K., Brumby, S., Hatherell, T., Kilpatrick, S., Munksgaard, K. and R. Turner. 2018. *Sustainable Fishing Families: Developing industry human capital through health, wellbeing, safety and resilience.* Report to the Fisheries Research and Development Corporation Project No. 2016/400. Deakin University, Western District Health Service, University of Tasmania and University of Exeter. Canberra, October. CC BY 3.0

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

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

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Acknowledgments

The success of this project has only been possible through the support of a huge number, and range, of people and organisations.

The project team would like to thank the Fisheries Research and Development Corporation (FRDC) for providing funding and support for this study, particularly Dr Emily Ogier. FRDC's ongoing commitment and investment in the health and wellbeing of industry members has fostered a culture that is supportive of the men and women who make the industry great.

We also thank the support of Deakin's School of Humanities and Social Sciences who funded a gathering of people interested in the seafood industry at which this project was conceived.

We would like to acknowledge the input of the project Advisory Committee who provided input into the modification of the Sustainable Fishing Families workbook to suit a fishing industry audience, as well as advice and support throughout the project.

- Arthur Allen
- Alex Abernethy
- Craig Fox
- Gloria Jones
- Jill Briggs
- Jim Fletcher
- Kate Barclay
- Liz Hoare
- Stan Piperoglou

The Sustainable Fishing Families pilot program was hosted with the kind assistance of Bellarine Community Health. Staff, past and present, were enormously generous with their time, assistance and support, and we thank them for playing such a crucial role in making the Sustainable Fishing Families program available to fishing families across the country. We are particularly grateful to former CEO, John Fendyk, who provided the venue for the pilot program.

Picnic Time staff provided wonderful and nutritious food for our workshops, delivering all meals early in the morning so that participants could have a hearty breakfast after fasting all night!

The owners at 323 on Jetty went above and beyond for participants staying at the hotel for the workshops, and we thank them for their assistance.

The survey component of the project could not have been completed without the kind assistance of a number of industry peak bodies, industry organisations and individuals:

- Austral Fisheries, Adrianne Laird and Andy Prendergast
- Ballina Fishermen's Cooperative, Phil Hilliard and Danielle
- Marine Fishers Association, Nathan Bicknell
- Moreton Bay Seafood Industry Association, Michael Wood
- NMAC(SA), Neil MacDonald
- Northern Prawn Fishery Industry, Annie Jarrett
- NT Seafood Industry Council, Katherine Winchester
- Professional Fishermen's Association, Tricia Beatty
- Queensland Seafood Industry Association, Eric Perez
- Raptis & Sons, Phil Robson

- South East Trawl Fishing Industry Association, Simon Boag
- Seafood Industry Victoria, Johnathon Davey, Joeanne Tripylas
- South Australian Rock Lobster Advisory Council, Nathan Kimber
- South Eastern Professional Fishermen's Association
- Spencer Gulf Prawn Fishers Association, Simon Clarke
- Tasmanian Seafood Industry Council, Julian Harrington, Julie Martin
- Tropic Ocean Prawns, Bronwyn Lake
- Western Australian Fishing Industry Council, Alex Ogg, Danika Gusmeroli, John Duffy, John Harrison
- Wild Caught Fishers Coalition, Mary and Graeme Howard, Dane Van Der Neut
- Craig Fox, Sou'west Wild Abalone
- Peter Jenkins, Jenkins & Sons
- John Murdoch

We would also like to thank a number of other people and organisations who contributed to various aspects of this project:

- Alan Lowe, National Centre for Farmer Health
- Barbara Konstas, CEO, Melbourne Seafood Centre
- Brad Roberts, AMSA
- Kate Brooks, KAL Analysis
- Lynda Mitchelson, Mitchelson Fisheries
- Ross Hodge, Southern Rocklobster Ltd
- Jane Lovell, Veronica Papacosta, Seafood Industry Australia
- Tracey Hatherell, National Centre for Farmer Health
- Karen Holder, Leonie Noble, Women's Industry Network Seafood Community

Most importantly, we gratefully acknowledge the valuable contributions of the many fishers and their families, and industry representatives who participated in the research; we know the survey was long! This research would not have been possible without your time and effort, and we sincerely thank you.

Cover photo courtesy of Seafood Industry Victoria.

Abbreviations

ABARES Australian Bureau of Agricultural and Resource Economics

ABS Australian Bureau of Statistics

AFMA Australian Fisheries Management Authority

AMSA Australian Maritime Safety Authority

DAFF Department of Agriculture, Fisheries and Forestry

DASS Depression Anxiety Stress Scale

EPIRB Emergency Position Indicating Radio Beacon

FRDC Fisheries Research and Development Corporation

GP General Practitioner

IFCA Inshore Fisheries and Conservation Authority

K10 Kessler Psychological Distress Scale

MPA Marine Protected Area

NCFH National Centre of Farmer Health

OH&S Occupational Health and Safety

PFD Personal Floatation Device

PHN Primary Health Networks

QSIA Queensland Seafood Industry Association

RIRDC Rural Industries Research and Development Corporation

SIA Social Impact Assessment

SFF^{TM} Sustainable Farm Families

SFF Sustainable Fishing Families

SIV Seafood Industry Victoria

WAFIC Western Australian Fishing Industry Council

WDHS Western District Health Service

WHS Work Health and Safety

WINSC Women's Industry Network Seafood Community (now WISA)

WISA Women in Seafood Australasia

Nomenclature

'Fisher' and 'fishing industry'

Both the survey and health program were targeted at professional wild-catch fishing families, in other words, those primary producers that fish wild species. For the purpose of this report, we use the term 'fisher' to refer to both men and women who are directly engaged in professional wild-catch fishing activities. These include licence owners, operators (skippers) and crew/deckhands. We use the term 'fishing industry' as their collective term.

'Industry associations'

References to 'industry associations' refer to a fisheries organisation at either a sector, state or national level, such as peak bodies, cooperatives, or sector-based organisations.

'Traditional risks'

Multiple causes of stress have been identified in the Australian fishing industry. These have been presented as two categories, 'traditional risks' and 'modern uncertainties' [2]. The 'Traditional risks' of the business of fishing include dangerous and variable working conditions, fluctuating market conditions and variable catches, being self-employed, working odd hours, not being able to plan time off. Fishers do have some day-to-day control over traditional risks through fisher skill, knowledge and experience. It is regarded that fishers have 'signed up' for these risks when taking on fishing as an occupation. Fishers have traditionally faced these stressors and can be resilient to traditional risks.

'Modern uncertainties'

'Modern uncertainties' are those that fishers can neither predict nor control and have limited capacity to manage or emotionally prepare for. Typically, these modern uncertainties are related to a lack of access rights and the uncertainty about future access to fishing. These modern uncertainties tend to emanate from policy decisions, such as regulatory reform, unexpected management changes (e.g. reduction of quotas), or closure of fisheries. The lack of control over livelihoods means that there is an associated limited capacity to secure finances and make long-term business and life plans.

Keywords

Health; mental health; wellbeing, safety; health literacy.

Executive Summary

An industry is only as healthy and sustainable as its members. In recent years, concern for the health, safety and wellbeing of the professional wild-catch fishing industry has been growing in Australia.

In response, this project conducted the first national survey of the health, safety and wellbeing of the Australian professional fishing industry in 2017. The results of the survey provide a baseline for the state of the wild-catch industry members across a range of indicators, including reported physical and mental health, factors affecting health and safety, factors affecting levels of stress, health and safety behaviours, and access to health services and information.

The project also conducted and evaluated an intensive pilot program on health, safety and wellbeing tailored specifically for fishing families. The program was modelled on an existing and highly successful program with farming families, Sustainable Farm Families^{TM} developed and delivered by the National Centre for Farmer Health, at the Western District Health Service, Victoria. The materials and presentations were reviewed and modified to reflect the specific strengths and challenges of the fishing industry. For the first time, this award-winning program is now available for use by fishing communities across the country.

The Sustainable Fishing Families project was a collaboration of academic and practical expertise including Deakin University, the National Centre of Farmer Health (NCFH), University of Tasmania, and University of Exeter.

Background

The project builds on earlier research exploring the health and wellbeing of those in the fishing industry and agricultural sector. A number of papers, reports and anecdotal accounts have highlighted the need for improvement in the health and wellbeing, and the safety culture, of those in the wild-catch fishing industry.

Objectives

The objectives of the project were:

1. To improve the health and wellbeing of fishing families by promoting safer and healthier work practices;
2. To develop strategies to inform fishing families of appropriate physical and mental health care programs and information, including strategies to address barriers to uptake;
3. To provide rigorous research that will raise the profile of the health issues and needs of Australian fishing families, and inform government, industry and health services of specific health issues and needs of, and effective support pathways for, fishing families as distinct from farming families;
4. To develop a targeted, industry-led program that will address the health issues and needs of fishing families based on the proven Sustainable Farm FamiliesTM protocol.

Methodology

In 2017, a National Health, Safety and Wellbeing survey was posted to 4,584 professional wild-catch fishers across all jurisdictions of Australia through peak bodies, industry associations and large fishing companies. The survey was also made available online to capture those fishers without membership to an industry organisation. 872 surveys were returned for analysis. The

survey focussed on health relating to work, and asked respondents about their physical and mental health status and perceived causes, health and safety behaviours, and access to health services and information.

The Sustainable Fishing Families (SFF) health literacy pilot program was adapted from the Sustainable Farm Families™ program to be relevant and accurate for fishing families. The program was piloted with seven fishing family members over one year 2017-18. The program consisted of three health literacy workshops, covering twelve health, safety and wellbeing topics. Each workshop consisted of tracking participant's health, health education and discussion sessions, development of personalised goals and action plans. The program was evaluated by participants in a number of ways.

Key findings

National survey of health, wellbeing and safety

- 703 paper questionnaires were returned giving an estimated response rate of 15.3%. In addition, 169 online surveys were returned, giving a total of 872 responses. Australian Bureau of Statistics (ABS) Census data estimates the total national wild-catch employment was 5,777 people in 2016. The project survey response rate was 15.1%, which compares favourably with the sample used in the ABS National Health survey of 19,259 persons from a population of over 20 million (0.001%).
- In comparing the survey sample with Australian Bureau of Statistics (ABS) 2016 Census data, Western Australia and Victoria appear to be over-represented in our sample, with Queensland, South Australia, Northern Territory and NSW under-represented. Representation of gear types was examined however due to different gear categorizations, it is difficult to determine the representativeness of the sample by gear. The sample appears to be roughly representative on gender (men make up the majority of the survey sample and ABS industry statistics) and full time/part-time status.
- While the Australian wild-catch fishing industry face health, safety and wellbeing challenges that overlap with other sectors of the Australian population, particularly primary industries such as farming, there appear to be fishing occupation-related particularities that impact on the health, safety and wellbeing of those in the fishing industry.

The following outline specific key findings of the survey:

Reported physical and mental health

- 60% of fishers who responded to the survey had moderate to very severe bodily pain (reported for the four weeks prior to survey). This is higher than reported by the ABS on the general population (46.5%). Over half of the respondents said pain had interfered with their normal activities, suggesting that bodily pain is an occupation-related health issue.
- The most common health symptoms experienced by the fishers surveyed included back pain, joint pain, fatigue, stress, trouble sleeping, sunburn, infections, and hearing problems. Over 30% of surveyed fishers experienced these health symptoms.
- Surveyed fishers reported being diagnosed with a number of conditions at a higher rate that the general population, particularly high blood pressure, high cholesterol, depression, type 2 diabetes and cancer. This suggests that these conditions may be occupation-related health issues.
- Fishers who responded to the survey experience significantly higher levels of 'high' and 'very high' psychological distress than the Australian population as a whole. High or very high levels of psychological distress were experienced by 16.0% and 6.2% of fisher respondents respectively, compared to 8.0% (high) and 3.7% (very high) of Australians aged 18 years and

over. This suggests that high or very high levels of psychological distress is an occupation-related health issue. Surveyed fishers reported significantly lower levels of low psychological distress that the Australian population. Low levels of psychological distress were experienced by 54.3% of fisher respondents, compared to 68.0% of Australians aged 18 years and over. National statistics are from the 2014–15 National Health Survey.

Factors affecting health, wellbeing and safety

- Around half of surveyed fishers had social capital index scores that suggest they feel highly connected to and included in their community. Over a quarter have a low score, suggesting they feel only weakly connected or not connected to, and weakly or not included in, their community.
- The top contributors to health and wellbeing were identified by respondents. Physical health factors at sea was the most common response (24%) of which over a third related to fatigue; followed by fisheries management (22%) which related to regulatory burden and change, and perceived lack of fairness; mental health (17%) which linked stress, anxiety and depression with isolation, uncertainty and insecurity; and financial burdens (12%) which related to level of remuneration and entitlements, governance costs and running costs of a fishing business.
- The top sources of stress reported by respondents was related to uncertainty about future changes to government regulations, government regulations on access to fishing, and red tape (>50% responses). Negative media and poor public image were also significant sources of stress (>30% responses). In contrast, factors such as isolation, physical danger of fishing, climate change, and succession were not perceived to be associated with stress.

Health and safety behaviours at sea and on shore

- Less than 11% of respondents wear a personal floatation device (PFD) every time they go to sea and nearly 84% of respondents said they never wear an Emergency Position Indicating Radio Beacon (EPIRB) when at sea. Almost half of the fishers surveyed work in areas without good phone or internet reception.
- 65% of respondents wear sun protection when outside for long periods.
- More than three-quarters of respondents worked on boats with a drug and alcohol policy, and more than two-thirds were alcohol free.
- Less than 15% of respondents reported ‘usually’ or ‘everyday’ smoking or drinking alcohol ‘until a little drunk’. Just over 20% drank more than four cups of coffee every day.
- Less than 40% of fishers surveyed usually or always exercise and less than 25% usually or always do something to relax each day.
- 3620 instances of assistance at sea were identified by respondents. Over half of the instances involved recreational users (e.g. fishers, windsurfers, jet-skiers, swimmers).

Health seeking behaviours

- Work commitments and perceived impact of health issues on productivity and finances influenced surveyed fishers’ decisions to seek health advice or treatment. Over 40% of surveyed fishers agreed to statements: ‘appointments clash with work’, ‘I don’t think my health concerns are reducing my productivity’, ‘My health concerns aren’t that serious’. Over 30% agreed with: ‘I don’t want to let my co-workers down/employees down by taking time off to seek treatment’. Over one quarter agreed with: ‘I can’t afford to stop working to seek treatment’ and ‘Appointments and medications are too expensive’.
- There was a perception by 39% of respondents that ‘the doctor doesn’t understand the pressures of the fishing industry’.

Accessing health information

- Surveyed fishers stated that the preferred methods of receiving general health and wellbeing information specific to the fishing industry were hard copy written material, and one-on-one verbal information, followed by reading information on the internet.
- Surveyed fishers stated they preferred information provision to be through 'community health organisations'.

Sustainable Fishing Families Pilot Program

Pilot recruitment

- Recruiting fishing families to participate in the pilot was challenging due to the time commitment required (4 full days over an 18 month period), and being a pilot it didn't have previous industry recognition or champions. This reflects similar challenges that were initially experienced by the well-recognised and award winning Sustainable Farm Families™ program. One committed to attending the Sustainable Fishing Families workshops, fishing families were also difficult to retain because of the short-term unpredictability of their work due to weather patterns and market conditions.
- Seven fishing family members participated in the Sustainable Fishing Families pilot, including four from the Bellarine Peninsula (Victoria), one from Port Fairy (Victoria) and two from South Australia. Two from Tasmania, and a further two from the Bellarine, were also intending to attend but their circumstances changed within days of the first workshop.
- Seven participants attended and all completed the program (i.e. retention over the four days was 100%).

Resource development

- The Sustainable Fishing Families program was fully adapted to reflect the needs and strengths of the fishing industry. Importantly this is now available for replication in other parts of Australia through the National Centre for Farmer Health (NCFH), subject to funding.
- The Sustainable Fishing Families pilot program has improved both the NCFH facilitators, project team and health professionals' understanding of fishing industry-specific health issues experienced by fishing families. While many of the health, wellbeing and safety conditions experienced by farmers and fishers do overlap, the contexts in which all these issues arise may differ.

Participant evaluation of the program

- Pleasingly 100% of fishing family participants said they would recommend the program to other fishing families.
- Participants individually evaluated each session, the end of each workshop, and the Sustainable Fishing Families program as a whole. Each session was evaluated on whether participant knowledge had improved, they were able to use new knowledge, whether they felt the delivery of the knowledge and learning techniques used was appropriate, the degree of active learning, the organisation of the session, and if the resource kit information and activities were helpful. High rankings were consistent for all sessions and the overall program mean score was 6.33 out of 7 (90%) based on Likert Scoring.
- Additionally, participant testimonials are available (see Section 4.2.3).

Pilot program impact

- Improvements in average physical health indicators of participants over the program. These include Body Mass Index, waist circumference, blood glucose levels, cholesterol levels, and systolic blood pressure. Overall the participants lost a total of 27kg.
- Identified actions the participants worked on throughout the program were following up physical assessment with their GP or specialist, improving fitness, improving diet and nutrition, improving fisher safety (purchasing and wearing PFDs), better weight management, reducing stress levels through relaxing and spending time with family. For 56% of all of the actions participants self-reported that they had made positive changes.
- Six of the seven participants received referrals for health issues identified in the workshops (n=13 issues in total). The most common referral was for cardiovascular disease and risk factors.

Key implications of the project for relevant stakeholders

Fishing families and communities

- Only just over half of respondents to the survey had social capital index scores that suggest they feel connected to and included in their community, suggesting that there may be a disconnect between communities and the members of the fishing industry who live among them.
- Fishing businesses could take heed of the survey results, understanding there are common industry-wide health concerns, and address their personal and business health requirements (including the health, safety and wellbeing of their family and employees), as suggested in following points.
- The prevalence of mental health issues of fishers has been highlighted by the survey. Awareness of the issue, and how individuals may address mental health issues, is beginning to gain recognition especially among industry leaders and organisations, as well as fishers. Fishers and their families can seek assistance (including from industry leaders) to educate themselves, for the benefit of themselves, their employees and families, taking up preventative measures, and accessing assistance of health professionals and mental health support services if required.
- Breaking down the barriers to seeking help for poor mental and physical health needs to be addressed. There are successful models from the farming sector (such as Rural Alive & Well Inc in Tasmania) which could be adapted.
- Addressing health and the culture of safety in the industry is a family and community issue. While there is good uptake of on-board policies relating to drugs and alcohol, and low levels of smoking, attitudes towards safety still need to be addressed. For example, families could insist their loved ones wear Personalise Floatation Devices (PFDs) and other safety equipment (e.g. EPIRBS). The safety equipment used by fishers is especially important because fishers often don't have phone reception at sea.
- The significance of fatigue and its implications for health and safety should be acknowledged and addressed through the development of explicit on boat policies to reduce fatigue.

Health professionals

- The health status (as well as other metrics) of fishers has long been conflated with those of farmers. The findings of this study suggest that fishers have specific occupation-related health issues and therefore should be considered as a specific target population to be included in

health services' strategic plans in areas with populations of fishers. Health services in areas with fisher populations should ensure their staff are aware of occupation-related health issues.

- The National survey indicated that 39% of respondents did not believe their doctor understood the specific challenges of the fishing industry. The project is in the process of designing a communication brochure (of key findings) and a flier for the Sustainable Fishing Families program results as outputs for the project. The Fisher GP Brochure attached in Appendix 6 is a draft of what could be included. The intention of the brochure (as well as to be distributed widely to stakeholders) is for fishers to be able to take it to their GP. The intention is for this approach to go some way to assist in facilitating a more open dialogue between fishers and their doctors about industry-related health issues.

Industry Associations

- Industry associations may use the findings of the National survey to advocate for consideration of the wellbeing and safety implications of policy change, and for social impact assessments to be undertaken before policy change.
- Industry associations may use the findings of both the National Survey and the Pilot Sustainable Fishing Families program as a basis to develop context-appropriate health and safety initiatives and partnerships for sectors under their jurisdiction.
- Industry Associations may contribute to identification of strategies to limit at sea health issues among workers on boats, including fatigue.
- As a side note to the project, the project team found when conducting the National survey, that full coverage of fishers and crew contact details are not kept by industry organisations. This means that many of the people who work at sea are not listed and there is no way to reach out to all fishers with important information, including health information. It may be beneficial for industry associations to access and keep up-to-date records of all fishers including; licence holders, operators and crew. It may also be useful to include the spouses of fishers or next of kin so that wider fishing families can also be contacted.

Managers and policy makers

- Given the reported association between poor mental health and 'modern uncertainties' (which include policy processes and reforms) by survey participants, the mental health of industry members must be taken into consideration when planning and implementing policy processes and reforms. Comprehensive social impact assessments could be carried out before all major changes to facilitate better understanding of the health impacts of change, and mitigation of adverse health impacts.

Recommendations

1. Capitalise on the shared concern for the mental health of the industry and determine the most effective strategies to address the issue through engagement (grassroots to leaders), investment, and collaboration with service providers;
2. Appropriate health, safety and wellbeing programs and models for health literacy, behavioural change, and support systems have been developed by other industries, such as agriculture. These should be modified for use by the fishing industry, however assumptions about the shared health and safety issues faced by fishers and those in other rural/regional industries (e.g. farming, mining), need to be tested further before adapting for implementation with the fishing industry;

3. Wild-catch fishers need to be explicitly considered as a specific target population in health services' strategic plans in areas with populations of fishers given their occupation-specific health and wellbeing needs;
4. Social impact assessments on all those affected, including fishers and their businesses should be carried out before all major policy reforms, with a particular focus on the physical and mental health of those impacted;
5. Mental health first-aid training of those in key 'frontline' positions with the fishing industry would be a cost-effective and pro-active first step to help address immediate mental health concerns in the fishing industry;
6. Investigate and scope alternative strategies to address and prevent the chronic health issues faced by the fishing industry, including back and joint pain, high blood pressure, cholesterol, depression, cancer and type 2 diabetes among fishers. While the Sustainable Fishing Families program is an effective option, it bears a high financial and time investment. Alternative less costly approaches could also be considered and contrasted and may be useful for industry to consider implementing in their jurisdiction. One example may be an investigation of the feasibility of providing annual health and lifestyle assessments health for active fishing industry members (this may be through NCFH or another health service organisation that is experienced in working with fishing or rural communities);
7. The Sustainable Fishing Families program has been shown to be effective in positively impacting on the health, wellbeing and safety of fishing families. To improve uptake of the program:
    - Conduct the program in fishing communities with a larger pool of fishers (although bringing fishing families from other areas to connect with others was also important to participants)
    - Conduct the first workshop (which is 2 days) during the closed season (if applicable) as participants are very likely to return once they have started the program
    - Try to have a homogenous group of fishers (e.g. all divers) as much as possible to be able to work out the best times to conduct workshops that suits the particular fishery
    - Recruit champions of the program who will encourage peers to participate
    - Identify funding sources for the Sustainable Fishing Families program (government, industry)
8. Link these project findings (survey and pilot program) on work health and safety at sea (e.g. low usage of PFD and EPIRB, high levels of fatigue and fatigue-related injury, issues related to musculo-skeletal pain, sunburn, hearing problems, infections) with FRDC project 2017- 046 "What's stopping you from keeping you and your mates' safe?", identified health organisations (Rural Alive and Well) and industry organisations (e.g. Women in Seafood Australasia, Seafood Industry Australia) to collectively investigate, monitor and communicate effective strategies to improve work health and safety within the industry. For example, this may include a centralised web-based platform for housing all information relating to the health, wellbeing and safety of the industry, and include direction on how fishers can seek help. A hard copy health and wellbeing resource for all fishers (could be kept on vessels) which lists health, wellbeing and safety services in their region may also be a first step;
9. Monitor the health, safety and wellbeing of Australian fishers through repeated National Health, Safety and Wellbeing surveys (suggested every five years). Although we note that these surveys are self-reports, there is merit in undertaking health, wellbeing and lifestyle health assessments to obtain health snap-shots of the industry to track progress and given the poor uptake of conventional health services;
10. Industry associations to keep contact details of licence owners, operators and crew, and potentially next of kin. Often only licence and quota owners are the point of contact for distributing information to the fishing industry. Therefore, important information such as health information may not be reaching the whole industry, and importantly all of the active fishers.

1. Introduction

1.1. State of fisher health

Fishers tend to live and work in regional, rural and remote communities, which means they have higher rates of mortality, disease and health risk factors than urban dwellers, and are further impacted by reduced access to primary health care services. Fishers are at particular risk of certain kinds of illnesses through the nature of their work and from lifestyle factors, for example skin cancer from sun exposure, infectious and parasitic disease from working at sea, cardio- vascular disease related to diet, and hearing-related problems from working with loud machinery (Woodhead *et al.*, 2018).

Fishing is risky. Worldwide, fishing is recognised as a particularly dangerous occupation with levels of injury and fatality exceeding that of most others (Brooks, 2011). For example, in Australia the average rate of traumatic work-related deaths in professional wild-catch fishing (classified with hunting and trapping), between 2012–2016 was 67.9 per 100,000 (Figure 1). This category recorded the highest rate of deaths, ahead of 'forestry and logging' (52.3), 'road freight transport' (22.0) and 'agriculture, forestry and fishing support services' (18.9) (Safe Work Australia, 2018). Documented accidents, injuries, and chronic musculoskeletal problems occur as a result of working in unpredictable weather conditions, using heavy machinery on unstable platforms, and fatigue related to long work hours (Windle *et al.*, 2008; Allen, Wellens and Smith, 2010; Rezaee, Pelot and Ghasemi, 2016).

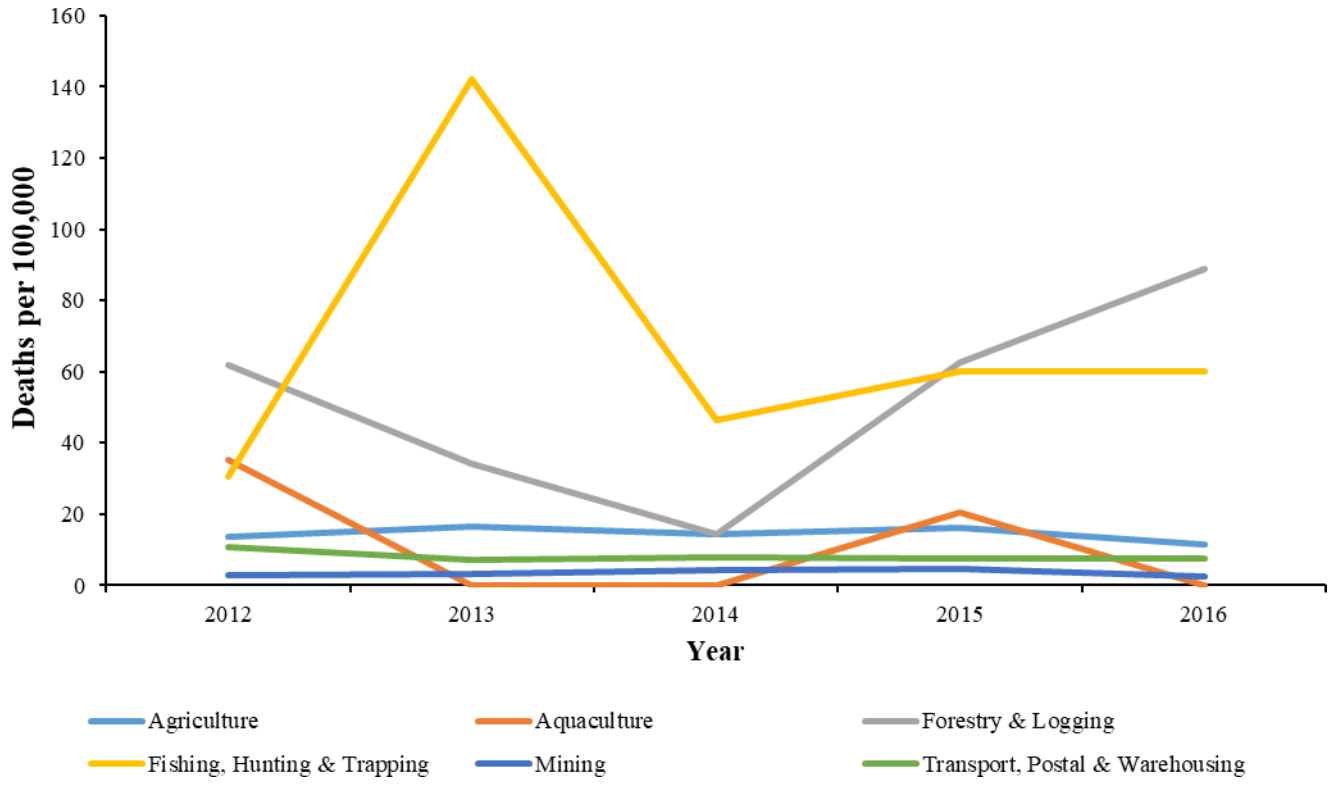

Figure 1. Deaths from work-related traumatic injuries per 100,000 by sector, 2012-2016 (Safe Work Australia, 2018)

There are other health risks associated with fishing however, beyond the physical. There is growing evidence, including findings presented in this report, that suggests mental health issues in the fishing industry are higher than in the general population (King *et al.*, 2015). The qualitative and anecdotal evidence which suggested that the mental health of those in the Australian fishing industry is poor and of concern (King *et al.*, 2015), propelled this project to quantify the state of mental health in the Australian fishing industry. Further, while both women and men are at risk, 86.9% of fishers are male. Given men, in general, commit suicide at a higher rate than women (Alston, 2012), the high male representation in the fishing industry makes mental health of particular concern.

While it may seem that heightened mental stress is an understandable consequence of working in a physically risky environment (Pollnac *et al.*, 2011), in this report we present self-reported drivers of stress that invite a more nuanced understanding of the stressors facing fishers. Namely, categories of stressors including fishery management red tape, governance uncertainty and access security (broadly termed, 'modern uncertainties'), are reported to have a more detrimental impact on the mental health of fishers than do factors such as isolation, bad weather and the physical dangers of working in the seafood industry (broadly termed, 'traditional risks').

Fisher 'attitudes' and circumstance also impact their health and safety. The self-employed nature of fishing and remuneration based on catch shares means that fishers may fall through the gaps of social security systems (Tomaszunas, 1992; Matheson *et al.*, 2001). High and variable costs and profits mean that fishers may prioritise fishing over health and safety (Emery *et al.*, 2014). The culture of self-reliance and the illusion of indestructability, particularly among males. While this may make fishers resilient, it also makes them less likely to prioritise health, adopt preventative health practices or to use health services, and they will usually wait longer before seeking medical assistance, particularly for issues of chronic poor mental health.

1.2. Development of the project

In 2009, the Department of Agriculture Fisheries and Forestry (DAFF), and the Research and Development Corporations, jointly published a 'Collaborative Partnership for Farming and Fishing Health and Safety: R&D Plan 2008-2012' (Chudleigh and Simpson, 2012). Among the stated objectives were the improvement of physical and mental health among farmers and fishers (p. v). Fisher mental health was flagged as being of particular concern: 'With regard to the wild catch industry, the issue of mental health is a priority. There has been very little research conducted into this area, but through contacts with industry peak bodies, the extent of the mental health problems in certain areas of each state are only starting to surface' (p. 12).

In 2011, the Rural Industries Research and Development Corporation (RIRDC) funded 'Staying Healthy: Behaviours and Services used by Farmers and Fishers' (Kilpatrick *et al.*, 2013). This project explored avenues and barriers to good health and well-being, focussing on the role of industry peak bodies as facilitators of health information. The report focussed on farmers, and only one fishing community, but found there was a need for specific attention to the physical and particularly the mental health of those in the Australian commercial fishing industry. This call to address fisher mental health was echoed in the Fisheries Research Development Corporation (FRDC) and Queensland Seafood Industry Association (QSIA) funded project, 'Identifying, Communicating and Integrating Social Considerations into Future Management Concerns in Inshore Commercial Fisheries in Coastal Queensland' (Shaw, Johnson and Dressler, 2008), which identified that 'health and well-being issues such as mental health problems, including suicide among Australian farmers, are well recognised as significant concerns associated with

that industry. The same recognition is required in planning for and working with commercial fishers' (p. 96).

In 2012, the Fisheries Research and Development Corporation funded the project, 'Staying Healthy: Industry Organisations' Influence on Behaviours and Services used by Fishers' (King, Kilpatrick and Willis, 2014). This project involved interviews and focus groups with health providers, policy workers and three groups of fishers in Victoria and Western Australia. The project both confirmed the urgent need for nationwide baseline data on mental health concerns in the commercial fishing sector, sought to identify the different health challenges faced by fishers compared to farmers, and the specific health requirements of fishers.

This project, **Sustainable Fishing Families: Developing industry human capital through health, wellbeing, safety and resilience**, directly builds on previous work by providing rigorous research and critical national baseline data on the health, safety and wellbeing of professional wild-catch fishers, while also developing and piloting a practical health literacy and behaviour change program to address the specific health and wellbeing requirements of fishers and their families. The project was comprised of two parts:

- A national survey of health, safety and wellbeing of the fishing industry
- A health literacy and behavioural change program, modelled on the Sustainable Farming Families™ program, and piloted with fishing families.

2. Objectives

The objectives of the project were:

1. To improve the health and wellbeing of fishing families by promoting safer and healthier work practices

2. To develop strategies to inform fisher families of appropriate physical and mental health care programs and information, including strategies to address barriers to uptake

3. To provide rigorous research that will raise the profile of the health issues and needs of Australian fishing families, and inform government, industry and health services of specific health issues and needs of, and effective support pathways for, fishing families as distinct from farming families

4. To develop a targeted, industry-led program that will address the health issues and needs of fishing families based on the proven Sustainable Farm Families™ protocol.

3. Methods

3.1 Overview

The project was split into two parts: A: The national health, safety and wellbeing survey of the Australian fishing industry; and B: The development and piloting of the health literacy program, Sustainable Fishing Families based on the National Centre for Farmer Health's (through the Western District Health Service), Sustainable Farm Families™ program. SFF was piloted in Victoria with both Victorian and South Australian fishing families.

In order to maintain clarity, reporting of the methods and results on the two components will follow separately.

3.2 Advisory committee

An Advisory Committee was established early in the project to advise on the development of the Sustainable Fishing Families Program, and on the final reporting for the FRDC project. The role description and Terms of Reference (TOR) were distributed via the various networks of those involved in the project, as well as the FRDC [Appendix 1]. It was determined the committee should comprise a balance of industry, health agencies, researchers, and at least three community members who are currently fishing or part of a fishing family.

Ten fishers, health professionals (both community and mental health), fisheries safety specialists and others were appointed to the Advisory Committee, by a selection committee made up of Tanya King (project PI) and Emily Ogier (FRDC Human Dimensions Research Subprogram).

The ten members of the Advisory Committee:

- Alex Abernethy (drug and alcohol advisor)
- Arthur Allen (fisher)
- Craig Fox (fisher)
- Gloria Jones (fisher)
- Jill Briggs (Affectus, formerly Rural Training Initiatives)
- Jim Fletcher (ex- Board Director, Bellarine Community Health; CEO WDHS incorporating NCFH from 2000–2014, during development of SFF™ program).
- Kate Barclay (marine social scientist, University Technology Sydney)
- Liz Hoare (Mind Australia, South Australia)
- Lynda Mitchelson (fisher)
- Stan Piperoglou (Director, Suicide Prevention Australia)

Additional visitors to the Advisory committee meetings included Brad Roberts (AMSA), Ross Hodge (Southern Rock Lobster Ltd, Clean Green Program)

PI Tanya King, CIs Kirsten Abernethy and Susan Brumby, and Tracey Hatherell from NCFH were also members of the Advisory Committee.

One applicant noted their reason for wanting to be part of the committee:

> 'Being a part of a century old fishing family [I have experiences] that I believe could be useful to the committee, [including] the shift from [fishermen] being providers of food in the war-torn times, to now the

industry being undervalued and underappreciated. My aim would eventually be working with community and environmental groups to raise awareness of the fishing industry through education'.

The group met twice by phone (an initial meeting, and a post survey meeting), once by circulation (to review the draft final report), and once in person (in the project design stage). The in-person meeting was held on the 10th March, 2017, at the Deakin Downtown, Melbourne.

The purpose of the project design meeting was to:

1. To discuss feedback on adapted Sustainable Fishing Families Workbook chapters used for the program. The focus was on Chapters 4. Fisher Health and Safety, 6. Stress Less, and 9. Mental Health;
2. To explore strategies for maximising the potential to gather useful information about mental health in the industry via workshop discussions;
3. To brainstorm recruitment strategies.

Figure 2. Members of the Advisory Committee. From left: Gloria Jones, Liz Hoare, Brad Roberts (guest), Jill Briggs, Ross Hodge (guest), Alex Abernethy, Jim Fletcher, Katarina Munksgaard (Project research assistant)

The key contribution of this meeting was to discuss the differences between the agriculture and fishing sectors, the fishing industry and its particular needs, and the health and wellbeing topics covered in the Sustainable Farm Families^{TM} program. Advisory Committee members were provided with a copy of the adapted Sustainable Fishing Families Workbook, with the request to pay special attention to the state of health, mental health, and safety chapters which had been significantly reworked to incorporate industry-specific context and research.

Several suggestions were made about the chapters, including the need to standardise nomenclature, simplify medical terminology, and to clarify a number of terms and concepts that were outside of the knowledge of the group. While there was good discussion during the meeting, there was general agreement that the project was on the right track.

Another key discussion topic was in relation to the recruitment of participants for the Sustainable Fishing Families pilot program. Abernethy and King noted the difficulty in recruiting participants, and Gloria Jones made the suggestion to invite fishers from interstate to participate.

3.3 Ethical Considerations

Both Part A (National survey) and Part B (Sustainable Fishing Families Program) of the Project underwent ethical assessment. The National survey was assessed by the Deakin University Human Research Ethics Committee. Given the sensitive nature of the national survey, special care was taken to ensure the privacy and anonymity of all participants. The modification of the Sustainable Farm Families™ program to be suitable for fishing families was assessed via a modification to the existing South West Healthcare ethics approval, noting the adaptation for use by another industry group. See Appendix 2 for the Plain Language Statement and Consent form.

3.4 A. National health, safety and wellbeing survey of the Australian fishing industry

The first of the two key components of this project was the national survey of health, wellbeing and safety among professional wild-catch fishing industry members. The survey was a 13-page self-completion questionnaire booklet, containing 56 questions (See Appendix 3 for full survey).

3.4.1 Questionnaire design

The questionnaire was designed drawing on a number of sources and studies that had conducted health and wellbeing surveys in agricultural, rural and fisheries contexts. These included in particular, the 'Regional Wellbeing Survey' conducted by the University of Canberra (Centre for Research and Action in Public Health, 2018); and an aligned project in the United Kingdom led by CIs Dr Rachel Turner (University of Exeter), with Cornwall Council Public Health, the Fisherman's Mission and Cornwall IFCA which undertook a survey of Cornish fishers to explore health, access to healthcare and potential barriers to access in 2017 (Turner and Szaboova, 2017).

The survey was developed by the research team, and also benefitted from a technical workshop held at Deakin University Waterfront campus. Participants in the workshop included members of the project team: Tanya King, Kirsten Abernethy, Sue Kilpatrick, Katrina Munksgaard, Sue Brumby and Tracey Hatherell. Emily Ogier from the FRDC Human Dimensions Research Subprogram also participated. Draft surveys were sent out to peak fishing bodies asking for areas in which they would like to gather information and for comment, and relevant modifications to the survey were made. King and Abernethy also piloted a number of iterations of the survey with commercial fishers across Victoria.

As well as questions drawn from other relevant health and wellbeing studies (for comparative purposes), mental health was assessed using the Kessler Psychological Distress Scale (also known as the K10 test) developed by Ronald Kessler in 1992 (Andrews and Slade, 2001; Kessler *et al.*, 2002). The K10 is a standard set of ten questions used widely as a measure of unspecified psychological distress in the anxiety-depression spectrum in Australia including by the Australian Bureau of Statistics, as well as internationally. The K10 was chosen above other similar measures because of its simplicity, brevity, and alignment with key mental health surveys conducted in Australia including the Australian National Survey of Mental Health and Wellbeing, annual Victorian population health surveys (and similar in other states), as well as the Sustainable Farm Families™ evaluations. This means there is some ability to use the findings of the national survey of fishers and directly compare with other segments of the community providing the sample characteristics are sufficiently well known and the sample size is large enough.

A key difficulty in designing the survey was to settle upon a language with which to talk about various aspects of a fishing industry business. For example, a 'licence' may be referred to as a 'concessions' in some jurisdictions, while a 'concession' may or may not refer to quota holdings. Likewise, the diversity of fishing operations across the country meant that a range of options had to be provided in order to capture the relevant information of those who participated in the survey.

3.4.2 Recruitment

Wild-catch fishers were recruited to participate in the survey through jurisdictional peak bodies, who hold the names and addresses of their members. Deakin University sent each organisation a required number of stamped survey envelopes which included a printed survey with a reply-paid return envelope (addressed to Deakin University). The organisations took responsibility for addressing the survey envelopes and posting them to their wild-catch members. A set of stamped reminder letters were also given to organisations to be sent 3-4 weeks after posting the survey. Working through peak bodies ensured confidentiality as Deakin University nor the project team had access to any participant details, only the returned anonymous surveys.

A key challenge for undertaking a national survey was the distribution of the survey to as many fishers as possible across all jurisdictions. Wild-catch peak bodies have different representation and methods of member administration. Some peak bodies represent aquaculture members as well as wild-catch. The survey was directed to wild-catch fishers only so incidental surveys received from aquaculturists were removed from the dataset.

It is important to note that not all Australian fishers would have received a survey. Some jurisdictional representative organisations are compulsory for licence and quota owners (Victoria, Tasmania, Western Australia, Northern Territory) while some are voluntary and there may be more than one in a jurisdiction (South Australia, New South Wales, Queensland, Commonwealth). In addition, each organisation differs in terms of who they keep contact records for – they may be licence owners, quota owners, processors, operators and/or crew (not typical). Western Australia is a particular case. The Western Australian peak body, Western Australian Fishing Industry Council (WAFIC) have access (via DPIRD) to the list of everyone registered to work on a commercial fishing boat including deckhands, which was used it in their participation in this project. As such, the proportion of deckhands surveyed in Western Australia was higher than in other States and Territories (although every jurisdiction recorded surveys from deckhands).

The key representative bodies for all jurisdictions were contacted to participate in the survey (https://www.afma.gov.au/contact/industry-association-contacts). For jurisdictions with non-compulsory peak body membership, this required contacting multiple organisations, associations, and some large fishing companies, which required some chain-referral sampling (identifying potential recruits via the networks of existing participants). Organisations needed to donate their time to create contact lists and send out surveys and reminder letters, so not all organisations had the capacity and agreed to do this. To ensure Commonwealth fisheries participation, sector organisations were contacted as well as large integrated fishing companies who held multiple licences across multiple fisheries around Australia. A total of 4584 surveys were distributed and once these had been allocated, as proportionally as possible across jurisdictions, further organisations were not contacted. Surveys were sent to organisations in mid- March 2017 and the survey was closed on 30 June 2017. Table 1 shows the peak bodies and associations who were sent surveys, and the number of surveys sent through each organisation.

Table 1. Number of surveys sent to each peak body, industry association and companies

Jurisdiction	Organisation	No surveys
NSW	Professional Fishermen's Association	250
	Wild Caught Fishers Coalition	250
NT	Northern Territory Seafood Council	177
QLD	Queensland Seafood Industry Association	100
	Moreton Bay Seafood Industry Association	25
SA	Marine Fishers Association	330
	Southern Fishermen's Association	55
	Southern Rock Lobster Limited	260
	Spencer Gulf and West Coast Prawn Fishermen's Association	42
TAS	Tasmanian Seafood Industry Council	615
VIC	Seafood Industry Victoria	600
WA	Western Australian Fishing Industry Council	1684
Commonwealth	South East Trawl Fishing Industry Association	30
	Northern Prawn Fishing Industry	25
	Commonwealth fishing companies	141
TOTAL		**4584**

To try to capture fishers that would not receive a paper survey, an online survey was also made available. Industry organisations who did not have the capacity to send paper surveys made their members aware of the online survey (e.g. Commonwealth Fisheries Association, various Co-operatives, Fisheries Research and Development Corporation, Women in Seafood Australasia formally WINSC). The online survey was also advertised widely across industry publications (e.g. industry magazines and newsletters) and the media (e.g. ABC rural radio, Radio National). The online survey was open between 1 March and 30 June 2017.

A key oversight in the recruitment process was the omission of Tasmania from the initial printed survey Q36 (Where do you fish most of the time?). As a result, respondents wrote Tasmania in the margins of the survey. However, this may account for a number of responses (N=66) not having an identified location (see Table 2). An apology and clarification was made to the Tasmanian Seafood Industry Council (TSIC), and was printed in their industry magazine. The clarification was also made to fishers who contacted the project. The online version of the survey was fixed. We do not feel this error compromised the validity of the survey, given that Tasmania returned the third greatest response rate.

The complexity of the survey recruitment process, and the lack of access to all fishers, especially non-licence owners (operators and crew), highlighted the need for better accounting of the fishing industry. An unintended recommendation of this project is for each jurisdiction to have a database of all fishers (licence owners, operators and crew). This would aid in conducting industry surveys, which currently are unable to recognise the views of all fishers. Furthermore, it would help in improving engagement with the industry and for information provision, such as health and safety information.

3.4.3 Questionnaire overview

The first page of the questionnaire covered the aims of the study and specified the organisations involved in the research and the funding body. It also referred to the approval granted to the research by the Deakin University Ethics Committee and provided respondents with the FRDC project number (2016-400) and contact details should they wish to lodge a complaint. Participants were informed consent was implied by the completion and return of the survey.

The questionnaire was divided into five sections. The first three sections each asked about a different aspect of the respondent's health, wellbeing and safety practices and perceptions, while the last two sections focussed on the role of the respondent in the industry:

Section 1. Your Personal Health and Wellbeing Status

Section 2. Your Personal Health and Wellbeing Behaviours

Section 3. Health, Wellbeing and Safety in Your Fishery

Section 4. Your Role in the Fishing Industry

Section 5. Participant Information

In each section, a range of questions was asked relating to the topic named in the section, most of which related to the experiences of the individual completing the survey, or the perspective of that individual on their particular fishery and their colleagues. Most questions involved the respondent nominating information about their health status, prior diagnoses, health and safety behaviour or attitude to health and safety issues. Most questions involved choosing the response they considered most suitable from a set of pre-defined answers. A small number of questions were open questions. The questionnaire also contained a comprehensive set of demographic background variables covering the respondent, their business and their family situation. See Appendix 3 for full survey.

3.4.4. Questionnaire analysis

Data were analysed using descriptive statistics. Graphs have been chosen to present the data for most question for ease of reader interpretation. Where relevant, comparisons have been to results from the ABS National Health Survey 2014-2015 (Australian Bureau of Statistics, 2015) which sampled 19,259 people representing the national population in terms of location, age and gender. As with the fisher survey for this project, the National Health Survey uses self-reporting of health conditions and diagnoses. Chi squared tests were used to compare the National Health Survey results with the fisher survey. Differences significant at the 5% level are reported. It should be noted that the fisher population and our broadly representative sample, include more males than the national population, and fewer older people (65 years plus). Many health conditions are more prevalent among older adults and many mental health issues are more prevalent among younger women (Australian Bureau of Statistics, 2015), and so it would be expected that the fisher survey population results would show better physical and mental health results than the national survey (see 4.1.2).

3.5 B. Sustainable Fishing Families

3.5.1. Sustainable Farm Families™

This project leveraged off the highly successful and innovative Sustainable Farm Families™ program (Brumby, Willder and Martin, 2009), operated by the National Centre for Farmer Health (NCFH), through Western District Health Service (WDHS), to develop an evidence-based health and safety training program suitable for Australian fishing families, called Sustainable Fishing Families.

The Sustainable Farm Families™ program has been changing the way Australian agriculture views their health, wellbeing and safety, and how health professionals work with farming families, since 2003. The Sustainable Farm Families™ program has been delivered to over 2500 farmers across Australia, with Victoria being recognised as a leader in farming family health, health promotion and prevention. The Sustainable Farm Families™ program focuses on the 'triple bottom line'

model and the overlooked human factor within farming enterprises. Results of the program have revealed a great deal about issues affecting agricultural industries and their significant health and social issues. This has provided important insight into the health and wellbeing of farming families, and the impact of the Sustainable Farm Families™ model. For more information, see http://www.farmerhealth.org.au/

The Sustainable Farm Families™ model involves health assessments and reviews over a period of time (12-18 months). The provision of industry-specific health, safety and wellbeing modules (information, training, health assessments and progress tracking), are delivered via workshops. Participants are encouraged to reflect and also to develop their own action plans to improve their health, safety and wellbeing, and that of their families and businesses. Health professionals are trained to deliver the Sustainable Farm Families™ program, and to maintain consistency and rapport, the same health professionals and facilitator are used for all workshops. This is seen as an important success factor.

3.5.2. Adaptation of the Sustainable Farm Families™ program for fishing families

To initially inform the adaptation of the Sustainable Farm Families™ program for fishing families, an extensive literature review of academic and grey literature was conducted. See Appendix 4 for Bibliography. The review included international and Australian academic and grey literature. Available statistics on the physical and mental health conditions of wild-catch fishers and on safety in the fishing industry were extracted for the program workbooks and presentations. The changes made to the program were reviewed by the Advisory Committee and reflected upon iteratively throughout the delivery of the program.

While there are many commonalities in health issues between farmer and fishers, fishers' work, life, and experiences can be different to those faced by farmers and agricultural workers. For example, fishers can spend significant time away from home and have different root causes to health issues such as 'Nutrition and Diet' (Ch 5) or 'Physical Activity' (Ch 11) to those faced by farmers. These may depend on the fishery and the number of days at sea, and the role of the fisher (skipper or crew). Each Chapter (or module) and corresponding presentations of the program needed to be adapted to reflect these differences, and to provide examples that were relevant to fishers.

Significant changes were made to three Chapters:

- Chapter 1. The State of Fisher Health was updated to include current Australian and international literature on the health issues facing fishers. The chapters include information and table group discussion questions that were altered to suit fishing family participants. In Chapter 1, topics included: Unpacking reasons why fishers living in regional and rural areas may have different health issues compared to non-fishing urban dwellers (focusing on both the job/lifestyle of fishing and where they live); the differences between fishing and farming health; documented physical health issues in fishers and causes; and ways to improve fishing family health.
- Chapter 4. Fisher Health and Safety required updating and new information relating to fishing was add as the safety challenges of fishing are very different to farming. The chapter was based on a literature review of Australian and International papers and grey literature. Brad Roberts from AMSA was also instrumental in providing information on the latest safety advice and was present at the relevant workshop, bringing the latest safety equipment to demonstrate to the participants.

- Chapter 9. Mental Health was updated and to specifically incorporated recent research findings on the mental health challenges faces by fishers, which found differences from the agricultural sector (Kilpatrick, King and Willis, 2015).

The modification of the workbooks and the workshop presentations was a significant undertaking in this part of the project, and required several iterations reviewed by Deakin researchers, NCFH co-investigators, and the Advisory Committee. Canvassing, assessing, synthesising and incorporating relevant health information from both Australia and international fishing health research represents a significant contribution to health and wellbeing understanding housed at the NCFH. The workbooks themselves remain the intellectual property of the NCFH for their use in future Sustainable Fishing Families programs, but the adaptation of the already proven Sustainable Farm Families™ program is a significant achievement for this project and provides a clear benefit to those in industry who may be the future recipients of the Sustainable Fishing Families Program.

3.5.3. Sustainable Fishing Families Program overview

The Sustainable Fishing Families program followed the same format as Sustainable Farm Families™ and consisted of three face-to-face workshops (1 x 2 day workshop; 2 x 1 day workshop), separated by six months. Each workshop was made up of sessions designed to focus on three key elements: (i) health assessment and review, (ii) information sharing and group learning, and (iii) reflection and action. These elements formed the basis of every program and workshop providing a repeatable and transferable design across industries, states and communities and are shown in Figure 3 (Brumby, 2013). A brief description follows:

- Health assessment and review: A body system review and physical assessment was offered to every participant by the qualified nurses from NCFH at each workshop (e.g. blood pressure, cholesterol, Body Mass Index or BMI). Participants were also provided with their own health results and information about their clinical indicators, health and safety behaviours at each workshop based on pre-workshop health surveys filled out by participants.
- Information sharing and group learning: This was supported by session topics, the Sustainable Fishing Families program workbook, and table group discussions and activities. Session topics were deliberately ordered to assist participants make sense of not only their own body systems, but the role that rurality or fishing played in causing illness and worsening risk factors.
- Reflection and taking action: The program encouraged participants to keep a learning log to reflect on their health assessment and current behaviours. In each workshop, participants identify areas for taking action (e.g. doing more exercise, spending more time relaxing), and then report back on progress in the following workshops.

Figure 3. Sustainable Farm Families™ model (Brumby, 2013)

Program workbooks accompanied the workshops and were provided to each participant. Workbooks included information, and space to record their health and wellbeing concerns, goals, measurements, achievements. The Sustainable Fishing Families program workbook chapters covered:

- Chapter one: State of fisher health
- Chapter two: Cardiovascular disease
- Chapter three: Diabetes
- Chapter four: Fisher health and safety
- Chapter five: Nutrition, diet and alcohol
- Chapter six: Stress less
- Chapter seven: Wise women's health
- Chapter eight: Wise men's health
- Chapter nine: Mental health
- Chapter ten: Cancer
- Chapter eleven: Physical activity
- Chapter twelve: Respiratory health

The Sustainable Fishing Families program was monitored in a number of ways through the participants. Each module was evaluated using a module evaluation form; and informal discussions were held in the workshops, especially for modules that were significantly different to the original Sustainable Farm Families™ modules. Health data and indicators from physical assessments were also recorded and changes monitored. Not all results are able to be presented in the results due to confidentiality and the small numbers, but records are kept by NCFH and if more programs are completed, it is possible results may be analysed and publicly reported.

Using these assessment and data collection methods, the project team collated information on the physical health status of de-identified participants with statistical analysis of the data (derived from questionnaires/focus groups and observations) about their own health perceptions, their initiatives to improve their health, their business decisions, and other aspects of their lives. The research has also been used to gather fisher feedback and to improve the Sustainable Fishing Families program's content and delivery.

3.5.4. Program recruitment

Recruitment of fisher participants was the most difficult aspect of getting the pilot program running, although according to the NCFH staff this was to be expected in their experience of the Sustainable Farm Families™ program, and especially because it was a pilot. Sustainable Farm Families™ also had the same recruitment difficulty in the early stages before the program gained industry recognition and industry champions who are able to convince their peers to participate. Convincing self-employed and small business people in any industry to take a total of four days 'off' to focus on themselves is challenging. Focussing on the benefits the program has for business outcomes was one strategy used for encouraging fishing families to sign up, that it is an investment in the future of their business. However, it required consistent encouragement from the project team.

Additionally, recruiting fishing industry families was particularly difficult because of the unpredictable nature of the job and this was discussed at length with fishers, both who were part of the program but also with other industry contacts. If the weather is fine, it is very difficult for a fisher to prioritise participating in a health literacy program. Fishers are making business decisions day-to-day with unpredictable weather patterns, market conditions, for example. It is difficult to reconcile this time horizon with the program workshops which are inflexible because of the planning and logistics required. The fishing families who did participate were committed to the program and their health.

Our initial intention was to conduct the program only with fishing families in the Bellarine region so that it would be logistically easy for them to attend. The Bellarine was selected because the project team have a good network with these fishers and also lived locally. The project initially contacted all fishers in the area (including inshore netters, rock lobster fishers, trawlers, mussel farmers). To encourage participation of fishers in the local area, an information session was held so that potential participants could ask questions and learn more about the program before committing. Two former Sustainable Farm Families™ participants were invited to speak about their experiences of the program. One had worked as a commercial fisher (as well as a farmer) and knew some of the prospective participants. These former participants gave a powerful account of the benefits of the Program and encouraged others to participate. The power of word- of-mouth in generating support for the Sustainable Fishing Families Program will be important moving forward and finding other groups willing to participate.

The aim was to have 15-20 participants in the pilot program. However, as the start date drew nearer, they began to withdraw for various reasons, fishing related and for other unforeseen circumstances. Only four participants in the program were from the Bellarine. We recruited one fisher from Port Fairy Victoria, and two from South Australia who were very interested in the program.

On reflection, there may be ways to improve the uptake of the program:

- Conduct the program in fishing communities (it is important that it is conducted locally) with a larger pool of fishers
- Conduct the first workshop (which is 2 days) during the closed season if the fishery has one. Participants are more likely to return once they have started the program (experience of the Sustainable Farm Families™ and from discussions with pilot participants)
- Try to have a homogenous group of fishers (e.g. all abalone divers) as much as possible to be able to work out the best times to conduct workshops that suits the particular fishery
- Recruit a champion fisher who will encourage peers to participate

3.5.5. Pilot Sustainable Fishing Families Program

The Sustainable Fishing Families pilot program was held at the Bellarine Community Health Centre, in Drysdale. Workshop one: 20th and 21st of April 2017; workshop two: 12th of October 2017; workshop three: 19th April 2018. Having the workshops spread over a year was important to allow for participants to have time in between to work on their action plans.

Staff:

The number of staff required to conduct the program was more than sufficient (n=6), and it would be challenging to run a program without at least three staff. Each staff member had specific roles throughout each workshop. We created facilitation schedules to ensure everyone knew what they were doing at all times. There is a lot to cover each day so it was important to keep to time in order to get through all the content. However, this was more flexible than usual for Sustainable Farm Families™ given it was a pilot and to allow for discussion of areas that needed more time.

The roles of the staff were:

- Facilitator: Tanya King
- Qualified Nurses specialised/or experienced in farmer health (presented health modules, clinical assessments): Susan Brumby and Alan Lowe
- Module presenter: Kirsten Abernethy
- Note-taker: (taking notes on butchers paper in front of the group): Kirsten Abernethy/Tanya King
- Data/Medical Records: (collating medical records generated during health checks): Tracy Hatherell
- Scribe, and general assistant: (taking notes on a computer, logistics, organising catering): Kat Munksgaard

Workshop Schedule:

A typical workshop schedule consisted of:

- Approximately a month before each workshop, participants were mailed the pre- workshop paperwork from the NCFH. This included:
    - Workshop agenda
    - Plain language statement and consent form (1st workshop only)
    - Consumer information sheet (for contact details, GP, referrals) (1st workshop only)
    - Profiles Health behaviours/health conditions questionnaire (smoking and alcohol consumption, continence, breast screen, pap smear, prostrate screening, respiratory, physical activity, vision, hearing, bowel screening, falls, dental, and overall health, health conditions and medications)
    - Depression Anxiety Stress Scale questionnaire (DASS 21)
    - Fishing safety survey
    - Your information: It's private (Privacy information) (1st workshop only)

- Participants fasted from 10pm the night before the first day of the workshop so that accurate clinical assessments could take place. Participants were scheduled to arrive at the workshop early, at pre-arranged times when clinical assessments were carried out by

qualified nurses (Brumby and Lowe). Results were recorded in patient histories and referrals organised if necessary. The clinical assessments included tests for:

- Cholesterol
- Blood glucose level
- Sight
- Weight and height assessment (Body Mass Index)
- Waist hip ratio
- Blood pressure
- Body fat percentage
- Respiratory
- Full physical assessment process was also offered which explores genetics and history, heart disease risk, respiratory condition, gastrointestinal function, musculoskeletal health, health screening discussion, skin assessment, health and wellbeing, and referral to appropriate health service if necessary

- After the assessments, the participants were provided with a healthy breakfast. A healthy morning tea, lunch and afternoon tea were also provided for each workshop.
- Once all the health checks are completed the group assembled, the workshop began as a set of interactive modules corresponding with the chapters in the workbook (See 3.5.2). The sessions are very interactive, with a mixture of information presentation, participant reflection, table-discussions and industry-specific reflections on the topic.
- At the end of each workshop, participants set individual and achievable goals for the next period before the following workshop. These might be, for example, goals relating to increasing exercise, weight loss, resting and leisure time, spending more time with family, going to the GP for a further health check. Then, at the beginning of workshops two and three, participants rate their progress against their goals from 0–5 according to a 'Behaviorally Anchored Performance Scale' (Zastrow, 2010): (0: Did absolutely nothing; 1: Thought about it; 2: Got started for a few weeks; 3: Followed through with moderate results; 4: Had an impact that others could see; 5: Great results! Beyond my expectations). This was done as a group exercise.

4. Results

4.1 A. National health, safety and wellbeing survey of the Australian fishing industry

We present descriptive statistics in this report. Further analysis will be on going with results released in peer-reviewed journal articles. Areas for further investigation include multivariate analyses. For example, we intend to explore health and health behaviour differences for different locations, fishing activities and role, and demographic factors. The project intends to make the data publicly available after a reasonable period which allows for the project team to analyse and publish the data.

4.1.1. Response rate and representation of the fishing industry

A total of 4584 questionnaires were posted (Table 2), with 703 of the paper questionnaires returned, giving an estimated response rate of 15.3%. An actual response rate is not possible as the paper questionnaire invited fishers to complete either the paper or online version. In addition, the online survey was widely publicised so that fishers who were not covered in lists provided by peak bodies could participate if they weren't sent a paper copy. In addition to the paper surveys, 169 online surveys were completed. A total of 872 surveys were available for analysis (Table 1). The sample is broadly representative of the industry, as explained below.

The representativeness of the survey sample can be determined by comparison with Australian Bureau of Statistics (ABS) 2016 Census data and data from the ABS Labour Force Survey as reported by ABARES (Mobsby and Koduah, 2017). It is estimated from 2016 Census data that there are a total 9,745 people employed in wild-catch fishing and aquaculture in 2016, with 5,777 employed in wild-catch fishing (assuming the categories of 'Fishing, hunting & trapping' and 'Other fishing' can be attributed to wild-catch) and 3968 employed in aquaculture (onshore and offshore). 845 of the survey responses were from wild-catch fishers, with only 27 from aquaculture operators, which is expected given that the survey targeted wild-catch fishers (Table 1).

When comparing ABS data with the survey data by jurisdiction, Western Australia and Victoria are over represented in our sample. Queensland, South Australia, Northern Territory, and to a lesser extent New South Wales are underrepresented. Tasmania is underrepresented, particularly when aquaculture is excluded. Tasmania makes up 87.1% of the national aquaculture workforce, with many of these people being employed on fish farms and unlikely to have received the survey as only the license holders received surveys (Table 2).

Table 2. Number and % of responses, and estimated % of fishing and aquaculture industry from census data, by State/Territory

State/ Territory	Total responses received (postal + online)	% of total responses by State/Territory †	% of fishers (excluding aquaculture)*†
NSW	136	15.6%	17.8 (18.3) %
NT	7	0.8%	2.5 (3.8) %
Qld	76	8.7%	18.9 (22.1) %
SA	90	10.3%	15.8 (16.8) %
Tas	152	17.4%	21.7 (9.1) %
Vic	128	14.7%	9.0 (10.0) %
WA	217	24.9%	13.8 (18.9) %
ACT	0	0	0.0 (0.0) %
Unknown	66	7.6%	

** Source: 2016 Census data as reported by ABARES, Table 49 (Mobsby and Koduah, 2017)*
† Totals may not add up due to rounding

The 2016 Census also collected information on employment in the wild-catch sector by 'category'. The national total by category appears below in Table 3. The survey of fishers asked for 'gear used in main fishery'. The survey question allowed multiple responses (N=1122), making direct comparison with Census data difficult. The survey also gave different list of gear types informed by industry experts, and it appears that the survey respondents may have used different definitions for gear categories for the survey than those used by the ABS. For example, in the survey, trawling and netting each are more than the total number employed in the ABS combined fish trawling, seining and netting (although prawn fishing is mostly done by trawl), and line fishing is also greater than the ABS total for the category. It is unclear in the ABS data what constitutes "Other fishing' and 'Fishing, hunting and trapping' but it may be that some of the discrepancies may be accounted for in these categories. Table 3 shows the differences between ABS and survey data and gives some indication of survey representation of gear types.

Table 3. Comparison of ABS Census data of fishing and aquaculture gear categories compared to survey categories

2016 ABS Census data*			**Survey data**			
Gear category	*N*	*%*	*Gear used in main fishery*	*No. responses*	*% responses*	*% Cases*
Rock lobster and crab potting	1,106	19.14%	Pots or traps	344	30.4%	42.6%
Line fishing	58	1.00%	Line (e.g. longline, troll, rod and reel, dropline, jig)	242	21.4%	30.0%
Fish trawling, seining and netting	80	1.38%	Trawl	99	8.7%	12.3%
Prawn fishing	392	6.79%	Net	263	23.2%	32.5%
Other fishing	3,144	54.42%	Dive	96	8.5%	11.9%
Fishing, hunting and trapping	997	17.26%	Hand collection (no boat)	27	2.4%	3.3%
			Dredge	14	1.2%	1.7%
			Pump	7	0.6%	0.9%
			Other	30	2.6%	3.7%

** Source: 2016 Census data as reported by ABARES, Table 49 (Mobsby and Koduah, 2017)*

Men greatly outnumbered women in terms of survey responses, with 4.6% of women completing the survey (Appendix 5, Fig 5.1). ABARES report the number of fishers by gender for 2015–16 which uses ABS data (Mobsby and Koduah, 2017), and reports that women make up 7.2% of the commercial fishing industry full time jobs. The survey is consistent with males outnumbering females in all occupations associated with the fishing industry (Australian Bureau of Statistics, 2017).

77.8% of respondents worked full time in the industry (Appendix 5, Fig 5.2), which is consistent with data reported by ABARES which estimates that 77.6% 0f the fishing workforce works full time (Mobsby and Koduah, 2017).

4.1.2. Individual and household demographics

The individual and household demographics are presented to give an understanding of the survey sample, and are discussed, where possible, in relation to relevant 2016 ABS statistics to further understand representation of the sample. It is important to understand whether and how the survey sample compares with the Australian population and should be kept in mind when

comparing fisher health with population health statistics. The results presented in this section are unable to be compared with the commercial fishing statistics presented by ABARES (Mobsby and Koduah, 2017). The associated figures for this section are presented in Appendix 5.

The vast majority of respondents were between 30 and 64 years of age (80.4%) (Appendix 5, Fig 5.3), compared to only 70% of employed Australians in this age range at the 2016 Census. This suggests the fishing industry may be older than the workforce as a whole (Australian Bureau of Statistics, 2017) (see 3.4.4).

94% of survey respondents were born in Australia (Appendix 5, Fig 5.4). Of those who were not, the most common country of birth was the United Kingdom (2.2%), followed by New Zealand (1.3%) (Appendix 5, Table 5.1). At the 2016 Census 66.7% of people were born in Australia (Australian Bureau of Statistics, 2017). The percentage of survey respondents identifying as of Aboriginal or Torres Strait Islander origin (2.9%) (Appendix 5, Fig 5.5) approximately corresponds with the national percentage of people identifying as being of Aboriginal and Torres Strait Islander origin, which was 2.8% at the 2016 Census (Australian Bureau of Statistics, 2017). Over three-quarters of survey respondents (76.0%) described their ancestry as Australian. English was the second most reported ancestry at 26.6% while 5.9% and 5.2% were of Irish and Italian descent, respectively (Appendix 5, Fig 5.6). Data collected by the Australian Bureau of Statistics at the 2016 Census shows that the most common ancestries in Australia are English 36.1%, Australian 33.5%, Irish 11%, Scottish 9.3% and Chinese 5.6% (Australian Bureau of Statistics, 2017). When asked if respondents considered themselves a religious person, 82.7% of those who responded to the question said 'No' while 17.3% said 'Yes' and 7.62% of all respondents skipped this question (Appendix 5, Fig 5.7).

21.4% of those who responded to the survey had finished school before Year 10, and for most of those surveyed, Year 10 was the highest level of school. When asked about highest qualification, 56.3% held a Certificate, Diploma or Advanced Diploma level qualification and 7.9% a Bachelor degree or above (Appendix 5, Fig 5.8, 5.9). Masters and other fishing qualifications including for deck hands are Certificate, Diploma or Advanced Diploma level. Of people aged 15 and over in Australia, 8% reported having Year 9 or below as their highest level of qualification, 24.7% had completed a Certificate, Diploma or Advanced Diploma and 22.0% a Bachelor degree or above (Australian Bureau of Statistics, 2017).

Only 13.4% of fishers reported that they live alone while 86.6% live with others (Appendix 5, Fig 5.10). Nearly half of those surveyed reported that they were the sole contributors to their household's income (Appendix 5, Fig 5.11), though it is relevant to note that many of those operate a family business in which other people (particularly spouses) contribute by doing the administrative work (Figure 12). The vast majority of respondents were married (Appendix 5, Fig 5.12).

4.1.3. Role in the Fishing Industry

More than three-quarters of survey respondents were active fishers (Figure 4). Other responses mainly described management or administrative roles, or casual/occasional work. Most respondents were skippers or in charge of the harvesting operation (80%), with 15% of respondents identified as crew (Figure 5).

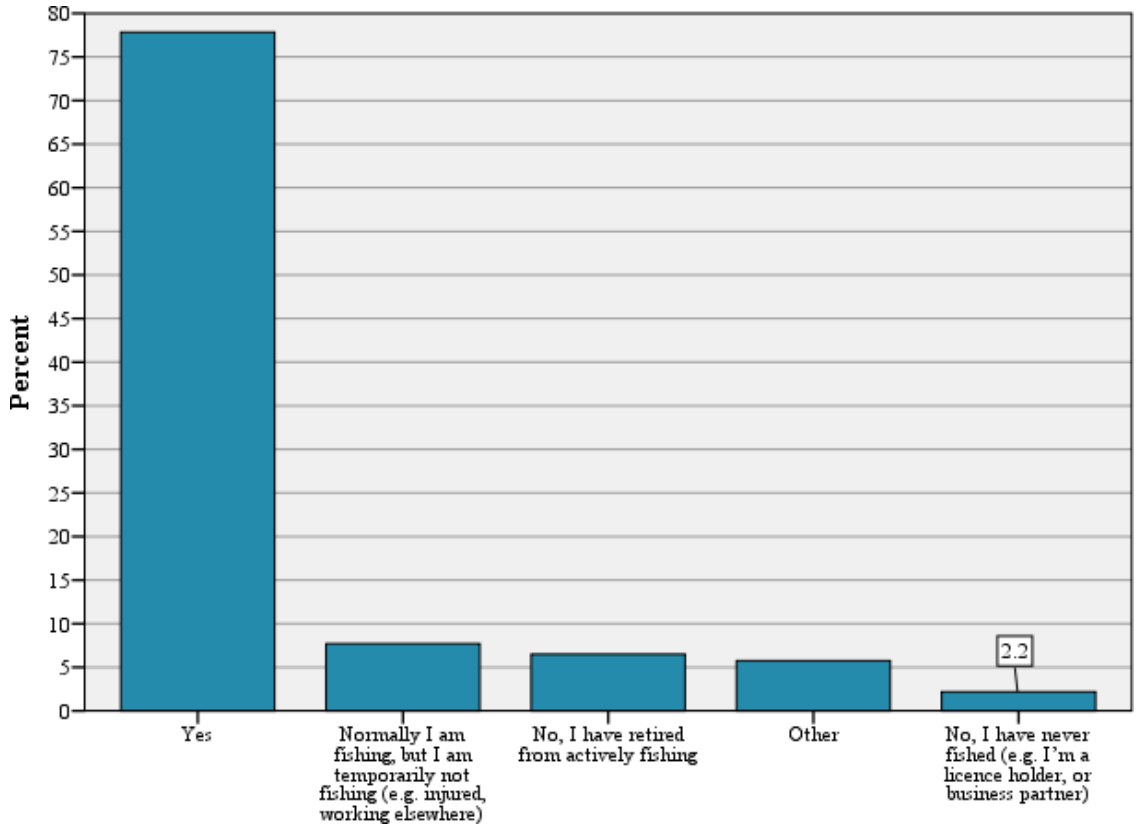

Figure 4. Level of fishing activity (N=817)

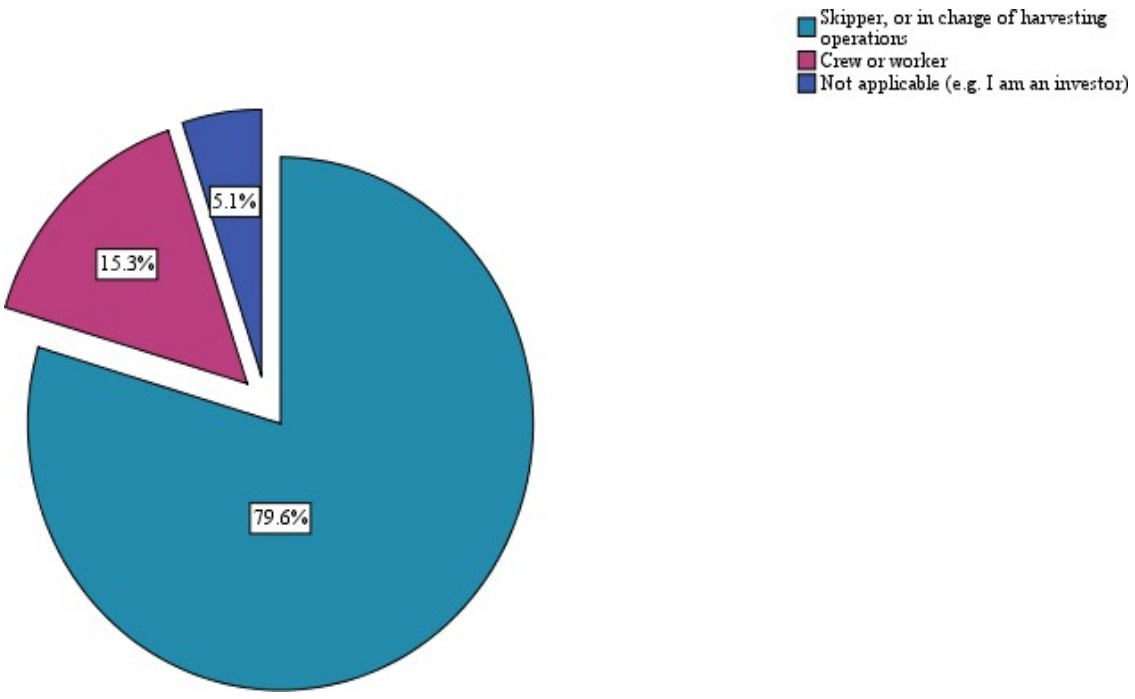

Figure 5. Respondent main role within fishing industry (N=810)

Most of the respondents owned a licence or concession (Figure 6). Almost half of the respondent owned quota. Just over 20% of respondents lease quota. Just over 45% said they don't own or lease quota which can mean the fishery is not a quota fishery or the respondent was crew (Figure 7). Note also that respondents could appear in more than one category; for example they could both own quota and lease it to someone else, or own quota and lease additional quota. Three quarters of respondents owned a boat (Figure 8). These results are likely to reflect the survey recruitment, which invited respondents through peak bodies whose membership tend to be those who own a licence and who would also be more likely to own a boat. Almost three quarters of respondents owned other fishing, harvesting, or processing gear (e.g. pots, nets), worth more than $5,000 (Figure 9).

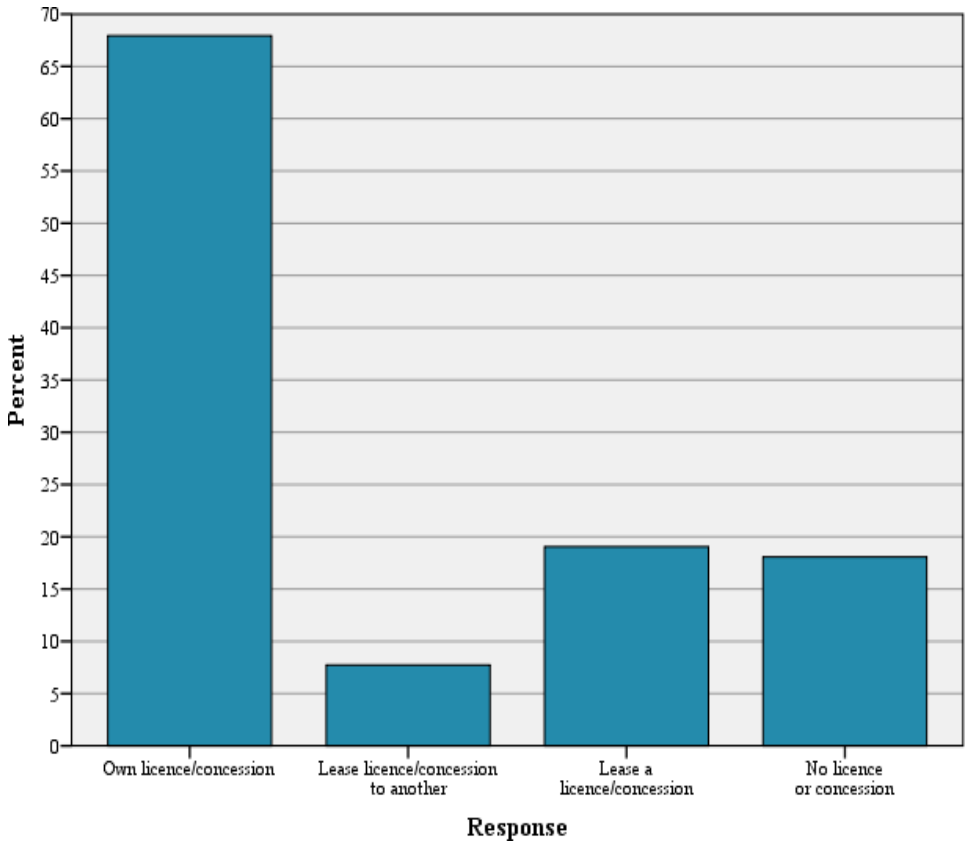

Figure 6. Respondent ownership of fishing licence/concession (N=814)

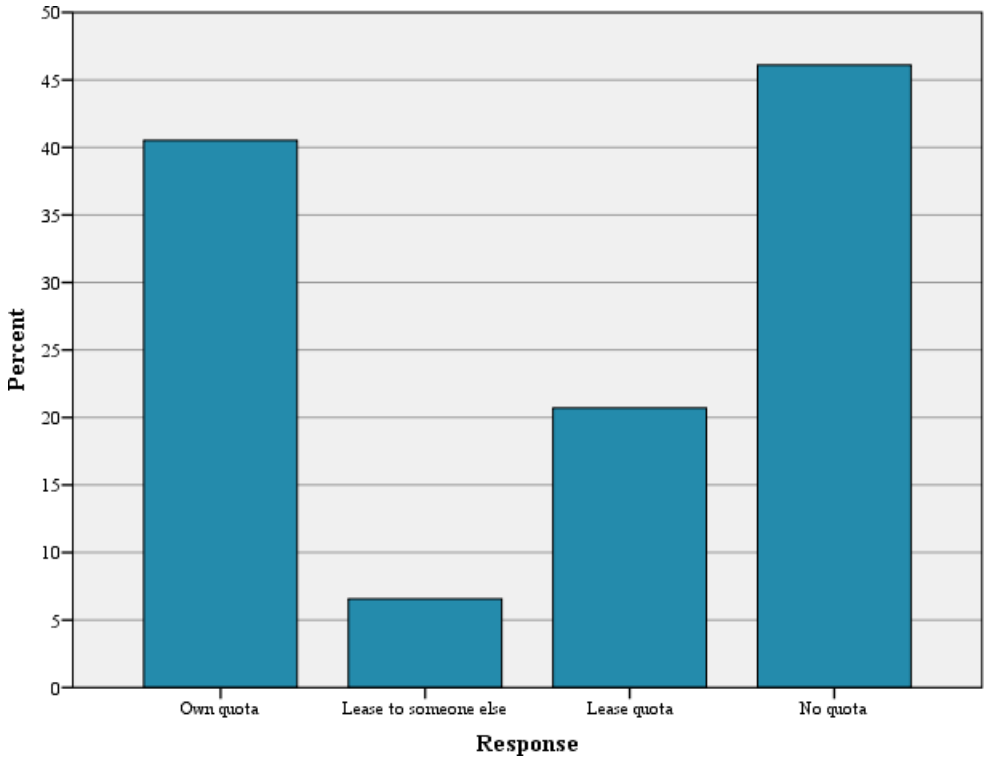

Figure 7. Respondent ownership of quota (N=807)

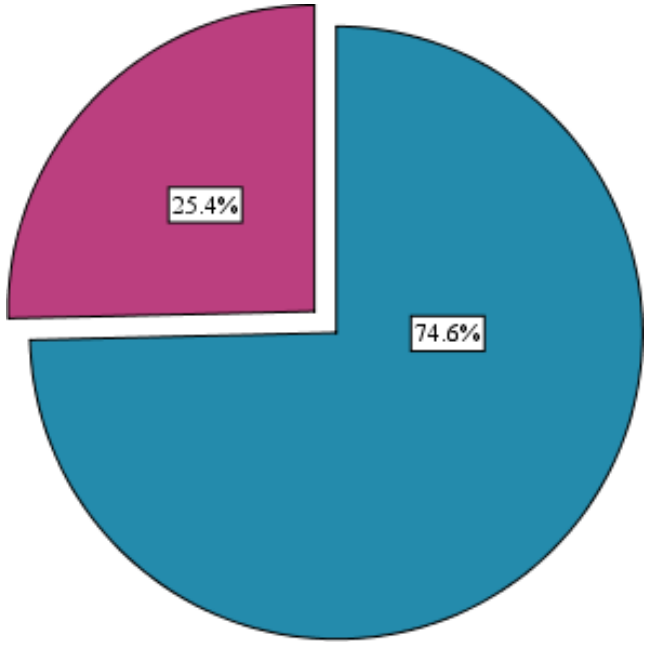

Figure 8. Respondent ownership of commercial fishing vessel. Blue owns vessel, maroon doesn't own vessel (N=812)

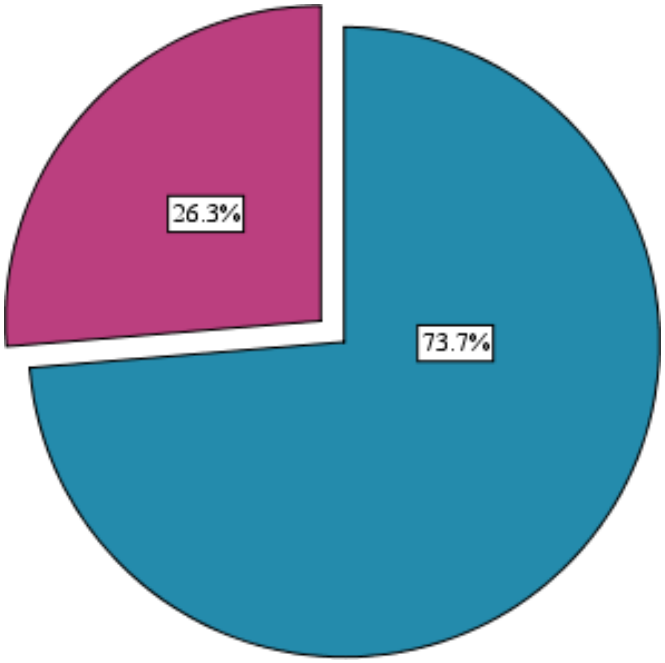

Figure 9. Respondent ownership of fishing equipment valued over $5,000.00 AUD. Blue: owns equipment; Maroon: doesn't own equipment (N=806)

The most common form of remuneration was a percentage of the catch or take (45%), followed by a stable wage (17%), and a combination of wage and catch-share (6%) (Figure 10). Over one third of respondents supplemented their fishing income (Figure 11). Of those who responded that they supplemented their fishing income with other kinds of income, there was a range of roles and arrangements identified, from industry-related work (charter skipper, industry consulting), to labouring (farm work, odd labouring jobs), to trade-based occupations (carpenter, boilermaker). Some indicated they were drawing on superannuation.

As the administrative requirements of the industry increases, and the necessity for precision in reported details becomes a matter of professional and legal necessity, understanding the role played by non-licence holders, or co-licence holders, is imperative. Training and communication should be directed to these people so that administrative mistakes and misunderstandings are minimised. Almost half of those surveyed responded that someone else completed the bulk of the administrative work (Figure 12). Of the 102 respondents who made a comment about who did the bulk of the administrative work, 36% mentioned their wife or partner, while 18% mentioned their accountant. This result suggests that women are working in the fishing industry, but often behind the scenes. Previous research has noted the 'invisibility' of women working as Australian primary producers (Alston, 1998), and the invisibility of women in the fishing industry, internationally (Zhao *et al.*, 2013; Willson and Tryggvadóttir, 2019).

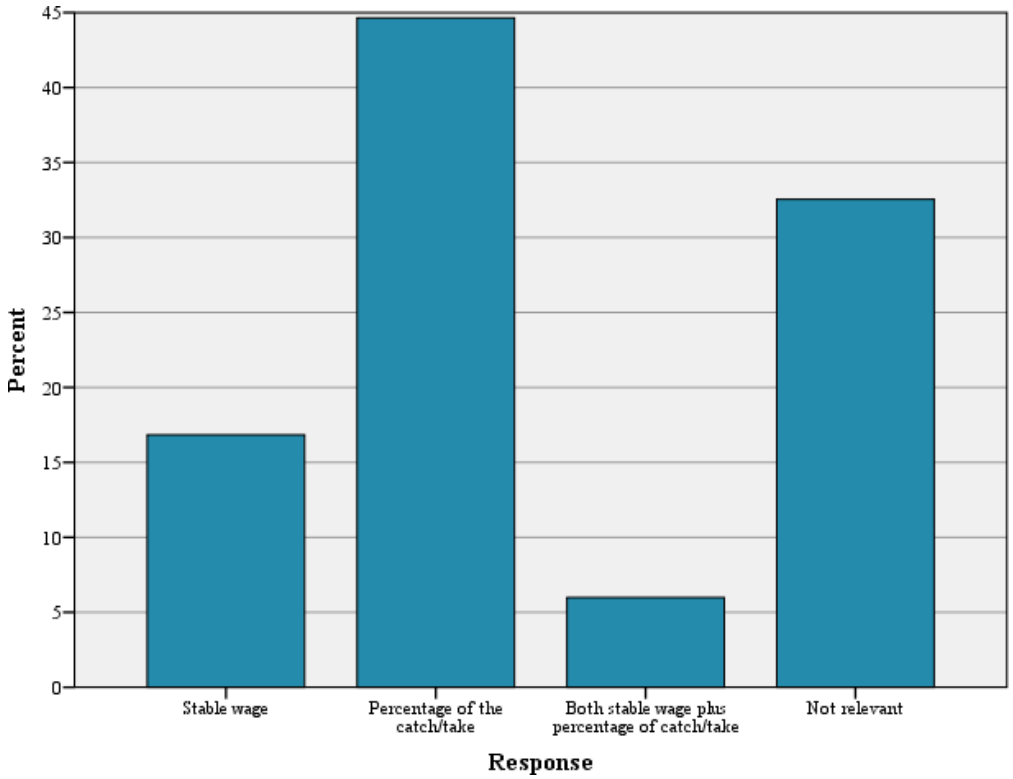

Figure 10. Respondent fishing industry income composition (N=802)

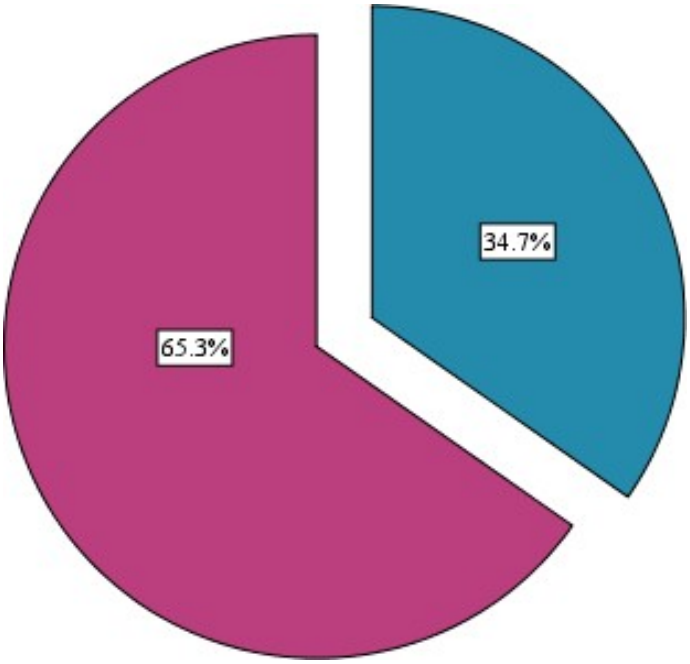

Figure 11. Respondent supplementation of total income in addition to fishing industry earnings. Blue: Supplements income; Maroon: Doesn't supplement income (N=803)

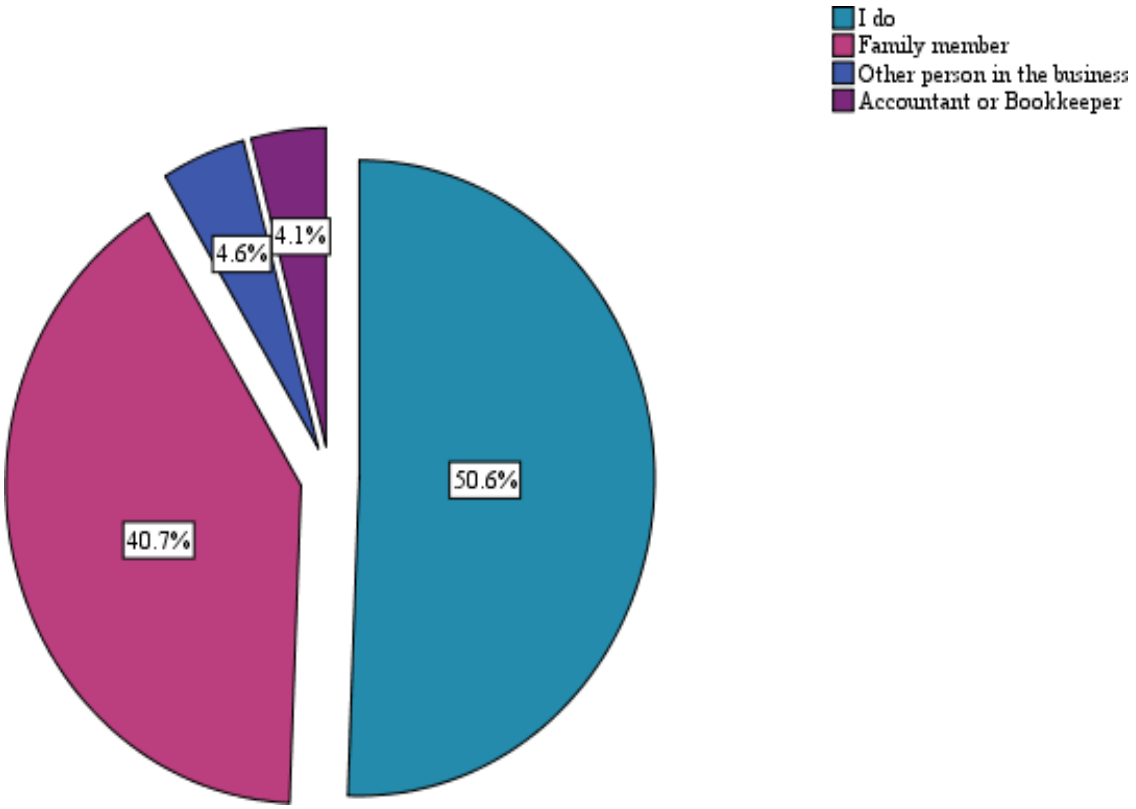

Figure 12. Who undertakes respondent business administrative tasks? (N=808)

4.1.4. Fishing Activities

Most respondents used pots or traps, nets or lines (Table 3). Fishing activity among respondents was evenly split between off-shore, and various types of inshore activity (Figure 13). Figure 14 shows that almost a quarter of respondents work alone. The location of fishing operations by state are reported in Table 2.

There was a wide variation in duration of fishing trips, with 61.4% of the all respondents reporting trips of up to a day, and 34.9% reporting typical trips of more than 24 hours, with over a fifth of these longer trips typically being for two weeks or longer (Figures 15 and 16).

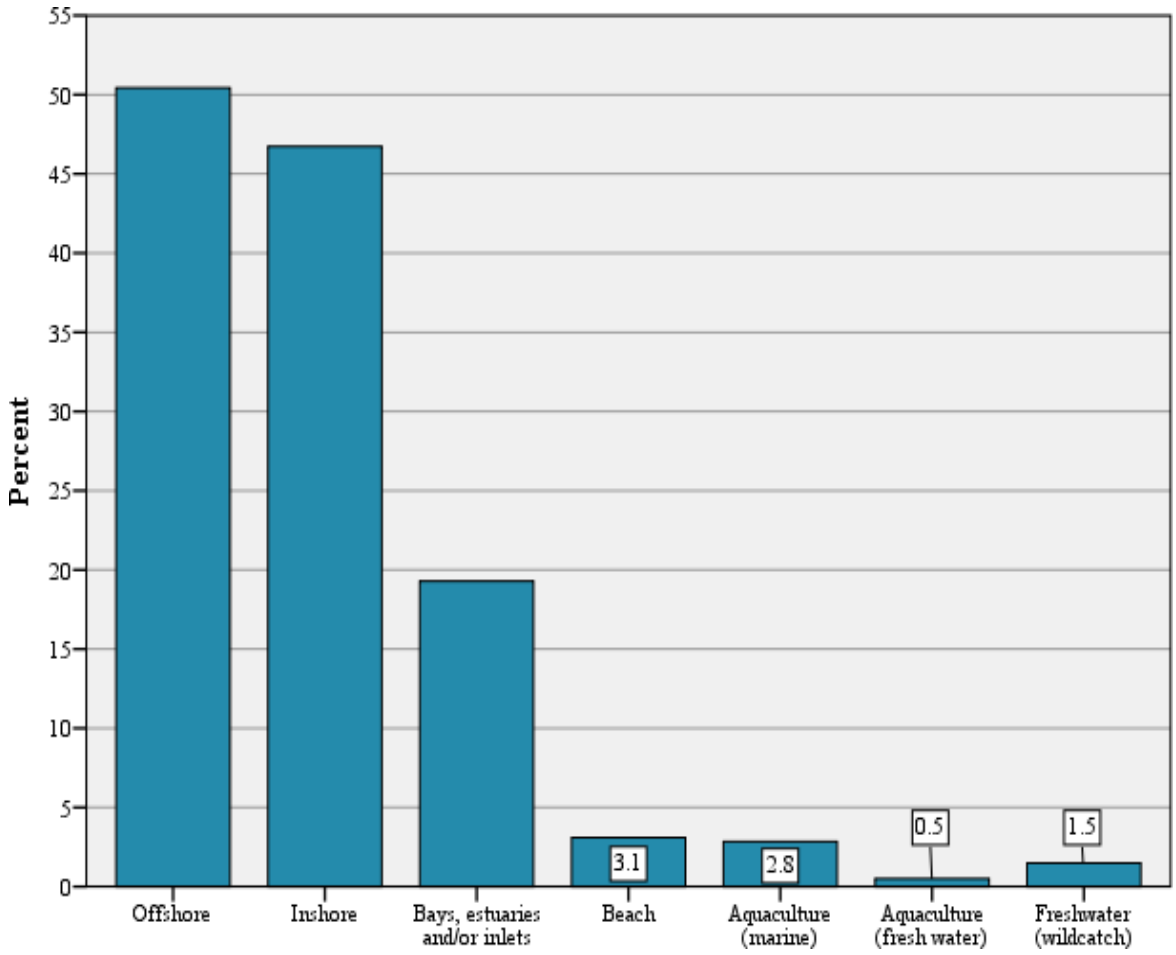

Figure 13. Respondent main fishing industry business type (N=809)

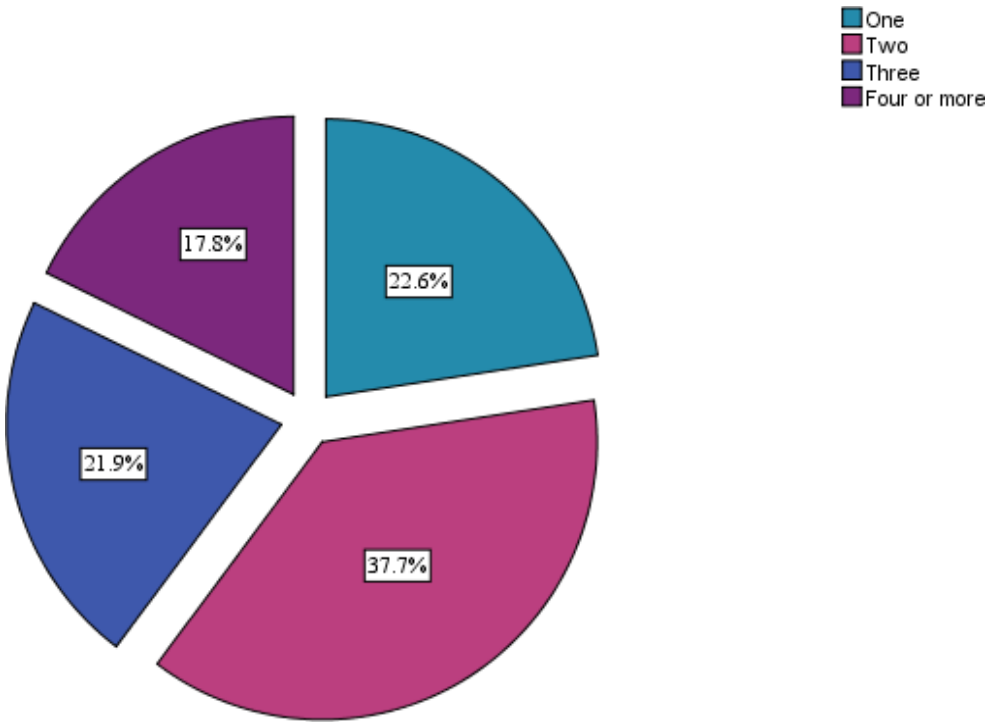

Figure 14. Number of people typically working in respondent's team (N=770)

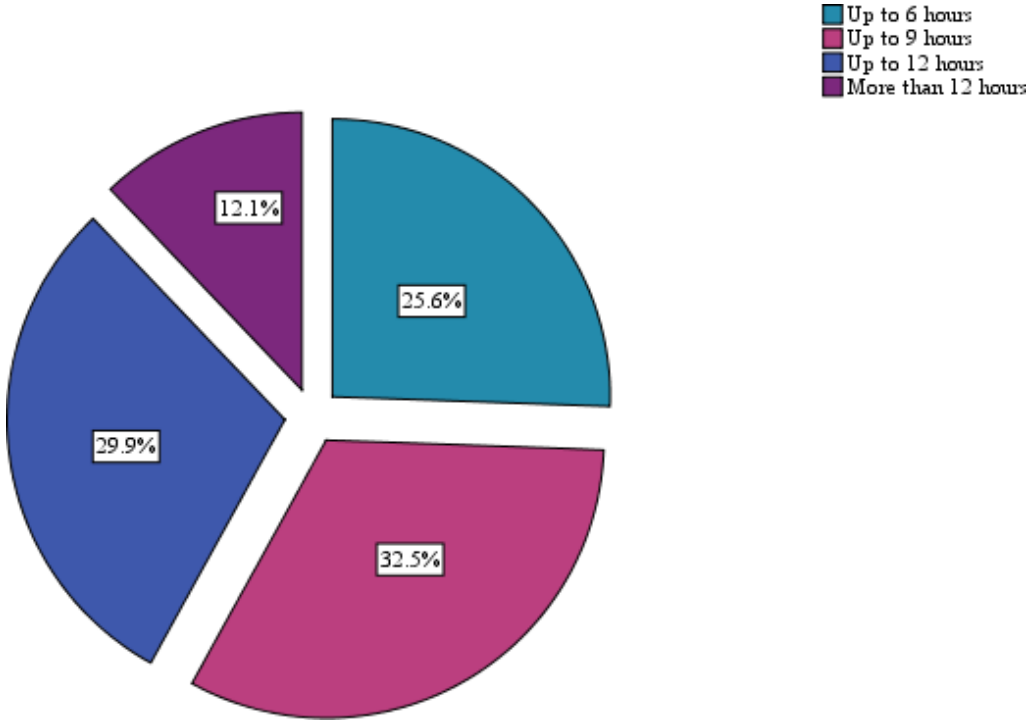

Figure 15. Typical duration in hours of fishing trip of respondent main fishery, if less than 24 hours (N=536)

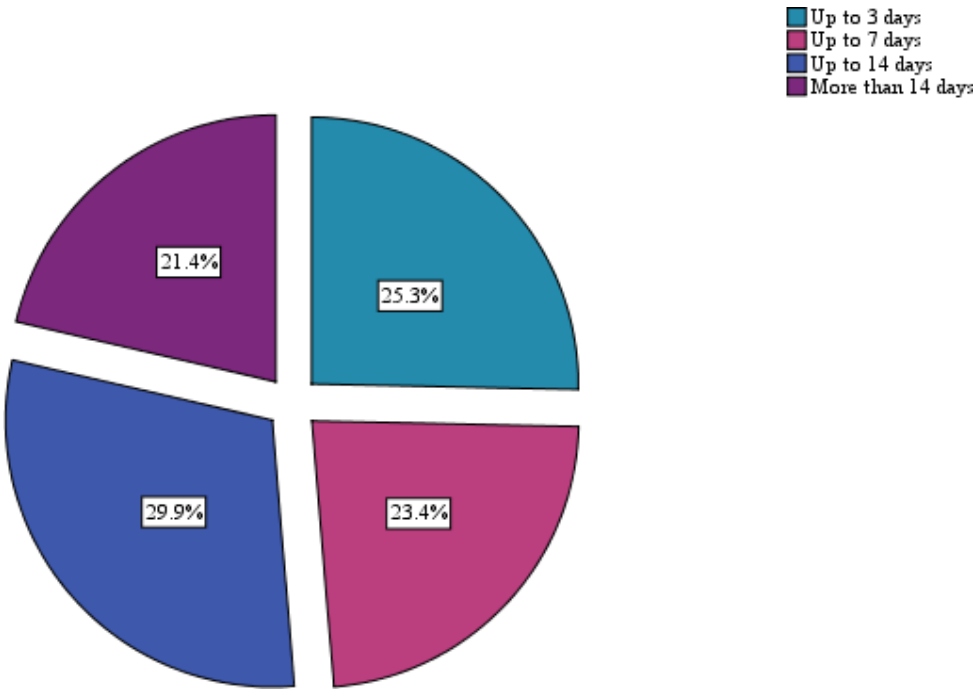

Figure 16. Typical duration in days of fishing trip for respondent main fishery, if more than 24 hours (N=304)

Most fishers used a smart phone (mobiles with internet) when at sea (Figure 17). The most common fishing-related uses of mobile phones were checking the weather and communicating with other fishers or fishery officials and business partners (Figure 18), and the most common non-fishing related response (and highest response overall) was communicating with friends or family.

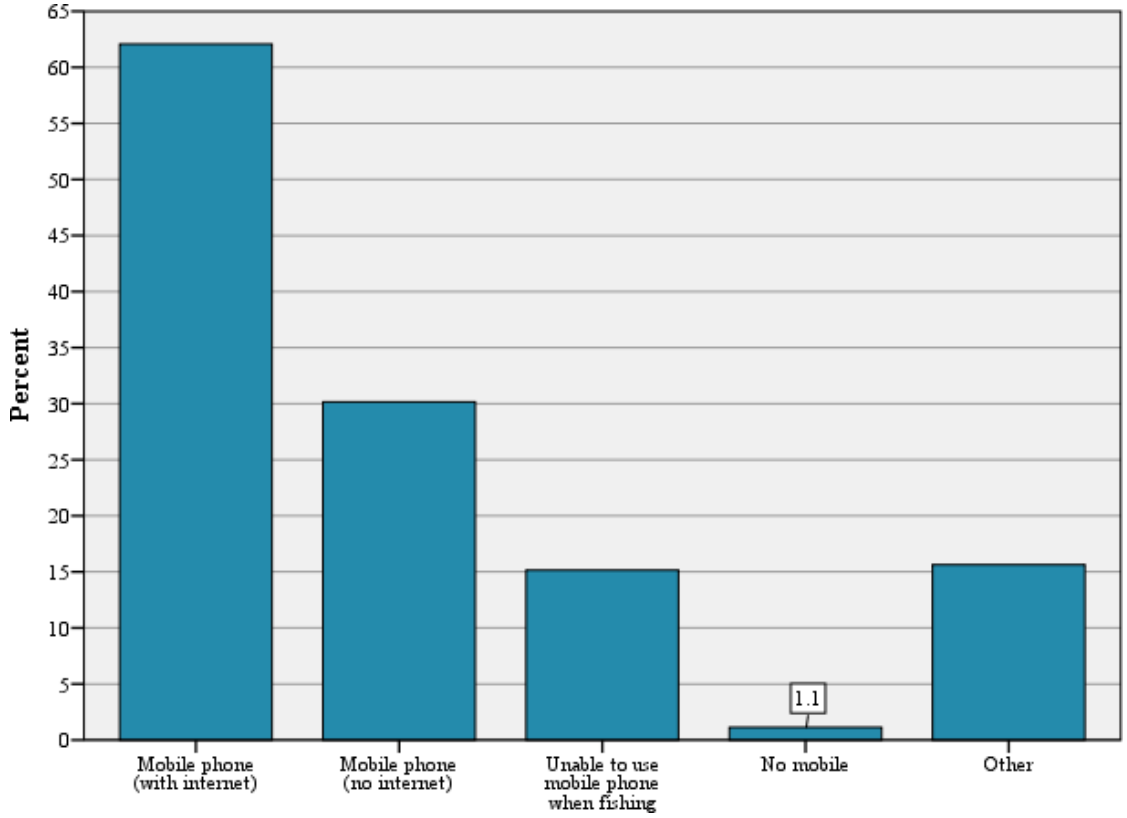

Figure 17. Mobile telecommunication device used by respondent whilst fishing (N=799)

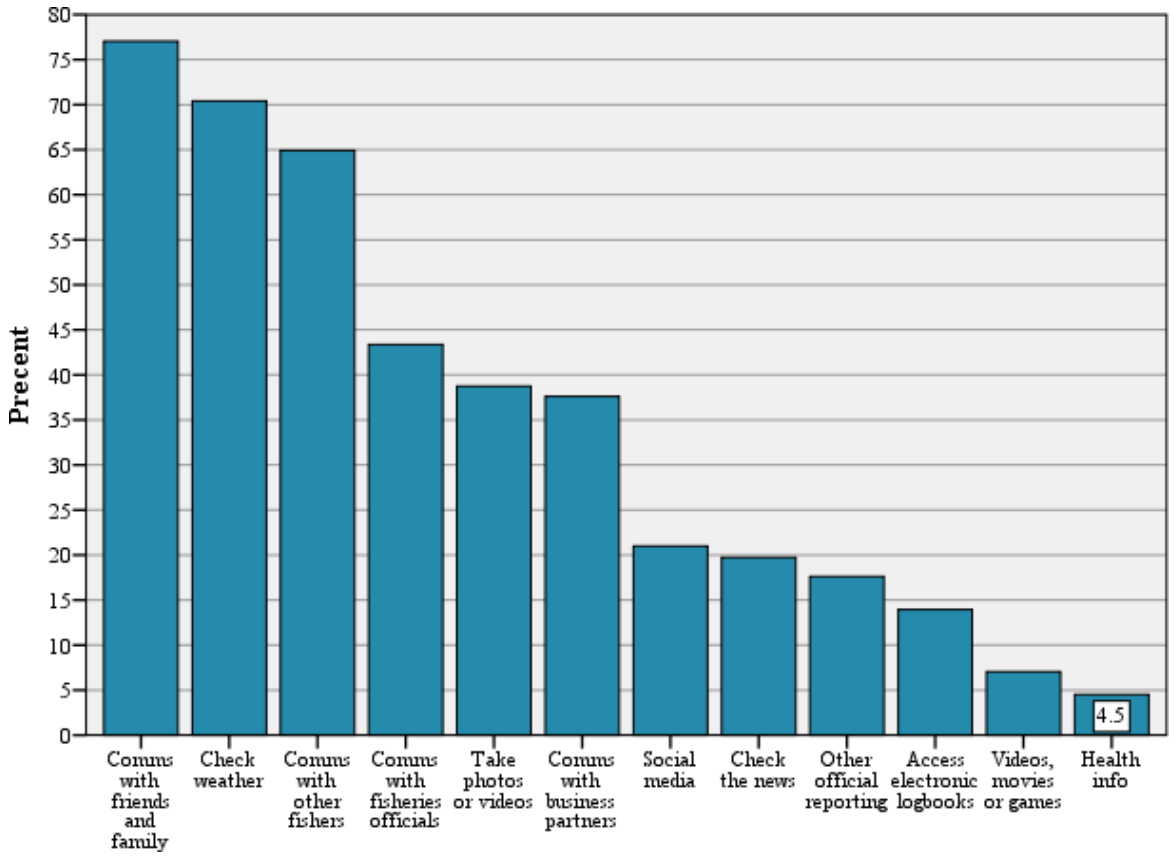

Figure 18. Use of mobile telecommunication device by respondent whilst fishing (N=710)

4.1.5. Personal health and wellbeing

Self-assessment of general health

Forty percent of respondents considered themselves to be in excellent or very good health, while 20% rated their health as fair or poor (Figure 19). In the National Health Survey 2014-15, respondents also assessed their own health status (Australian Bureau of Statistics, 2015). Over half (56.2%) of Australians aged 15 years and over considered themselves to be in excellent or very good health, while 14.8% rated their health as fair or poor. The vast majority of survey respondents were male, and aged 35 to 64. The National Health Survey ratings for males in age groups between 35 and 64 were that between 49.1% and 61.9% considered themselves to be in excellent or very good health, while 10.5% to 20.3% rated their health as fair or poor. This suggests that respondents' self-assessment of their general health may be slightly poorer than for the general population, considering the age and gender distribution of survey respondents.

Just over 40% of fisher respondents experienced no or very mild bodily pain in the past 4 weeks (Figure 20). Over half (53.5%) of the general population experienced no or very mild bodily pain in the past 4 weeks, according to the ABS, for adults 18 years and over (Australian Bureau of Statistics, 2015). The fisher survey result is likely to be an outcome of the heavy physical nature of work in the fishing industry.

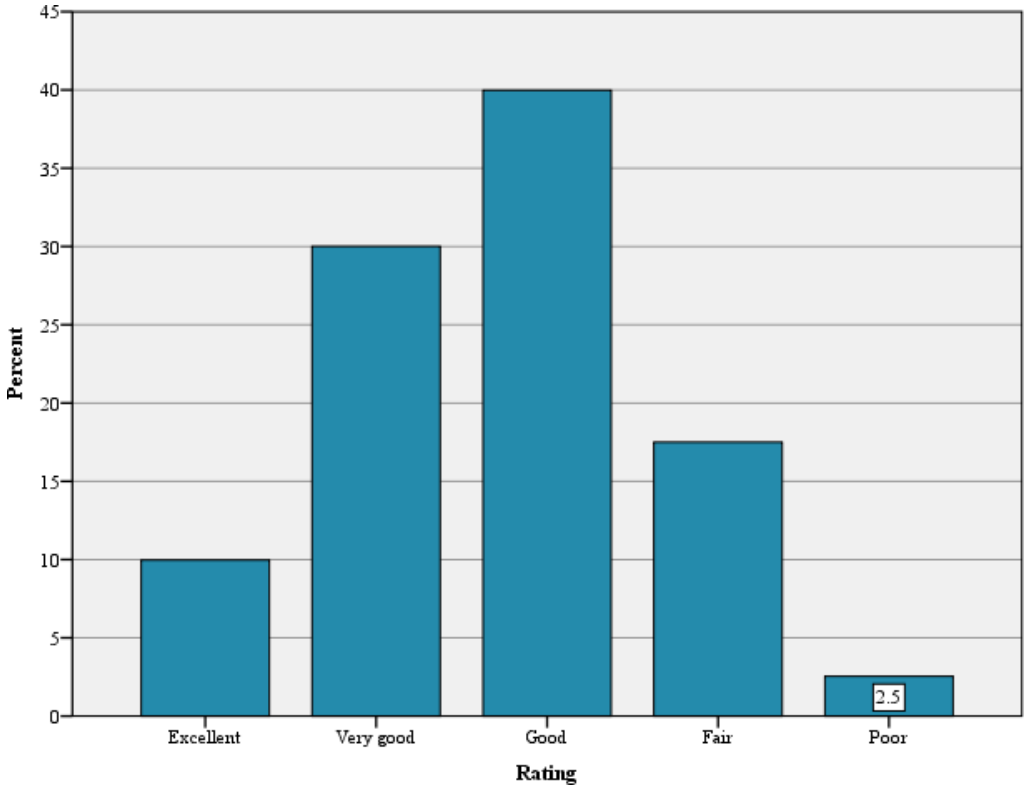

Figure 19. Respondent self-assessed general health status (N=863)

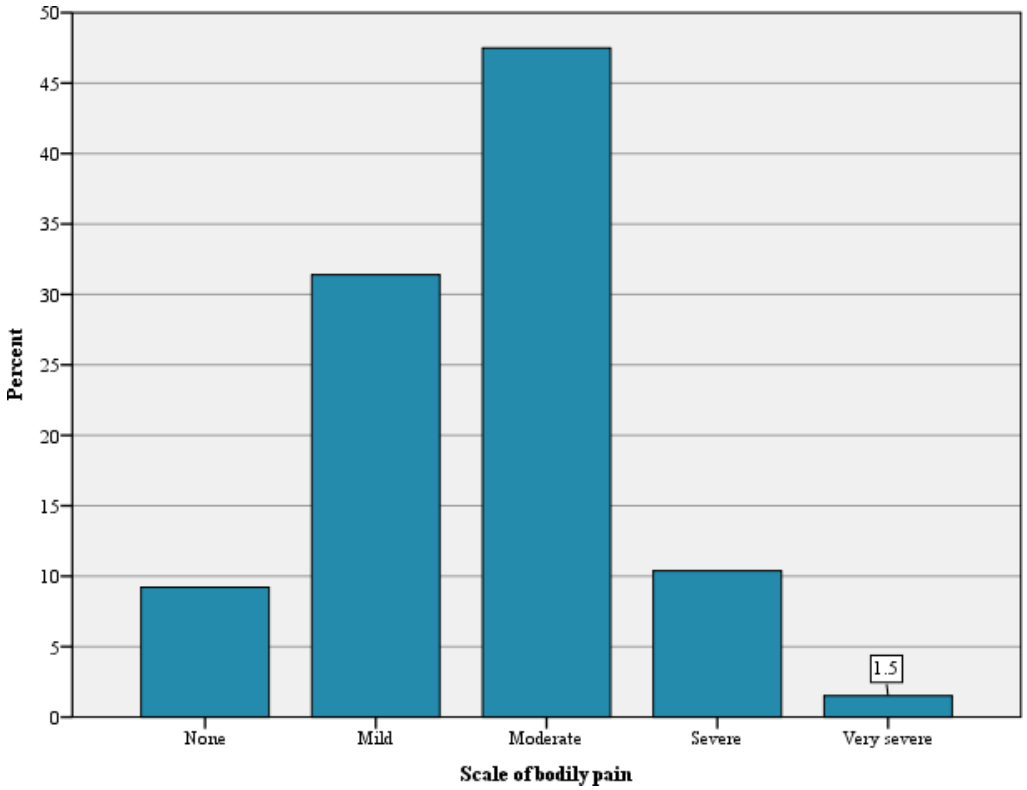

Figure 20. Respondent self-assessed scale of bodily pain experienced in the previous four weeks (N=857)

Check ups

Less than half the respondents had a check-up in the last year. More than 20% had not had a check-up in the last two years (Figure 21). Over half of fishers reporting seeing a dentist in the previous 12 months (59.7%) (Figure 22) (Australian Bureau of Statistics, 2015). According to the report, 'Oral health and dental care in Australia: Key facts and figures 2015', 60.3% of Australians aged over 15 years attended a dental appointment in the previous 12 months (Chrisopoulos, Harford and Ellershaw, 2016). Most respondents make their own health professional appointments (Figure 23).

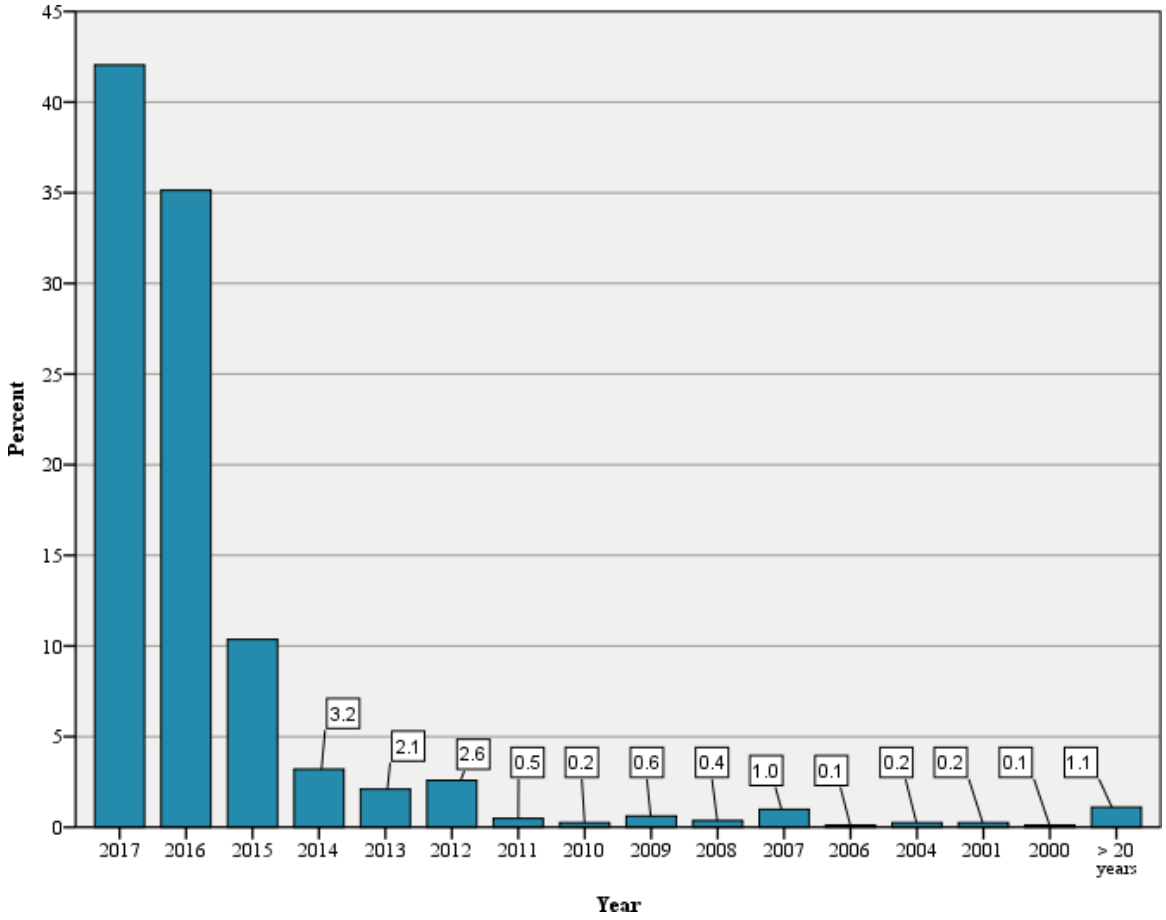

Figure 21. Year of respondents' most recent general health check-up (N=811)

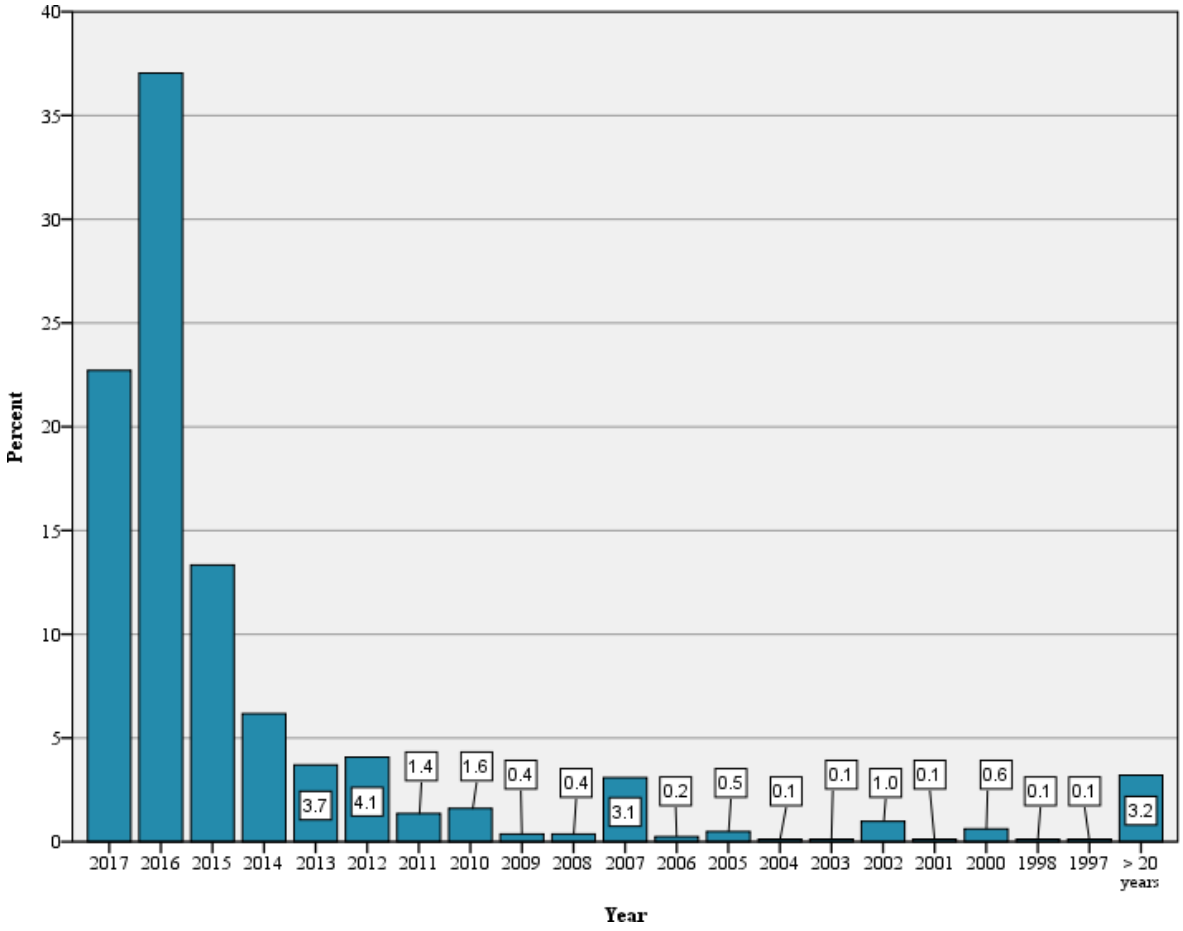

Figure 22. Year of respondents' most recent dental check- up (N=810)

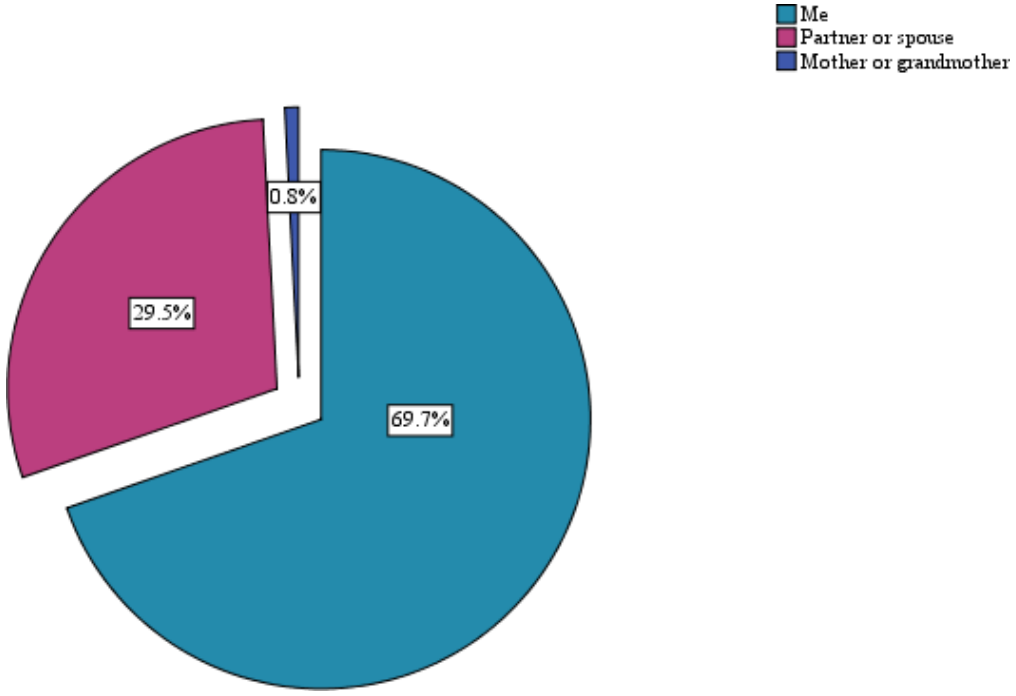

Figure 23. Who books consultation with health professional for the respondent (N=827)

Level of health influencing activity and work

Pain interfered with the normal activities of over half of respondents in the last four weeks prior to undertaking the questionnaire (Figure 24). This is consistent with the level of bodily pain reported in Figure 20. Table 4 gives an indication of how those suffering from pain may be prevented from engaging in their normal activities. Necessarily, for those who work in a physically demanding occupation like the fishing industry there is a productive imperative to keep experiences of pain to a minimum. Over half of fisher respondents (56.4%) did not take a single sick day all year, while 20.8% of respondents took between one and ten days of sick leave, and 22.7% took eleven or more days off due to being unwell (Figure 25). By contrast, according to the Fair Work Ombudsman, Australia, full-time employees are entitled to ten days of sick or carers leave per year, and according to the absentee research/mitigation company, Direct Health Solutions, Australians tend to take 9.5 of those days. Nearly 30% of respondents missed at least one day of work due to the illness of an employee or workmate (Figure 26). The differences between the fishing industry and the Australian population may be explained by the number of self-employed people who will be less inclined than the general employee population to take time off work for non-genuine health reasons, and the limitations the industry has in terms of flexibility to take time off due to weather conditions.

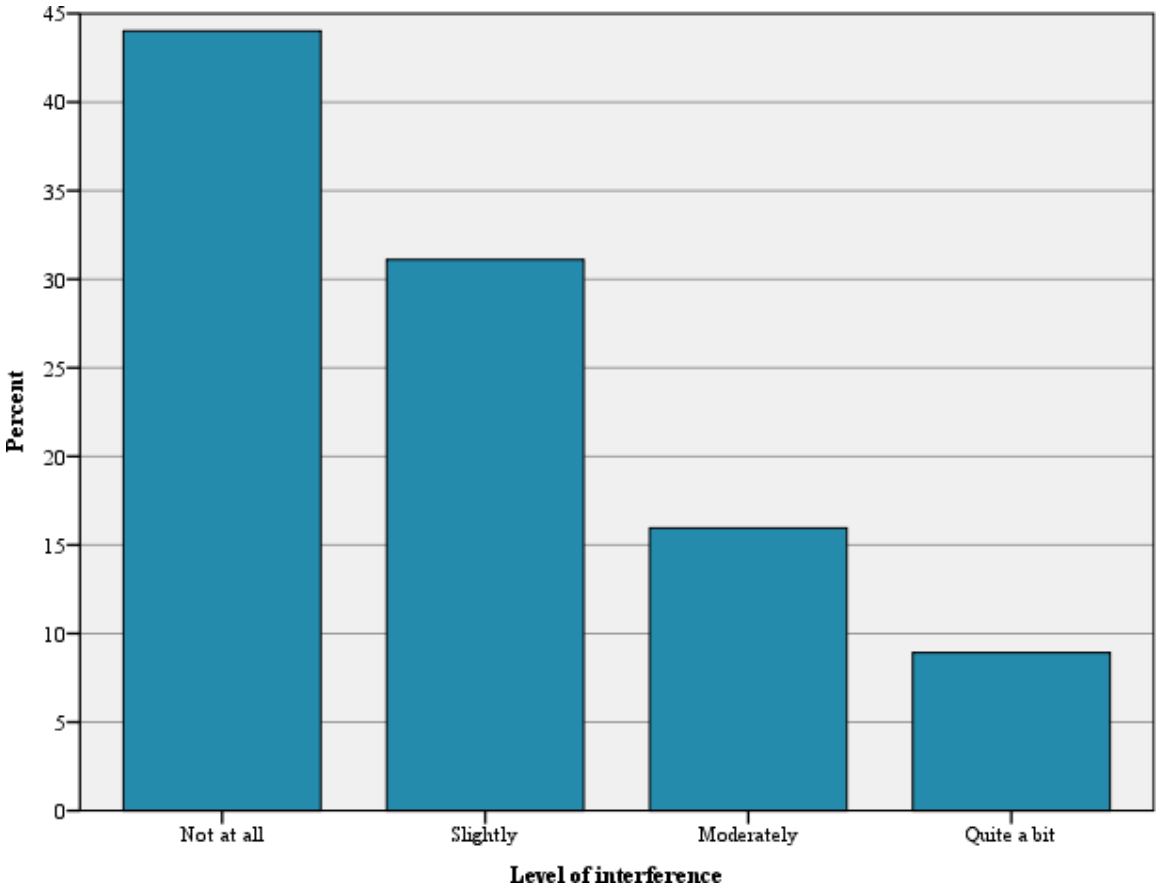

Figure 24. How much respondent health interfered with normal activities in previous four weeks (N=852)

Table 4. Self-assessed bodily pain and health interference with normal activities in previous 4 weeks.

		Scale of bodily pain				
		None	**Very mild**	**Moderate**	**Severe**	**Very Severe**
	Not at all	92.4%	72.6%	26.4%	3.4%	0.0%
	Slightly	6.3%	24.4%	43.5%	20.2%	7.7%
	Moderately	0.0%	1.5%	22.6%	40.4%	30.8%
	Quite a bit	1.3%	1.5%	7.5%	36.0%	61.5%
	Total	100%	100%	100%	100%	100%

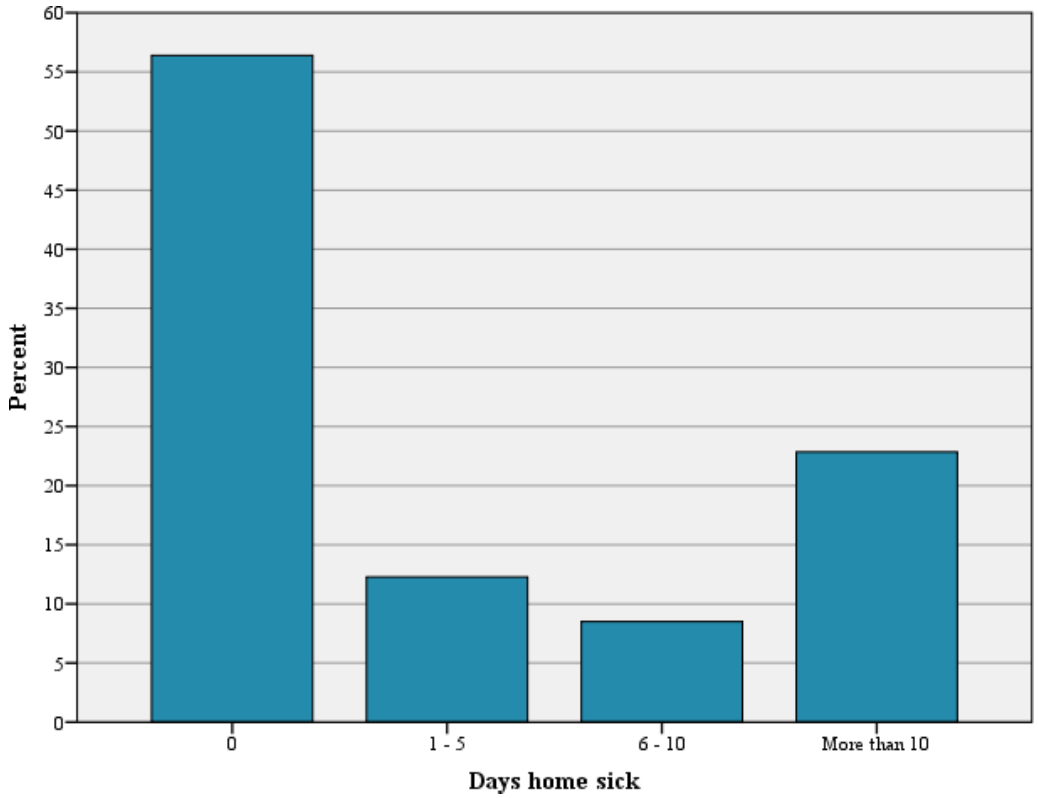

Figure 25. Number of days respondent did not work due to personal health and wellbeing concerns (N=823)

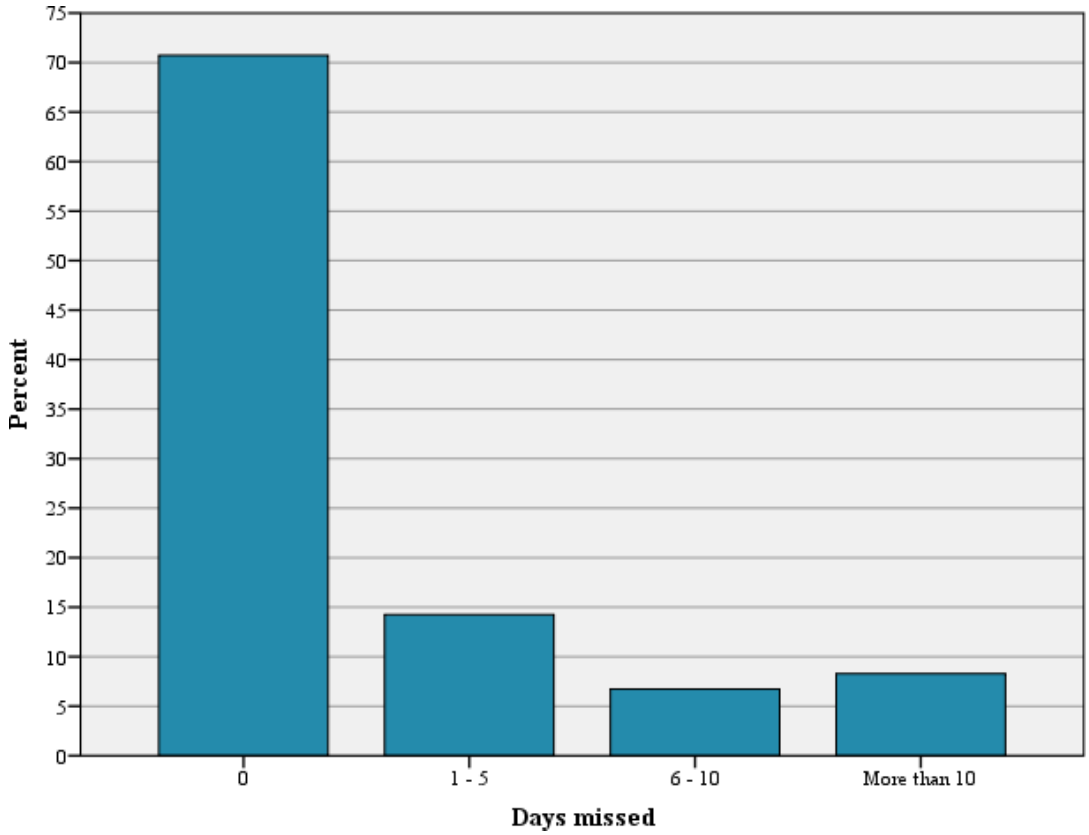

Figure 26. Number of days respondent was unable to work due to a colleague experiencing health or wellbeing concerns (N=772)

Physical health

Figure 27 shows that back pain was the most commonly experienced symptom followed by joint pain. Fishers reported being diagnosed with a number of conditions at a higher rate than the general population as reported in the National Health Survey 2014-2015, particularly high blood pressure (28% versus 11.3%), high cholesterol (21% versus 7.1%), depression (14% versus 9.3%), type 2 diabetes (9% versus 4.4%) and cancer (9% versus 1.6%) (Figure 28).

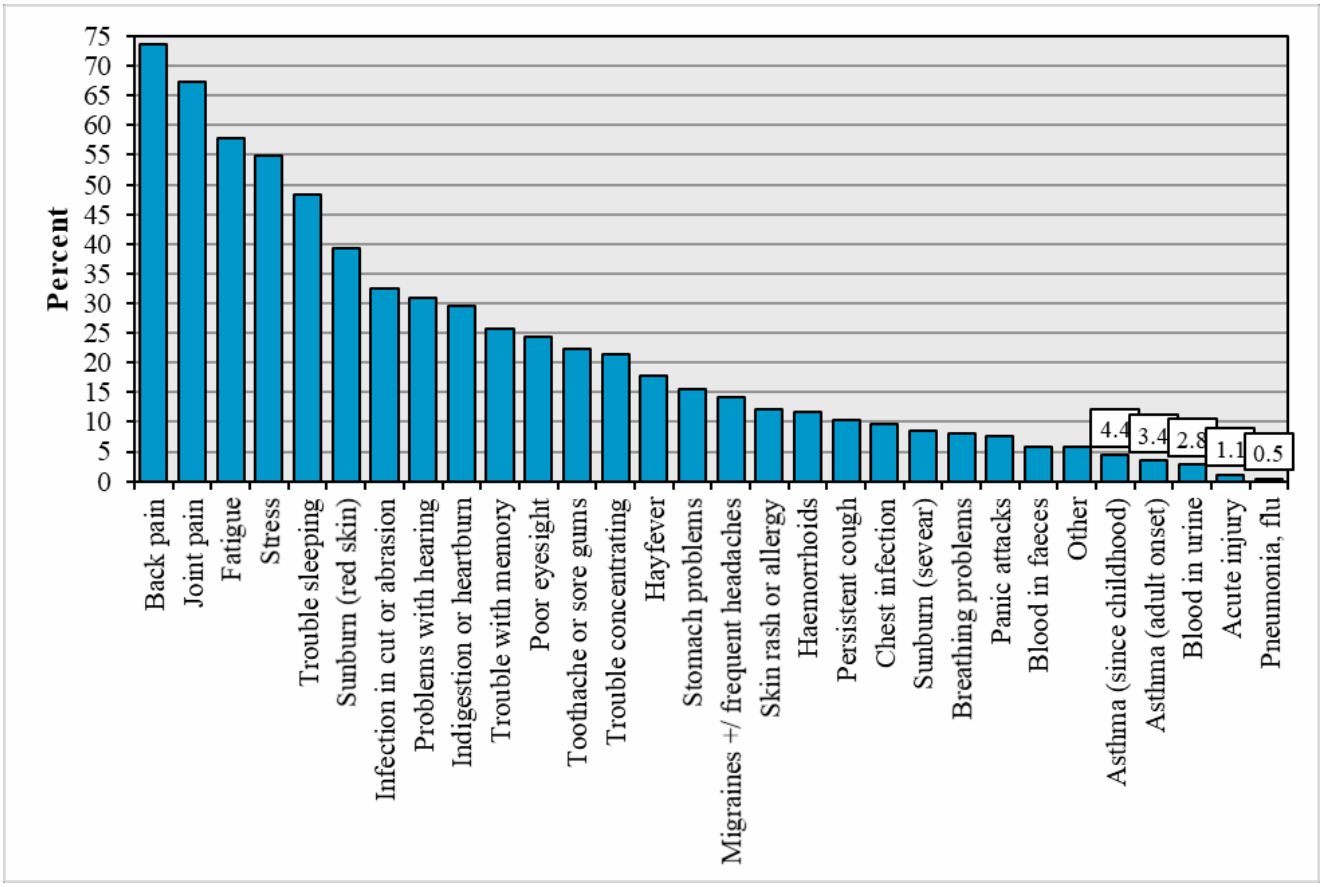

Figure 27. Health symptoms experienced by respondent in the previous 12 months (N=872)

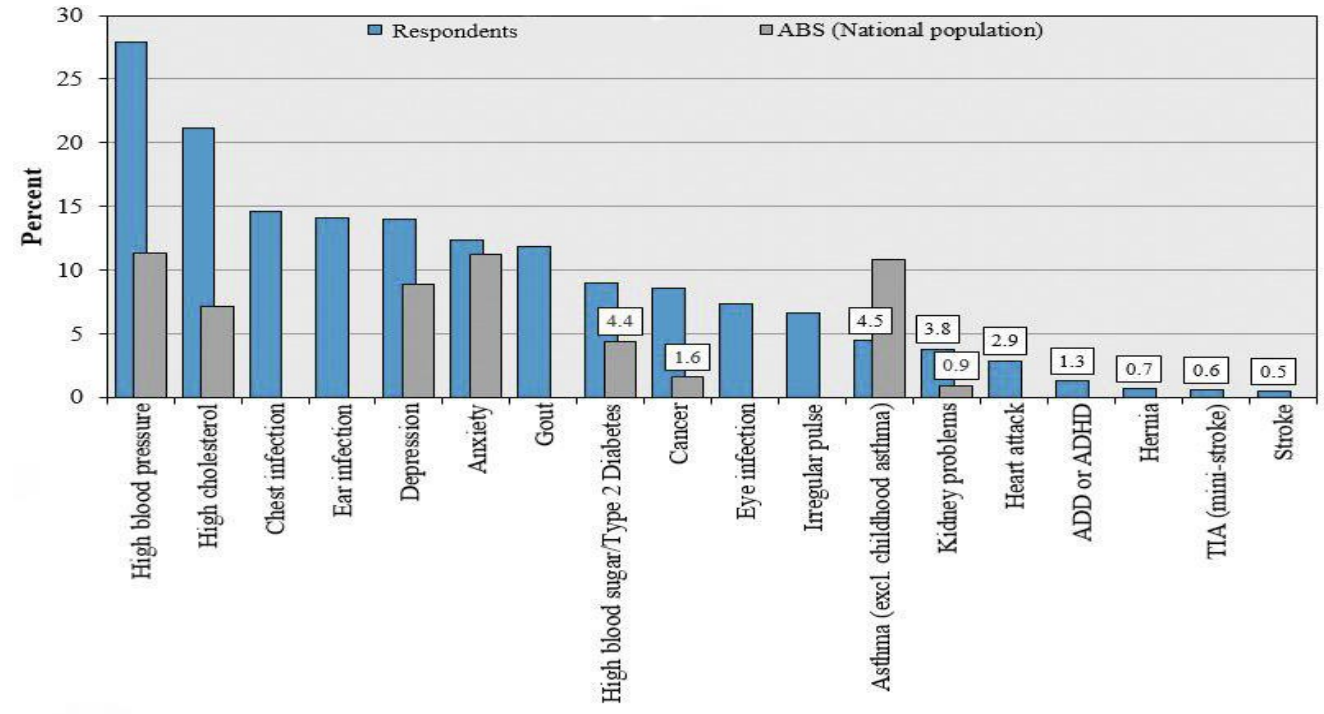

Figure 28. Responder diagnosis and ABS National Health Survey: First Results, 2014-15 where published [32] (N=872)

Mental Health

Respondent results for the K10 are compared in Table 5 to the most recent Australian available national K10 data from the ABS National Health Survey 2014–15, Table 7: Psychological Distress (Australian Bureau of Statistics, 2015). The result indicates that the fisher respondents experience significantly higher levels of psychological distress than the population as a whole, and that the mental health of fishers is of concern.

High or very high levels of psychological distress were experienced by 22.2% of fisher respondents, and a low level by 54.3%. This compares with 11.7% of Australians aged 18 years and over experiencing high or very high levels and 68.0% a low level of psychological distress in the 2014–15 national survey (Australian Bureau of Statistics, 2015).

Table 5. Respondent mental health compared to Australian population (Australian Bureau of Statistics, 2015)

K10 category: level of psychological distress	**Respondents Fisher health survey*** (N=779)	**Australians 18 years and over, National Health Survey 2014-15** (N=19,259)
Low	54.3%	68.0%
Medium	23.5%	19.5%
High	16.0%	8.0%
Very high	6.2%	3.7%

*Chi squared test shows difference is significant at 0.000001 level.

Social capital

The survey asked for responses to a set of statements that help to understand the 'social capital' of the respondent, or in other words, their connection to the local community, and the degree to which they feel socially included in the community. According to (Kilpatrick, Field and Falk, 2003):

> As the cliché has it, it isn't what you know, but who you know, that counts. The concept of social capital points to the ways in which social relationships serve as a resource, allowing individuals and groups to cooperate in order to achieve goals that otherwise might have been attained only with difficulty, if at all (p. 417).

Responses to four social capital questions are shown in Table 6 and Figure 29 aggregates responses to form a single index score and category of social capital (low, moderate, high, very high). (Note that an individual's calculated index score is not to be confused with their raw survey response data). Respondents who score in the low category have average responses below 3 (below neither agree nor disagree). Respondents scoring in the very high category have average scores above agree. Around half of respondents have social capital index scores in the high or very high range, and over a quarter have low aggregate social capital scores.

Table 6. Respondent feelings towards local community statements.

	Social capital / Local community							
	I feel welcome here		*I feel part of my community*		*We are all 'in it together' in my community*		*I feel like an outsider here**	
Response	**Count**	**Percent**	**Count**	**Percent**	**Count**	**Percent**	**Count**	**Percent**
Strongly disagree (1)	23	2.7%	23	2.8%	55	6.7%	277	33.6%
Disagree (2)	53	6.3%	56	6.7%	147	17.9%	289	35.0%
Neither agree nor disagree (3)	158	18.9%	168	20.2%	262	31.9%	161	19.5%
Agree (4)	374	44.7%	382	46.0%	248	30.2%	70	8.5%
Strongly agree (5)	229	27.4%	201	24.2%	110	13.4%	28	3.4%

*Scoring reversed for I feel like an outsider here to: (1) Strongly agree to (5) strongly disagree.

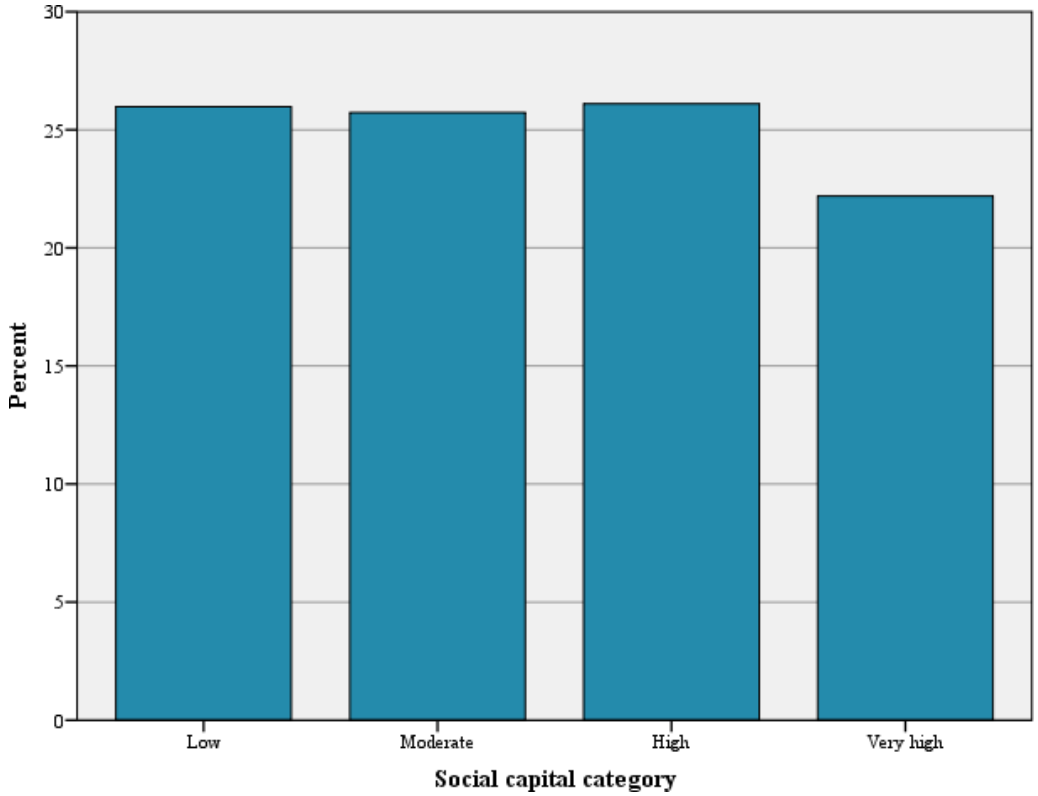

Figure 29. Social capital scale of respondents grouped by aggregate of scores, Low = 0-11, Moderate =12-15, High = 16-17, Very High = 18+ (N=820)

4.1.6. Personal health and wellbeing behaviours

Personal behaviours at sea

Less than 11% of respondents wear a personal floatation device (PFD) every time they go to sea and nearly 84% of respondents said they never wear an Emergency Position Indicating Radio Beacon (EPIRB) when at sea (Figure 30). More than three-quarters of respondents worked on boats with a drug and alcohol policy, and more than two-thirds were alcohol free, but there is less attention to sun protection (Figure 31). Almost half work in areas without good phone or internet reception.

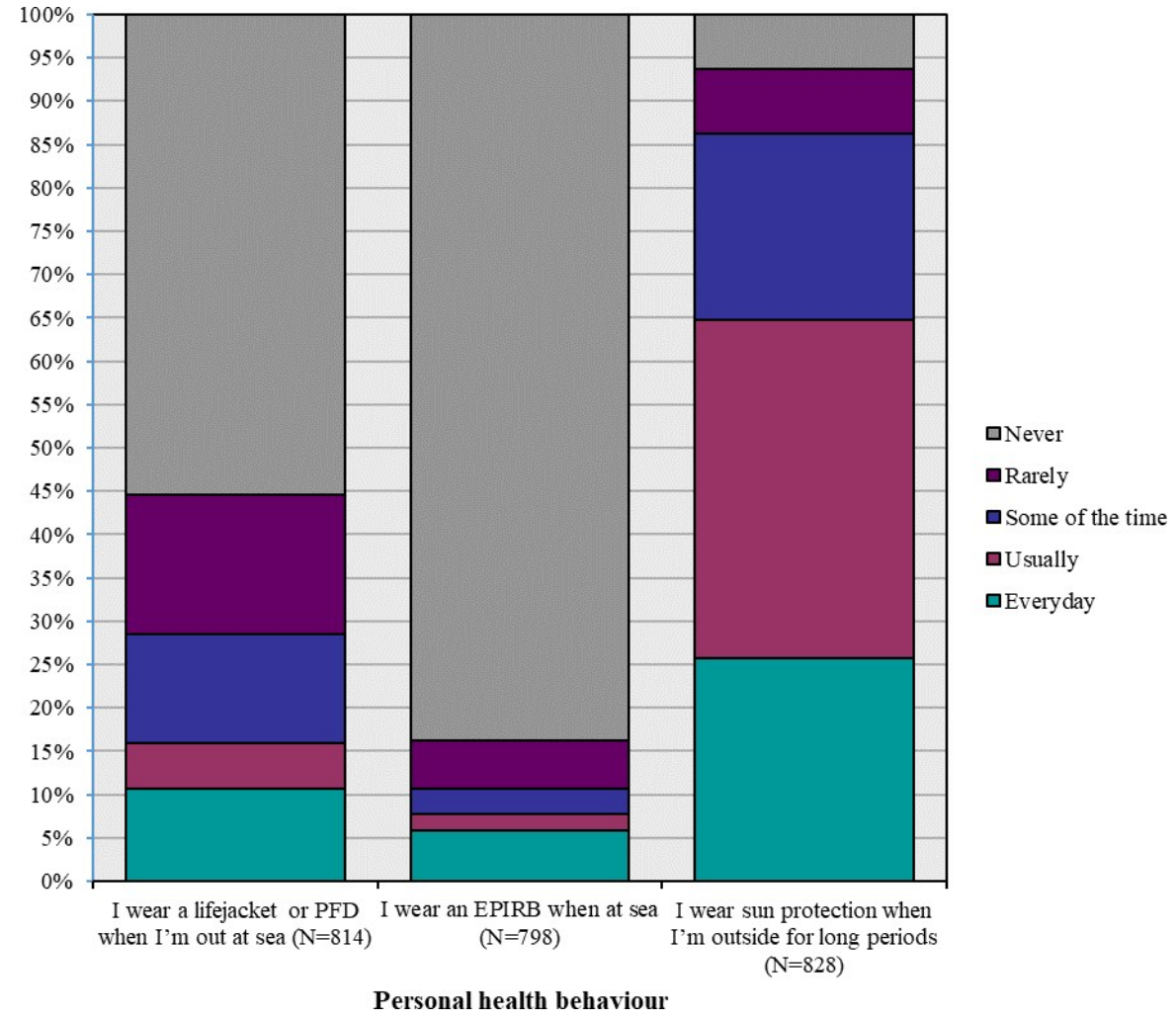

Figure 30. Respondent protective personal health behaviours

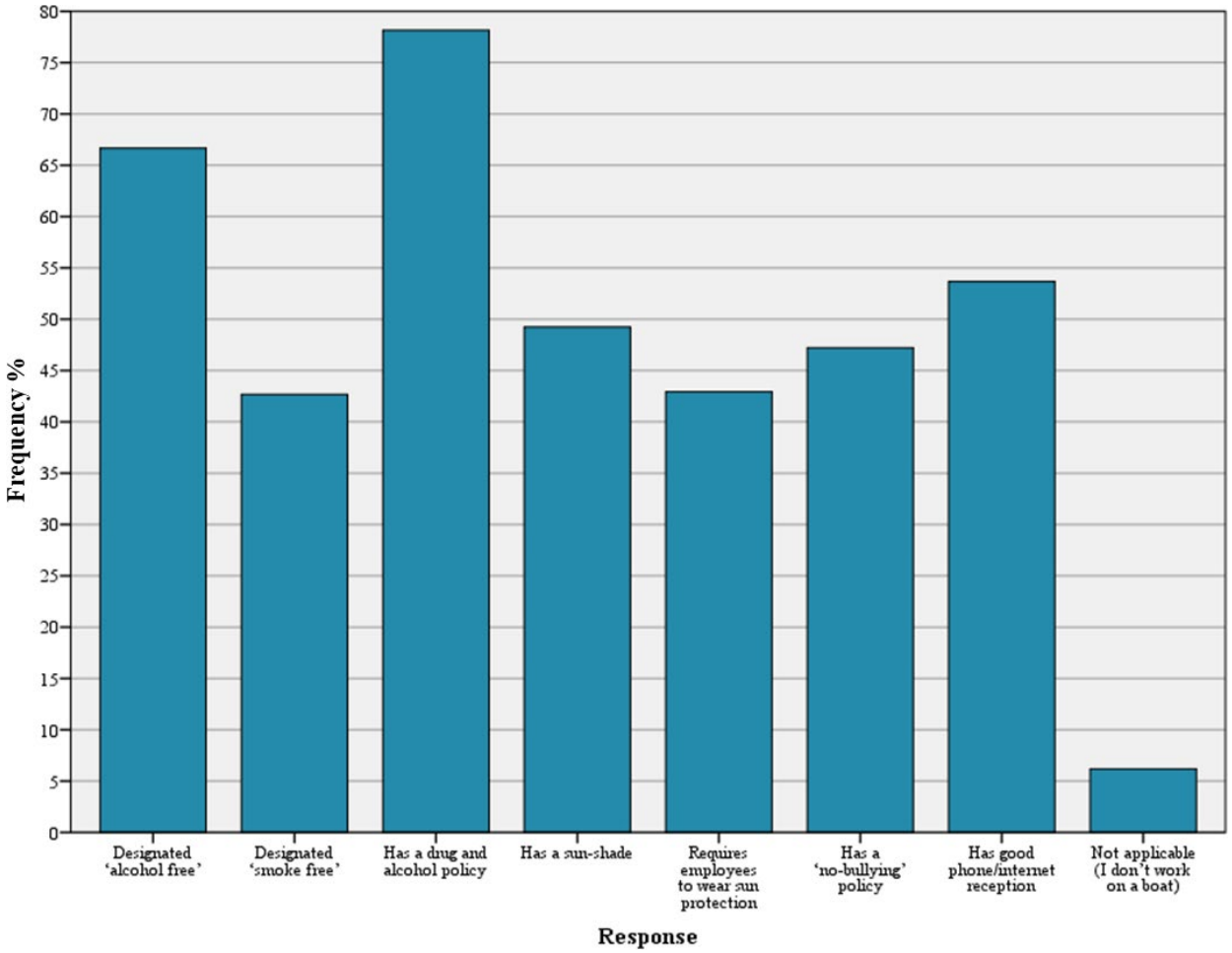

Figure 31. Respondent workplace applicable health and wellbeing policies (N=872)

Personal behaviours on shore

More than half of respondents always or usually eat vegetables and fruit each day, while less than half usually or always exercise or do something to relax each day (Figure 32). Half of adult Australians surveyed in the 2014-15 National Health Survey met the guidelines for recommended daily serves of fruit, while 7.0% met the guidelines for serves of vegetables (Australian Bureau of Statistics, 2015). Women were more likely to meet the guidelines than men. In general, older people, especially those aged 65 and over were more likely to meet the guidelines than younger people.

In the same survey, 55.5% of 18-64 year olds participated in sufficient physical activity in the last week (more than 150 minutes of walking for fitness/transport and/or moderate physical activity or more than 75 minutes of vigorous physical activity, or an equivalent combination of both (not distinguished if this includes activities associated with work), which approximates to the 'I exercise for 30 minutes per day' 'usually' plus 'every day' response categories in the fisher health survey. In the fisher survey only 37.9% were sufficiently active.

Less than 15% of respondents report smoking, drinking alcohol or drinking more than four cups of coffee everyday (Figure 33). In the 2014–15 National Health Survey, 14.5% of adults aged 18 years and over were daily smokers [38]. Men are more likely to smoke daily than women, with 16.9% of males and 12.1% of women smoking daily. In the same survey, 80.6% had consumed

alcohol in the past year. More males had consumed alcohol in the past year (85.6%) than females (75.7%) (Australian Bureau of Statistics, 2015).

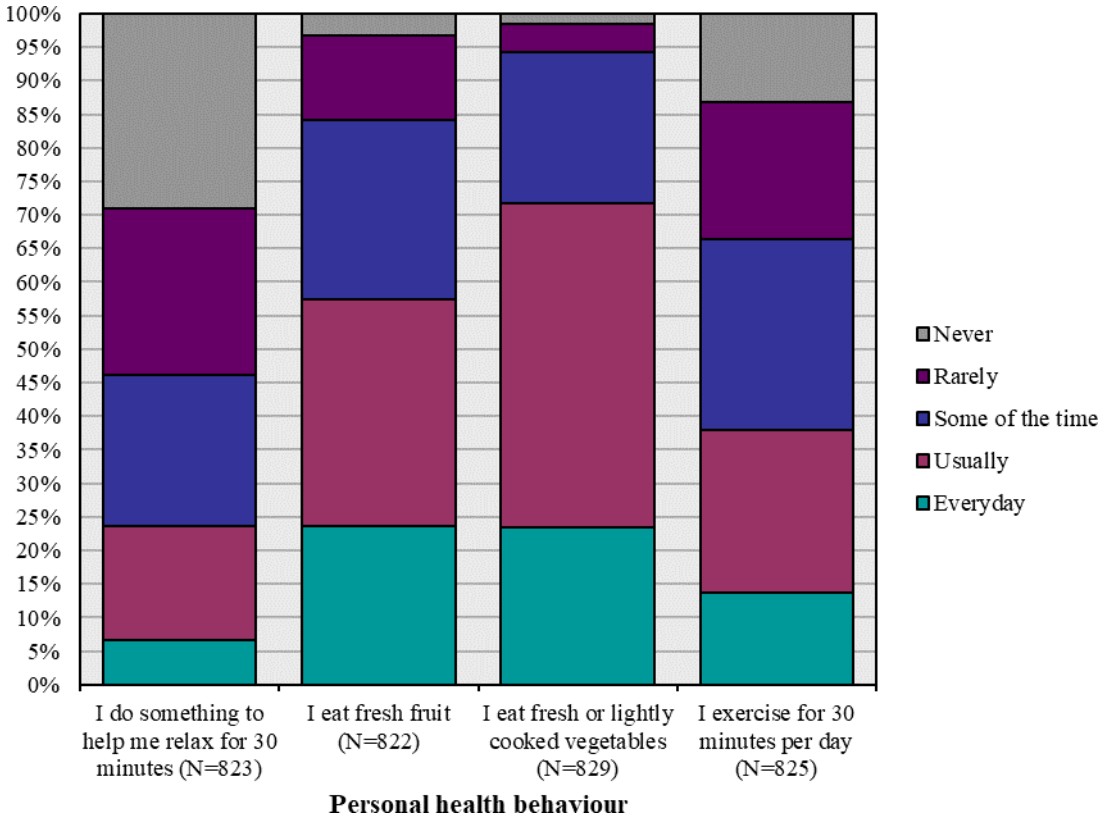

Figure 32. Respondent positive personal health behaviours.

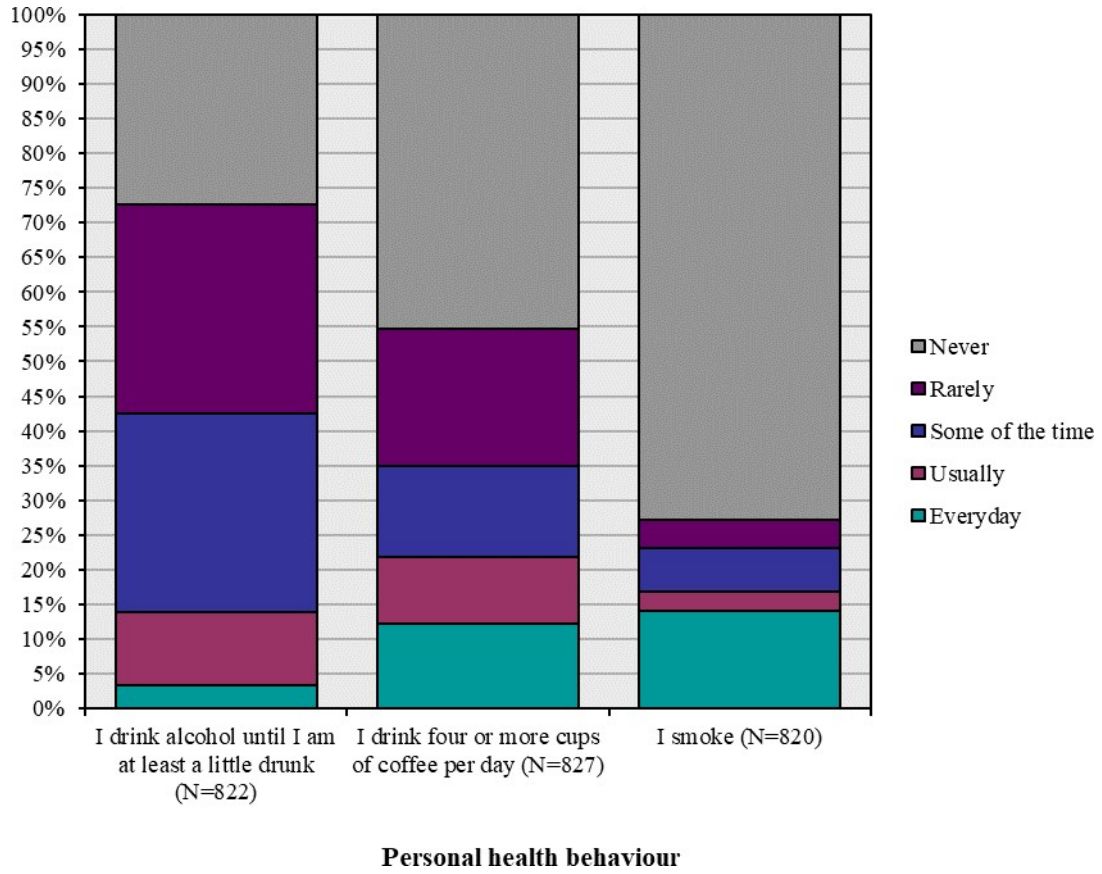

Figure 33. Respondent negative personal health behaviours

Health seeking behaviours

Figures 34 to 37 suggest that work commitments and perceived impact of health issues on productivity do influence respondent fishers' decisions to seek health advice or treatment. There was over 40% agreement to statements 'I don't think my health concerns are reducing my productivity'; 'appointments clash with work', and over 30% agreement with 'I don't want to let my co-workers down' and over a quarter agreeing 'I can't afford to stop working to seek treatment'. As well, 39% agreed with the statement 'the doctor doesn't understand the pressures of the fishing industry'.

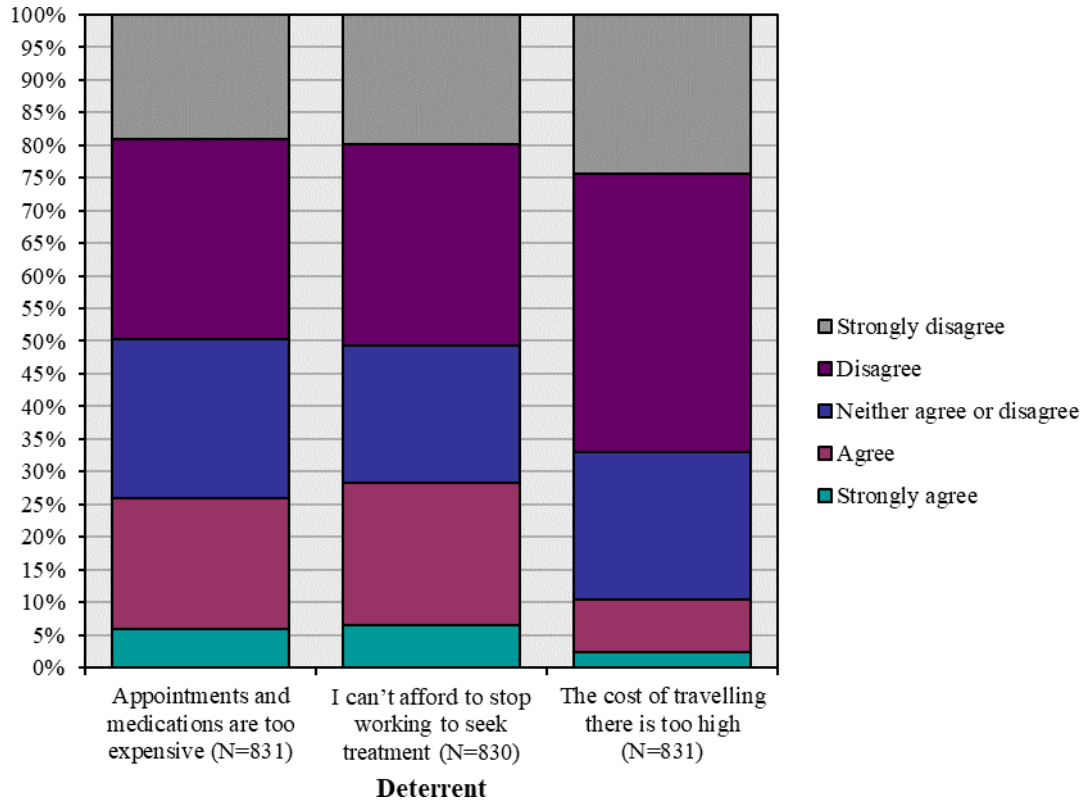

Figure 34. Respondent health seeking behaviour financial deterrents

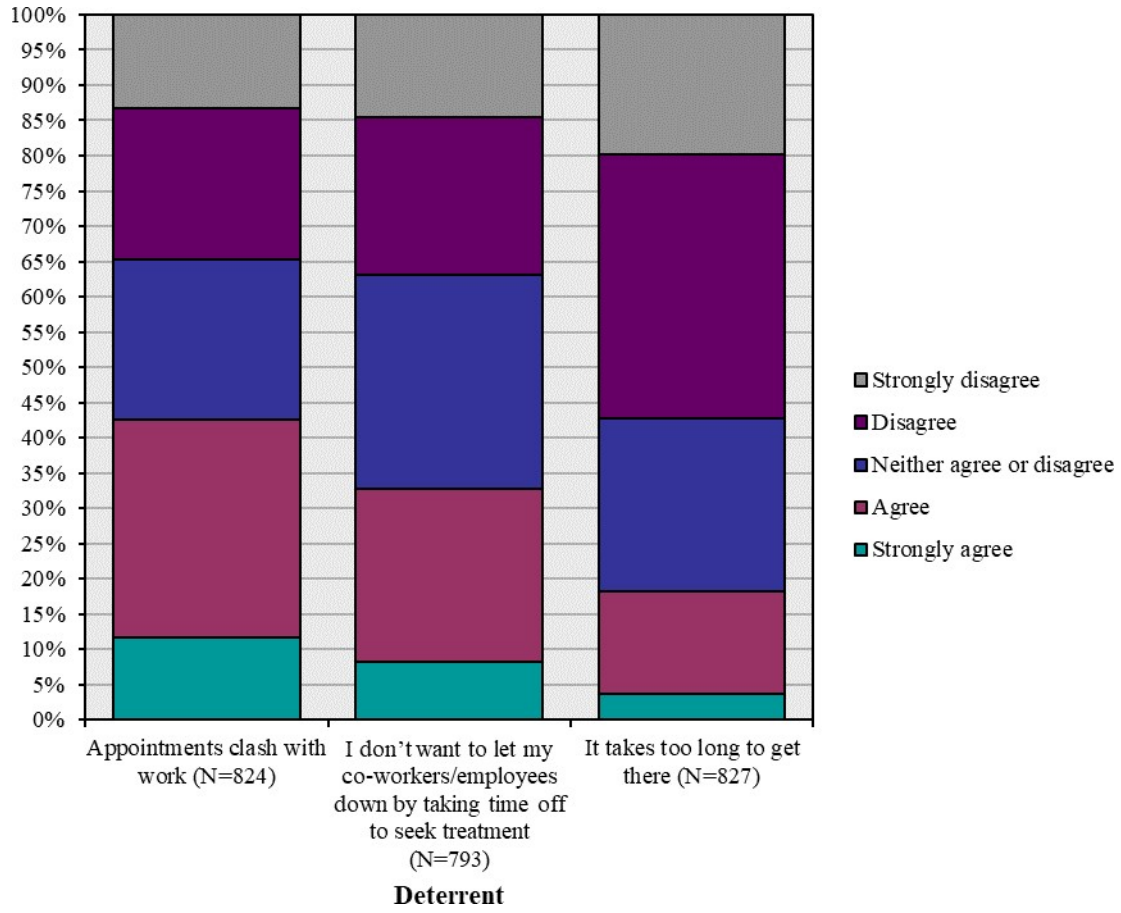

Figure 35. Respondent health seeking perceived work time constraint deterrents

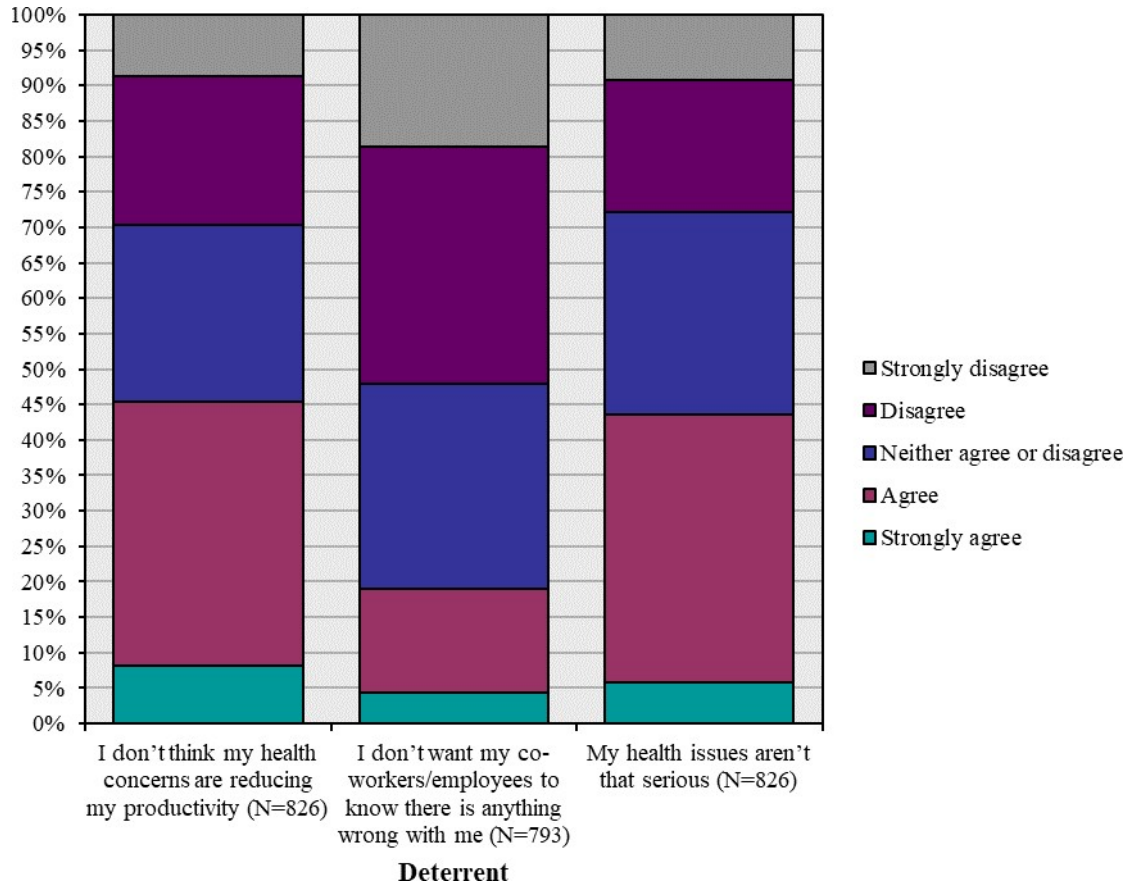

Figure 36. Respondent health seeking behaviour work deterrents

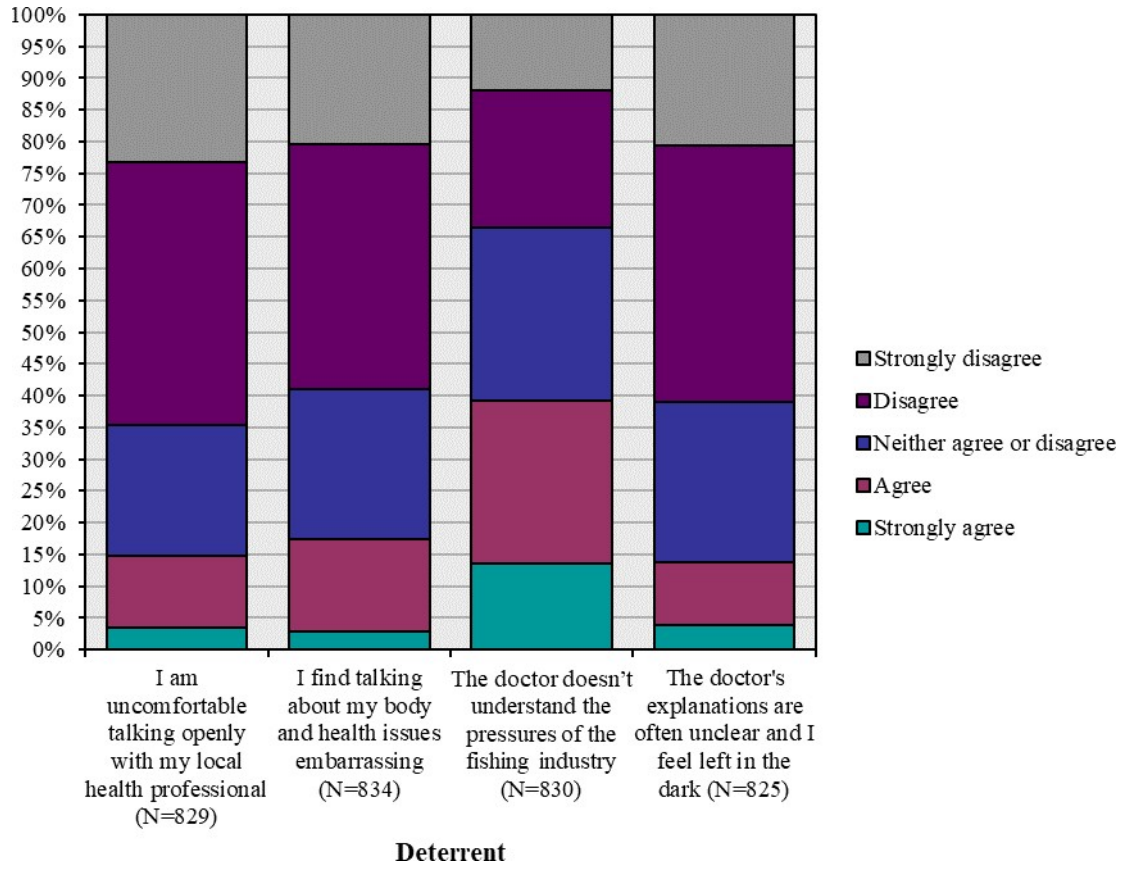

Figure 37. Respondent health seeking behaviour other deterrents

Accessing health information

This section sought to understand how fishers currently access health and wellbeing information, and how they would prefer to get this information.

Respondents were most likely to first consult doctors or health specialists if they had a health or wellbeing concern, for all except minor issues (Table 7). Few respondents had used phone or internet health services, and the vast majority were uncertain about both service availability and whether they would use these services (Figure 38).

The survey also asked about preventative health information as distinct from advice you might seek from your doctor for a personal health issue. For example, information about how to prevent and treat sting-ray injuries, rather than information on an actual sting-ray injury you have yourself. The preferred methods of receiving general health and wellbeing information specific to the fishing industry were hard copy written material, and one-on-one verbal information followed by reading information on the internet (Figure 39).

One of the key challenges to addressing health and safety concerns in the fishing industry relates to the best method of delivery. The information in Figures 39 and 40 give some indication of how to most effectively target information to the fishing industry. By far the most popular form of information provision is through 'community health organisations'. Several comments related to the question posed to respondents ('other' in Figure 40) referred to a specific organisation by name. Many of those in the 'other' section recommended someone, or an organisation, with

expertise in the fishing industry and the health issues that are relevant to that sector (Figure 40). This information is taken up in the production of the Fisher GP brochure produced as part of this project (see Appendix 6).

Table 7. Respondent information seeking behaviour

		Source of information				
		Internet (via computer or phone)	Friends or family	Doctor or health specialist	Phone service or help line	I would not seek help
Health or wellbeing issue	A major physical health concern (e.g. cancer, diabetes) (N=838)	7.6%	6.6%	81.6%	0.0%	4.2%
	A minor physical issue or injury (e.g. cut or rash) (N=832)	6.3%	25.7%	23.4%	0.4%	44.2%
	An embarrassing issue (N=823)	13.7%	13.2%	52.0%	0.4%	20.7%
	Bodily pain that made working difficult/uncomfortable (N=832)	3.2%	8.3%	63.0%	0.0%	25.5%
	Bodily pain that prevented you from working (N=837)	2.0%	2.9%	86.3%	0.0%	8.8%
	Mental health issue that made it difficult/uncomfortable to work (N-825)	3.7%	17.0%	51.4%	1.3%	26.4%
	Mental health issue that prevented you from working (N=825)	3.0%	10.3%	69.1%	1.7%	15.9%
	A sexual health issue (e.g. impotence, a concerning rash) (N=822)	9.2%	5.7%	69.2%	1.1%	14.7%
	Feeling ‘down’ for two weeks or more (N=823)	2.7%	23.8%	38.4%	1.1%	34.0%

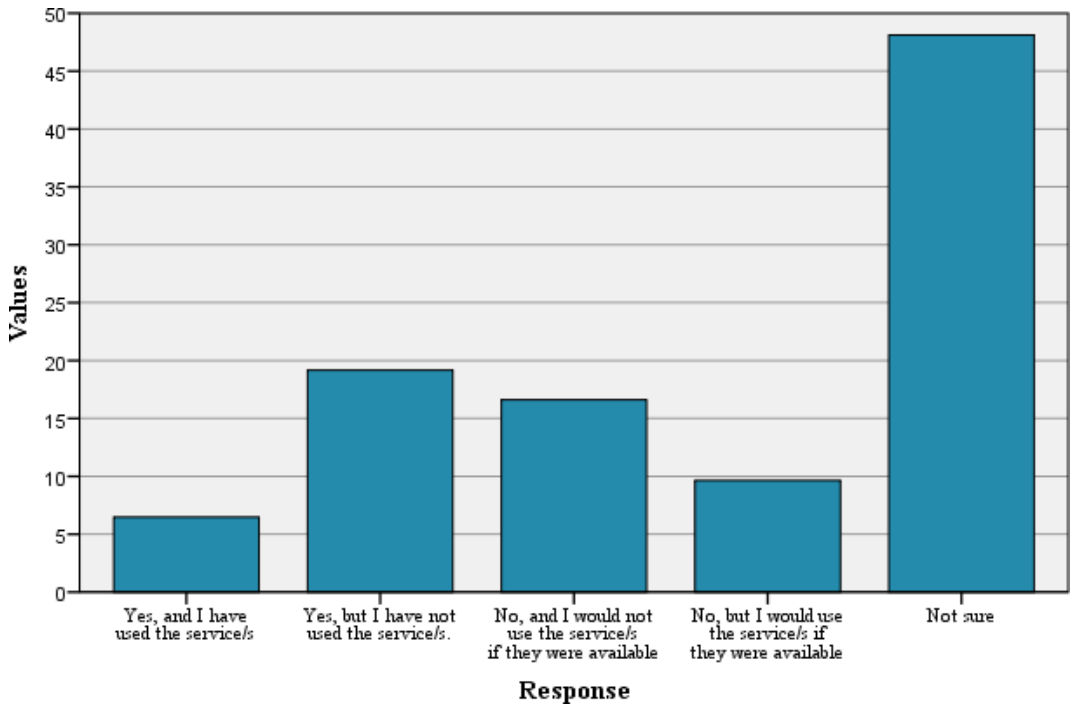

Figure 38. Respondent knowledge of availability and use of local region tele-health or e-health services (N=819)

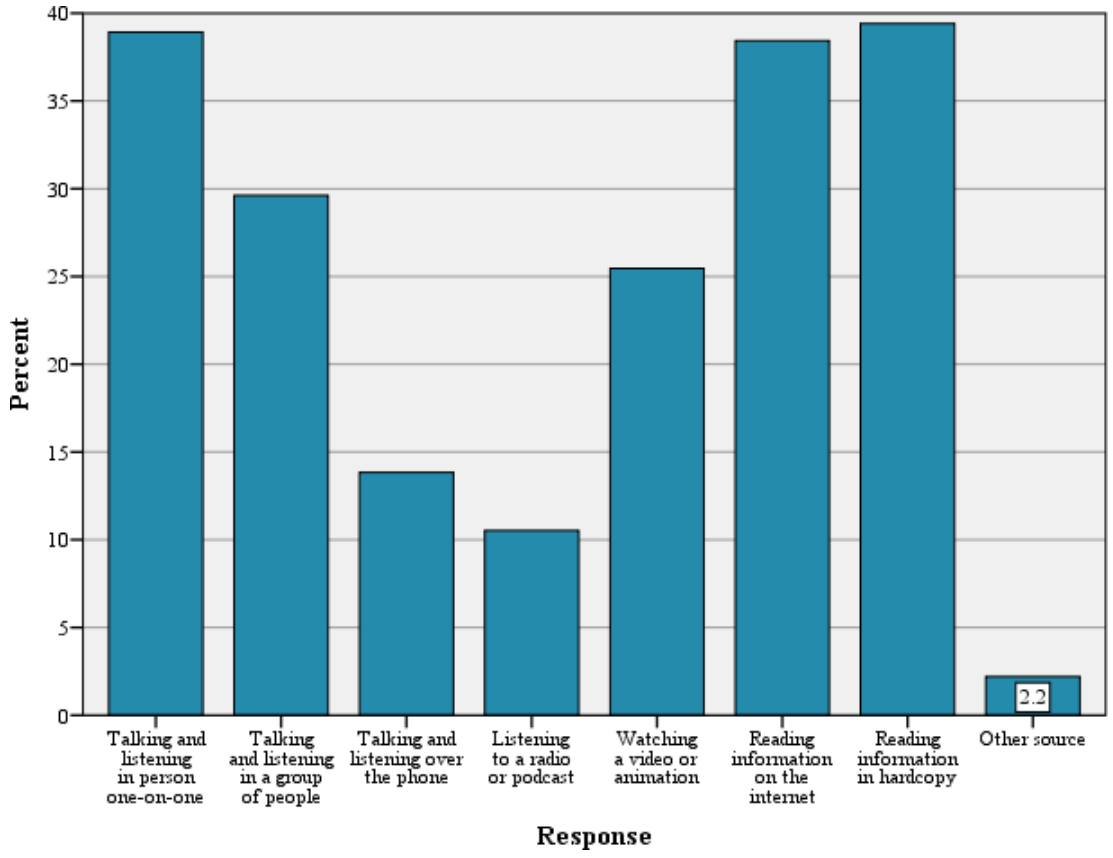

Figure 39. Respondent preferred method of receiving health and wellbeing information (N=817)

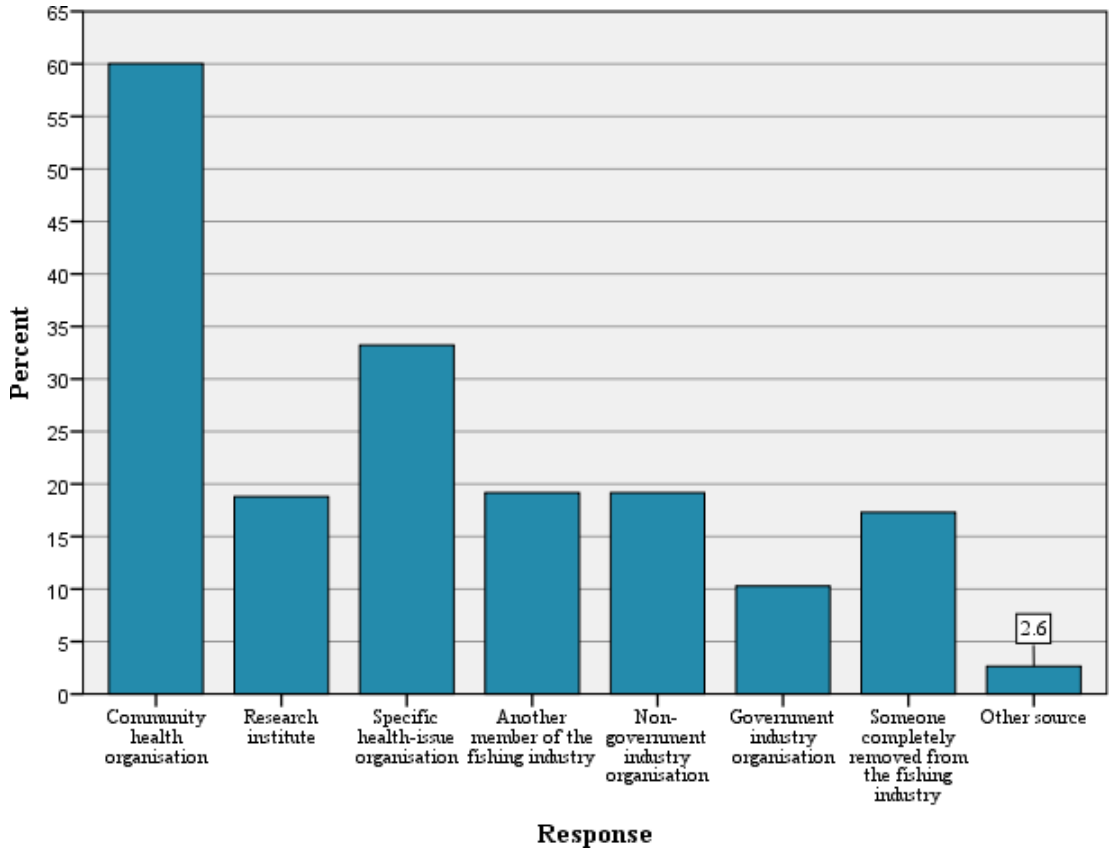

Figure 40. Respondent preferred source of fishing industry specific health and wellbeing information (N=798)

4.1.7. Perceptions of health, wellbeing and safety in fisheries

Factors affecting health, wellbeing and safety

The most important factors affecting the health and wellbeing of fishers in their fisheries were identified using a qualitative approach. 730 survey respondents responded to the question *"what are the five most important factors affecting the health and wellbeing of fishers in your fishery?"* There was a total of 2606 responses, and not all five factors were given by each respondent (89% gave 2 responses, 75% gave 3 responses, 52% gave 4 responses, and 36% gave 5 responses). A grounded theory approach (Strauss and Corbin, 1997) was used to code all of the survey responses to the question. An iterative method was used, by two coders, and codes were reduced into 12 themes (Table 8). NVivo was used to analyse the responses for themes.

Respondents interpreted the question as asking about factors that result in poor health and illbeing in the industry. Figure 41 shows the percentage of responses for each them. Physical health factors at sea was the most common response (24%) of which over a third related to fatigue; followed by fisheries management (22%) which related to regulatory burden and change, and perceived lack of fairness; mental health (17%) which linked stress, anxiety and depression with isolation, uncertainty and insecurity; and financial burdens (12%) which related to level of remuneration and entitlements, governance costs and running costs of a fishing business.

Table 8. Description of each theme coded

Theme	Description
Physical health - at sea	Nature of the work at sea, chronic and acute work-related injury (e.g. slips, trips, cuts) and strain, poor practices and safety culture, equipment failure, human error, sun exposure, animal interactions, and fatigue and long hours (36% of physical health responses)
Fisheries management	Regulation change (anticipated or experienced), quotas, licences, lack of fairness and procedural justice
Mental health	Stress, anxiety, and depression, isolation, uncertainty and insecurity
Financial burden	Pay and entitlements, governance costs, running costs
Fishing-related	Catches, stocks, environment of fishing
Physical health - on shore	Exercise, smoking, hygiene, back and joint pain, diet
Substance abuse	alcohol, illegal substances
Public & stakeholder perceptions	General public perceptions, negative media, recreational and lobby groups perceptions
Competition	With imports, commercial fishers, recreational fishers
Age of fishers	Age of fishers
Access to health services	Distance to health services, cost, scheduling around fishing
Masculinity culture	Masculinity culture

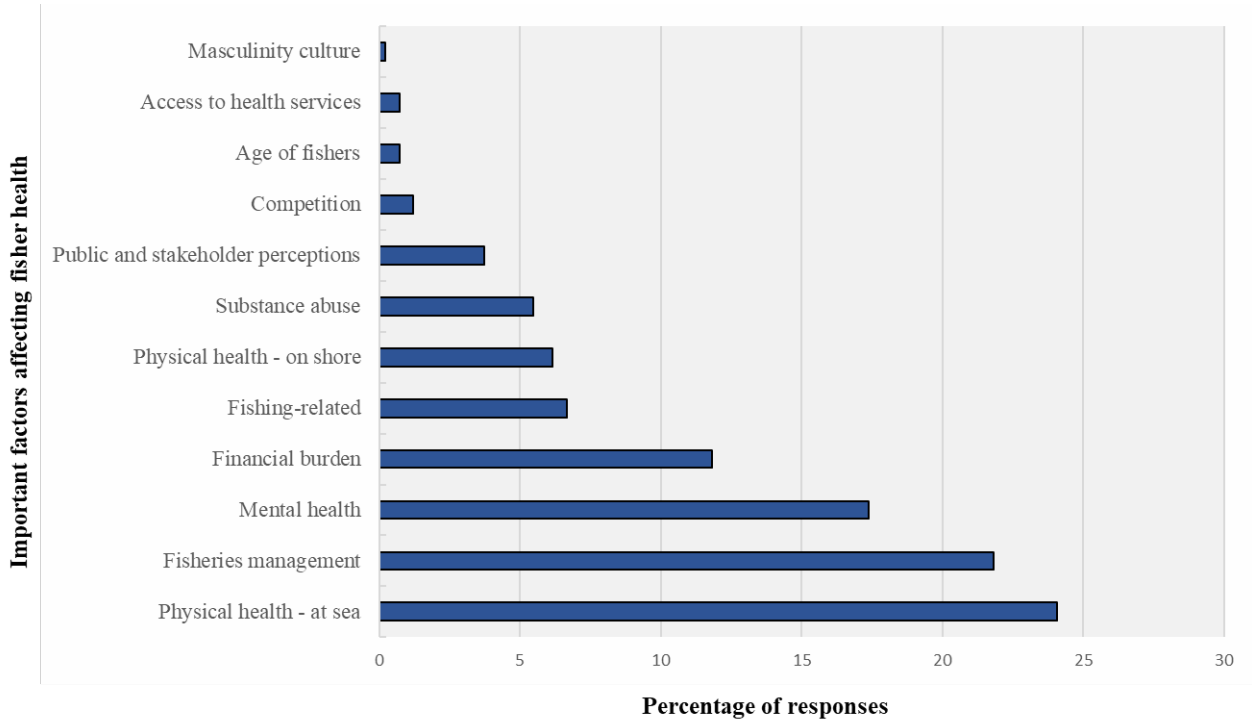

Figure 41. Most important factors affecting health in respondent's fishery (N=2606)

The report, 'Staying healthy: industry organisations' influence on behaviours and services used by fishers' (King, Kilpatrick and Willis, 2014), identified five key areas impacting on fisher health were identified: 'diet', 'stress', 'wear-and-tear on joints', 'injuries from tool use' and 'sun exposure'. Respondents were asked to rate each factor in terms of how much they impact on fisher health and wellbeing. This provided a more nuanced understanding of the perceived relative importance of each of these factors in relation to fisher health. Figure 42 shows that 'wear and tear on joints' and 'stress' are perceived to have most impact on fisher health, followed by sun exposure.

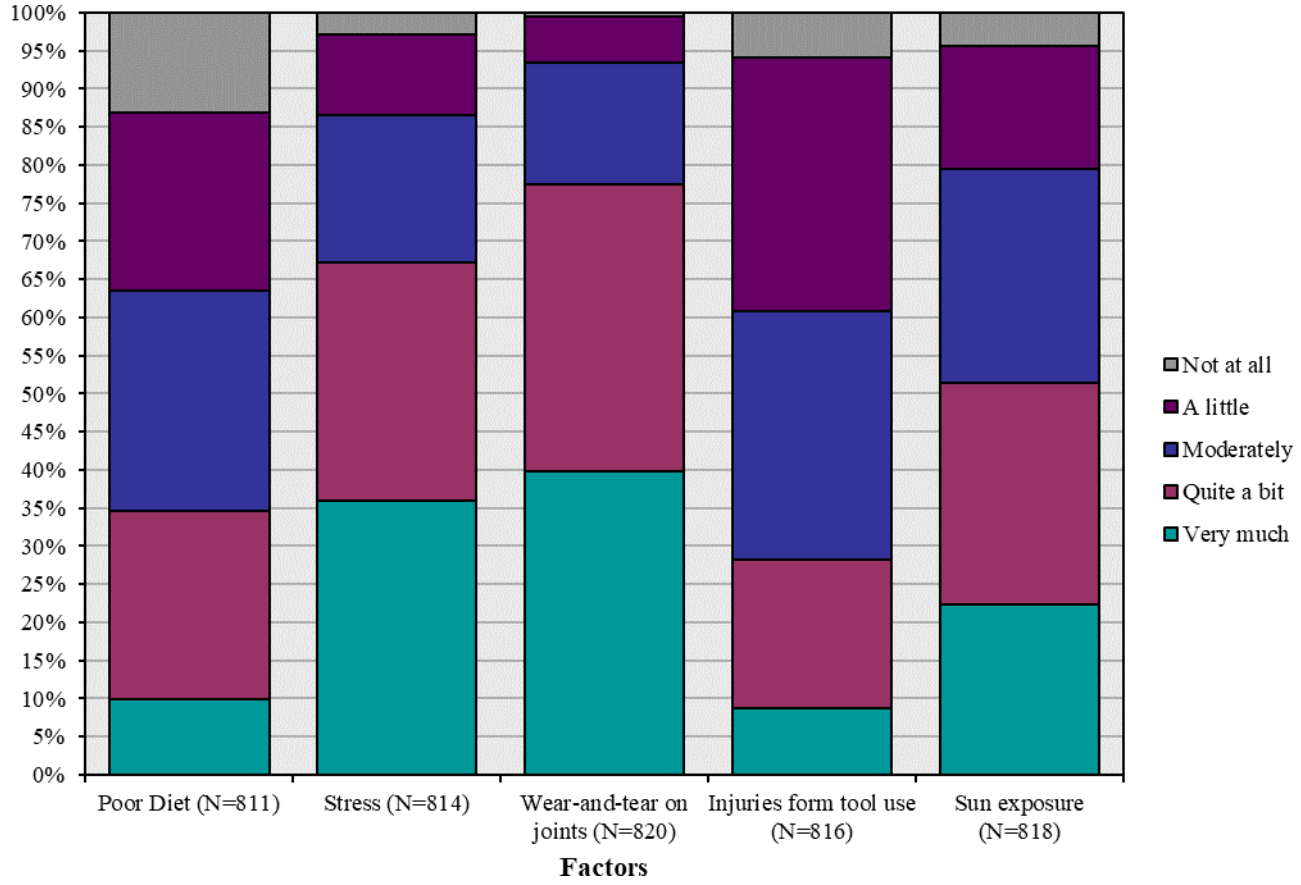

Figure 42. Respondent perception of how five factors impacted on fisher health and wellbeing in their fishery

Factors affecting stress

Respondents were asked about what were the factors contributing to stress in their fishery. These are presented in a series of figures which have separated into four types: Business operational and skills; Government and public opinion; Environmental and recreational fishers; and Physical, mental and inter-personal factors (Figures 43-46). The top source of stress is related to uncertainty (uncertainty about future changes to government regulations) (Figure 44). The second and third top sources of stress are also government related, government regulations on access and red tape. These are followed by negative media and poor public image.

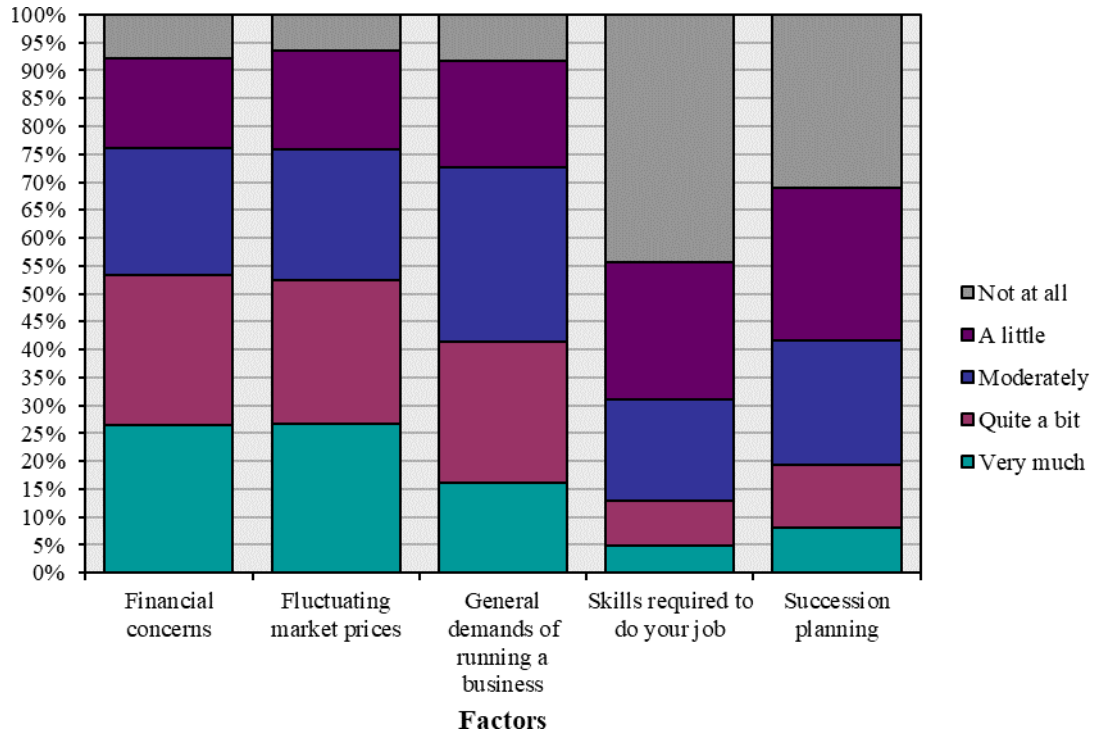

Figure 43. Business operational and skill factor impact on respondent experience of stress.

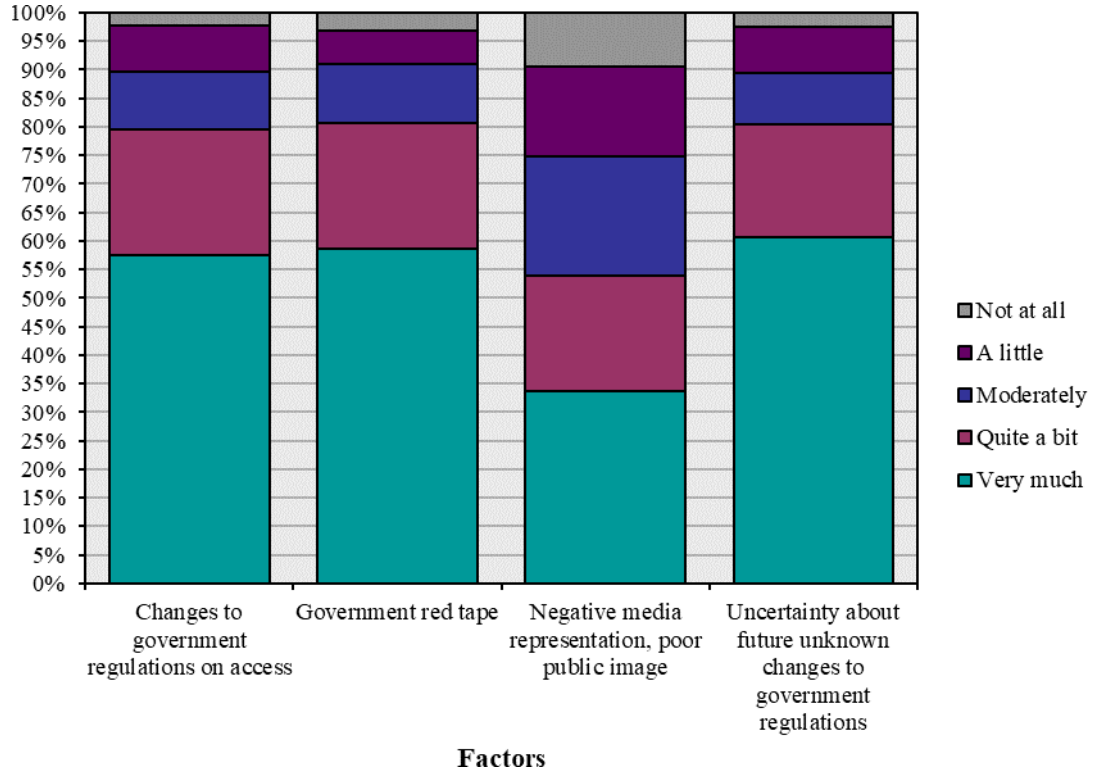

Figure 44. Government and public opinion factor impact on respondent experience of stress.

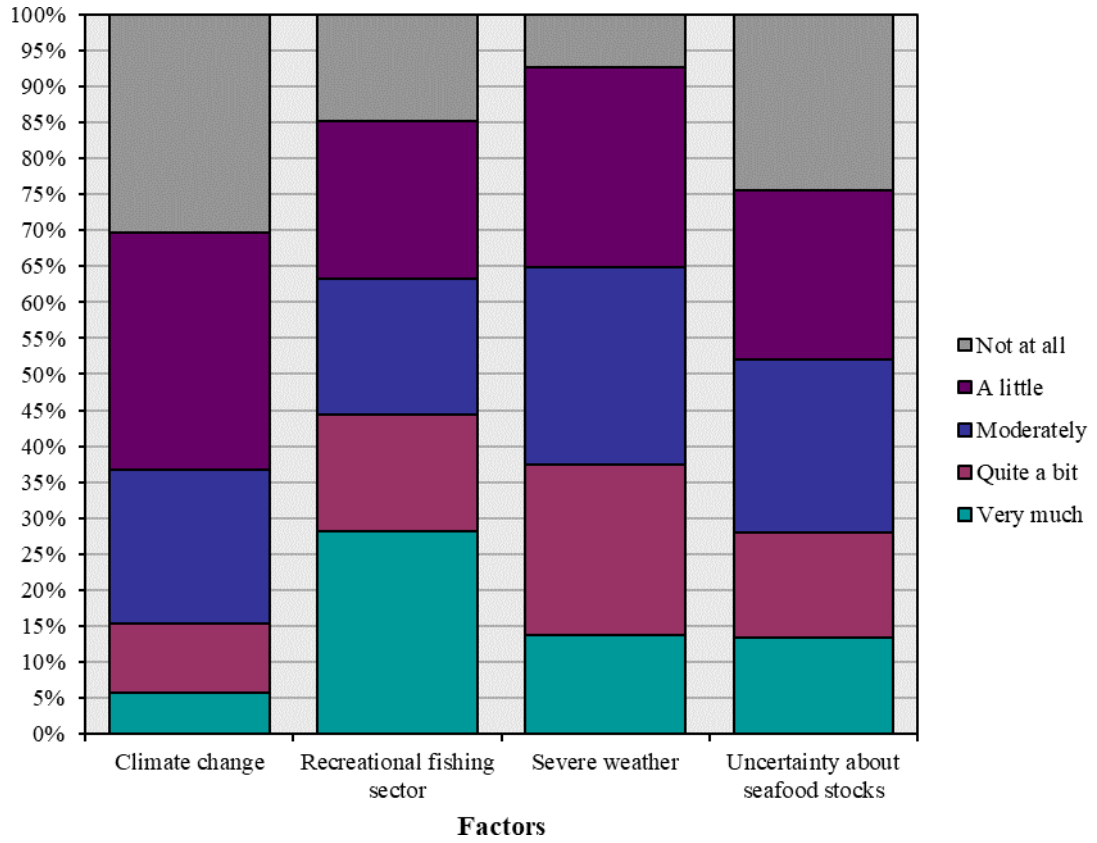

Figure 45. Environmental and recreational fisher factor impact on respondent experience of stress

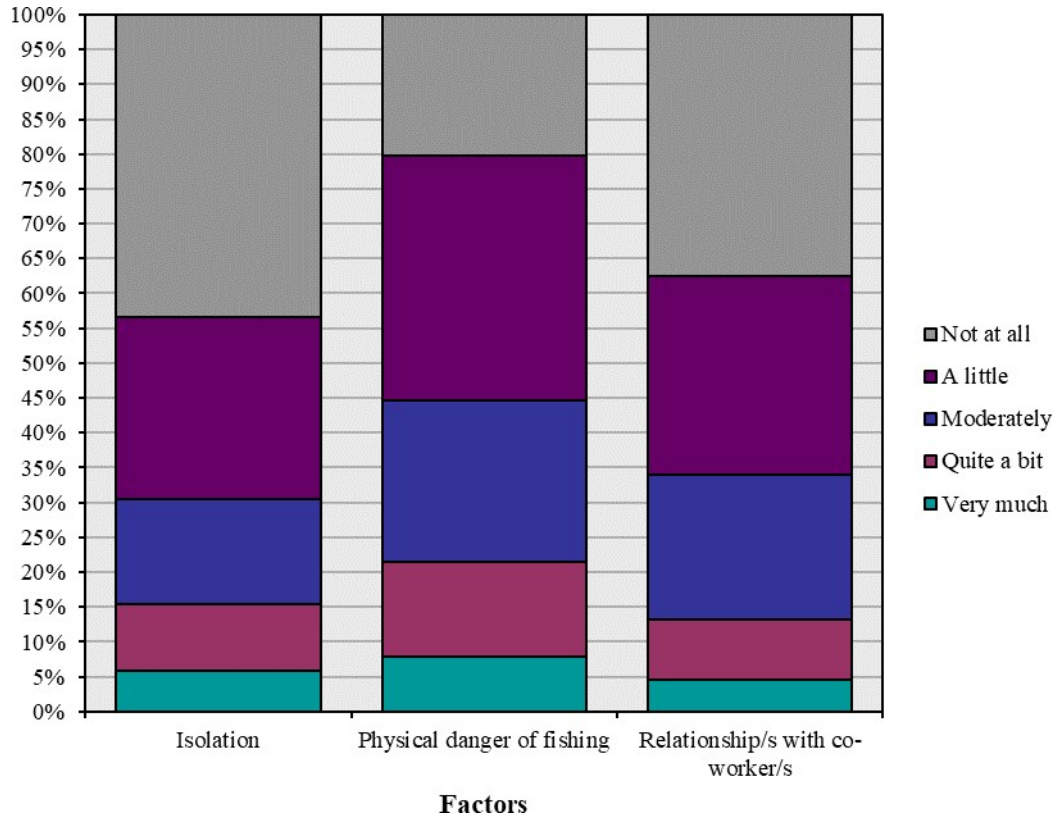

Figure 46. Physical, mental and inter-personal factor impact on respondent stress

Physical risk and safety

Respondents were asked to rate how they perceived the physical risks associated with their fishery compared to other Australian fisheries. Over 40% of fishers considered the physical risk associated with their fishery comparable to others (Figure 47).

We also asked about the role the commercial fishing industry plays in the safety of others at sea, through asking the number of times in the last five years respondents had provided assistance at sea and to who (commercial fishing vessels/crew, recreational users, merchant vessels/crew). 3620 instances of assistance were recalled and identified by respondents. Over half of the instances involved recreational users (e.g. fishers, windsurfers, jet-skiers, swimmers) (Table 9).

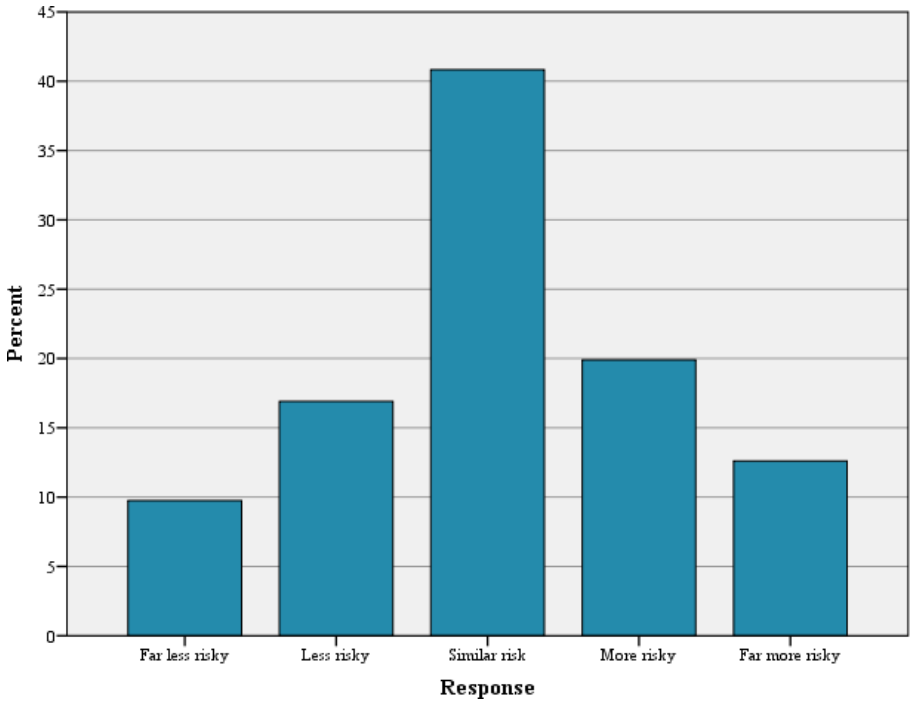

Figure 47. Respondent perception of own fishery physical risk compared to other Australian fisheries (N=769)

Table 9. Instances of assistance provided by respondents to other boats or persons within the previous five years.

	Responses received N and %	**Cases where assistance provided** N and %
Recreational users	746 (33.8%)	2121 (58.6%)
Commercial fishing vessel and/or crew	737 (33.4%)	1482 (40.9%)
Merchant vessel and/or crew	723 (32.8%)	17 (0.5%)
Total responses	2206 (100%)	3620 (100%)

4.1.8. Additional information

Of those who responded to the survey, 134 chose to include additional information. The content of these responses varied considerably, from very short responses to lengthy letters.[1]

Given the statistical results in Table 5 indicating that mental health is a concern for many of the respondents, it is not surprising that 'stress' was a common theme of responses in the additional information. Most of those who mentioned 'stress' clearly identified the causes of that stress as being connected to 'modern uncertainties.' The following comments are representative.

> 'Stress from management is the major contributing factor in fisher health. Constant changes, new rules, new closures, new restrictions, forcing more investment (loans/money) to buy more shares to work less time in less areas. Utter contempt [for] fishers and imposing comparatively astronomical charges for the mismanagement that has been going on for 30 years plus'. ***Male, 58, NSW.***
>
> 'I cannot emphasise [enough] the stress related to [the] uncertainty [that] governments impose on the commercial sector, from access to stocks [to] continued pressure from [the] recreational sector'. ***Male, 65, NSW.***
>
> 'When you own a business you have to work; no one else will do it! [I was] diagnosed with depression and anxiety three years ago. I am on medication now [and] I am a lot better. [Fishing is a] very stressful occupation, [because of] not knowing what government will do, if you can catch quota and what price you will get. Our business keeps three families employed'. ***Male, 58, SA.***
>
> 'Recreational fishers are the main source of my stress'. ***Male, 42, WA.***

The timing of the survey elicited comments in response to particular issues from different jurisdictions. In comments from respondents, concerns about the NSW fisheries reform was the most cited issue. At the time of sending the survey the NSW department was in the process of reforming the NSW net fishery (Voyer *et al.*, 2017). Concerns about QLD and WA reforms were also mentioned specifically.

The following comments are representative:

> 'I have my fingers crossed that there will be no suicides in NSW in the next six months. The reform takes away the long-term working rights of fishers and is forcing many to go into debt… to buy back those rights. It's a disgrace'. ***Female, 72, NSW.***
>
> 'The stress [that] the NSW fisheries [department] has put me through [over] the last two years by introducing fishing reforms, in a work place they know nothing about, and an unfair buy-back [process]. Your job policy is killing me'. ***Male, 51, NSW.***
>
> '[I'm] sure you know better than most the stress we are constantly under today. Even if not relevant to my fishery/area. I.e. Port Phillip Bay etc., QLD 3 x net-free

[1] A note on quotes and comments from survey and workshop participants. Small changes have been made to promote clarity and to provide context.

> zones (plus now there's a push to close Hervey Bay, QLD), MPAs. It makes me angry and stresses me out. Knowing others are suffering, while not understanding the hatred of fishers by some in the community, [it] affects work, love life, attitudes, feng shui, my children, friends, professional and personal life'. ***Male, 60, QLD.***

4.1.9. Phone calls

48 phone calls were fielded during the period the survey was open. These calls came from a range of people, including fishing licence holders, deckhands and family members. Around a third of calls were made to clarify some technical aspect of the survey (such as the omission of Tasmania from the paper survey), the notification that someone was not fishing any longer, or had died, or to request extra copies of the survey. The other two thirds of calls came from fishers or their spouses (usually wives), who wanted to know more about the survey, its origin and purpose, and to talk about their own experiences. Most of these conversations centred around the various stresses on those involved in the industry. Several women expressed concerns about the mental welfare of their partners, and several men spoke candidly about their own experiences with stress and depression. Some accounts detailed suicide ideation, the suicide of others and even about their own suicide attempts. During these phone calls, the PI (King) listened, emphasised that she was not a health professional, and provided relevant help-line numbers and encouraged the fisher to call if required. King facilitated contact within fishers' networks (fisher friend check-ins) and encouraged appointments with mental health experts.

While it was not the intention of this project to explore the issue of suicide, accounts such as these are important to highlight and may be an important line of future enquiry (Kunde *et al.*, 2017). The seriousness of these accounts require the careful attention of the appropriate professionals, and should be taken into account when designing mental health services for those in the seafood industry.

4.2 B. Sustainable Fishing Families

4.2.1. Adaptation of Sustainable Farm Families™ Program

The adaptation and modification of the Sustainable Farm Families program (workbooks, workshop presentations), and the increased understanding of NCFH facilitators and health professionals about the health issues concerning the fishing industry, were both important achievements of the project. The Sustainable Fishing Families program materials are housed at the NCFH for future participants in the Sustainable Fishing Families Program. The workbooks and presentations remain the Intellectual Property (IP) of the NCFH.

4.2.2. Key outcomes and findings from the Sustainable Fishing Families Program

The pilot Sustainable Fishing Families program achieved some very important outcomes and findings, including:

- 100% retention rate of participants (n=7) over the duration of the pilot program after attendance at the first workshop (i.e. all participants attended at least part of all workshops)
- Positive changes in health measures from physical health assessments between Workshop 1 and Workshop 3, except for diastolic blood pressure (Table 10)
- Substantial weight loss consistent with action planning by participants, with a total of 27kg lost from the group between Workshop 1 and Workshop 3
- Positive lifestyle and behaviour changes consistent with action planning by participants over the course of the pilot program
- Motivation to purchase and to wear PFDs by two participants after the safety session (out of a total of four fishers)
- 100% of participants would recommend the program to other fishing families

Table 10. Average results from physical health assessments and the changes between Workshop 1 and 3

Health measure		Average	Range	Total change Workshop 1 - 3
Body Mass Index: (weight/height^2)				
	Workshop 1	34.8	21.9-48.1	
	Workshop 2	34.6	22.1-47.1	
	Workshop 3	33.3	22.3-42.1	-1.5 ↓
Waist circumference (cm)				
	Workshop 1	109.6	90.6-147.5	
	Workshop 2	107.3	86.5-136.0	
	Workshop 3	106.2	88.0-134.5	-3.4 ↓
Blood glucose level: (mmol/L)				
	Workshop 1	5.3	4.2-6.2	
	Workshop 2	5.6*	5.0-6.4	
	Workshop 3	4.9*	4.4-5.5	-0.4 ↓
Total cholesterol level:(mmol/L)				
	Workshop 1	5.5	3.37-7.38	
	Workshop 2	5.6	4.45-7.11	
	Workshop 3	5.4	4.27-6.51	-0.1 ↓
Blood pressure average-systolic: (mmHg)				
	Workshop 1	129.8	112-148	
	Workshop 2	130.0	115-149	
	Workshop 3	125.1	115-148	-4.7 ↓
Blood pressure average diastolic:(mmHg)				
	Workshop 1	84.4	70-94	
	Workshop 2	88.29	76-107	
	Workshop 3	87.5	68-101	+3.1 ↑

*statistical significance $p<0.05$

4.2.3. Fishing families taking action – Sustainable Fishing Families Program Impact

Combining the learning from the workshops and in conjunction with participants physical and mental health assessments, the fishing families were encouraged to make an action plan to improve their health, wellbeing and safety both on land and at sea. All of the participants completed and documented an action plan. Actions plans were made at the end of Workshop one and two, with some plans extending through all of the workshops (e.g. increasing amount of exercise, purchasing and wearing PFDs). At the end of Workshop one and two, each participant decides what they would like to change and how they will change it. This is done in an open forum, and then how they progressed is discussed openly in the following workshop. Each participant had a number of actions documented in their health records.

The types and number of actions are shown in Figure 48. In the first workshop participants identified a total of 21 actions, and in workshop 2 participants identified a total of 11 actions between them. The majority of fishers were interested in managing stress better. 85% of participants listed this in Workshop 1, with less listing this in Workshop 2 (42%). Weight management was identified as an action with 71% of fishers including weight management in their plan and 85% also wanting to improve their diet and nutrition. 28.5% of participants aimed at improving their safety practices.

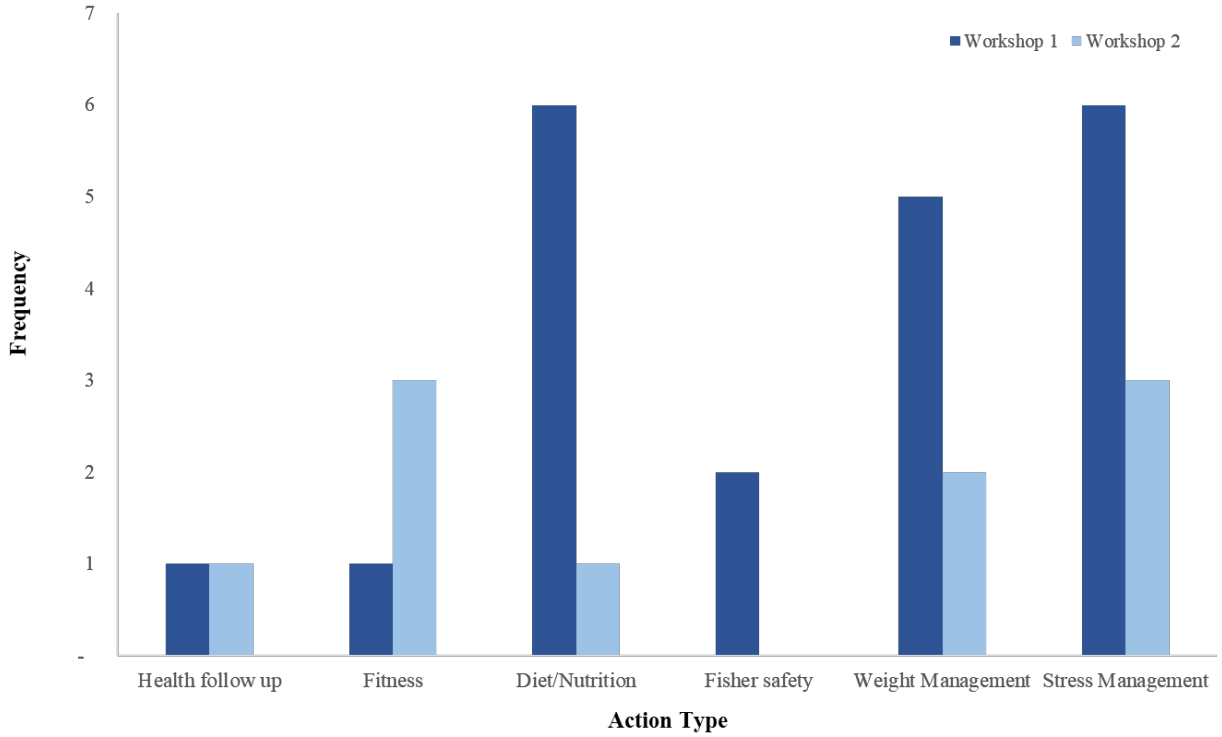

Figure 48. Summary of action plans from Workshop 1 and Workshop 2 with number of participants (note participants made more than one action

Participants rated the results of their actions at the following workshops (i.e. rated in Workshops 2 and 3). Using the Sustainable Farm Families™ behaviourally anchored scale [40] (Section 3.5.4), results were documented in their health records, and analysed to identify how participants had changed their behaviours over the life of the program.

Participants returning for workshop two provided feedback on how successful they had been putting their plans into action from the previous workshop six months earlier. The majority of participants (45.8%) felt they had moderate results to great results (Figure 49), with two participants expressing having results 'way beyond expectation'. However, in these self- assessments of their set goals, participants tended to assess their success pessimistically. In the group discussion, facilitators asked the partners what they thought, and in several cases the partners contradicted the self-assessment, arguing that they had actually been more successful than reported.

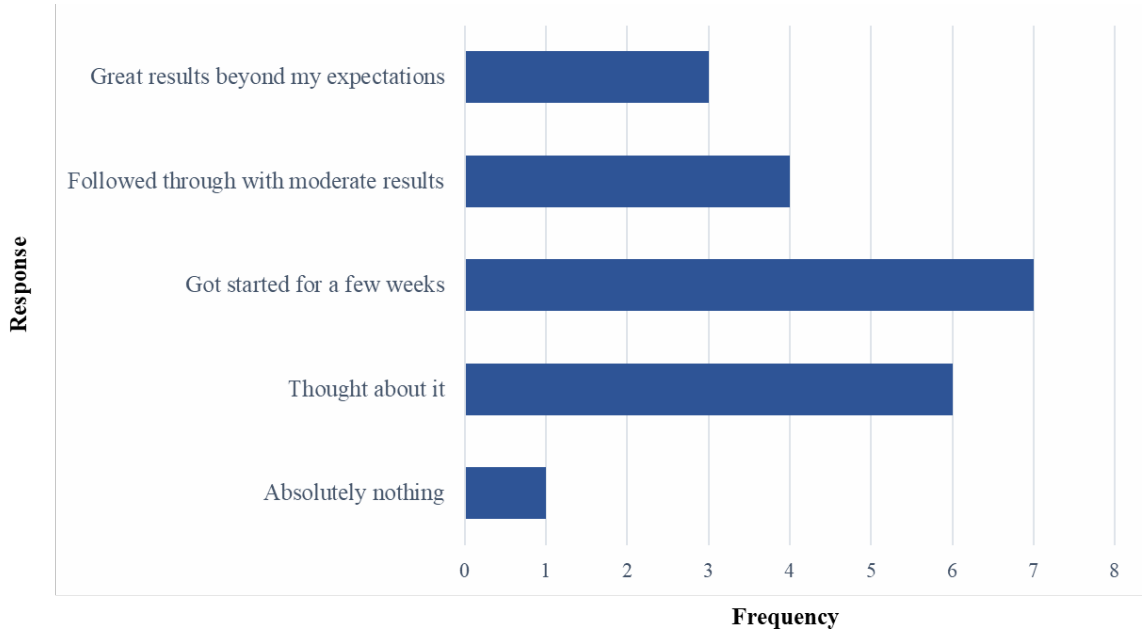

Figure 49. Self-assessments of action plans from Workshop 1, conducted in Workshop 2

4.2.4. Referrals from the Sustainable Fishing Families Program

Participants may be referred to see a doctor/specialist for a number of reasons. Under ethical guidelines, referrals were to be made if, during assessments, participants had readings above the following levels:

- 10-hour Fasting Blood Glucose Level ≥ 5.5mmol
- 10-hour Fasting Total Cholesterol Level ≥ 5.5mmol

Additionally, the following parameters have been implemented as recommended by ethics and general guidelines (Shaw and Chisholm, 2003). Any participant with a reading of or greater than these parameters is classified as at risk:

- Body Mass Index ≥ 25
- Waist - female ≥ 88cm
- Waist - male ≥ 102cm
- Blood Pressure systolic ≥140mmHg
- Blood Pressure diastolic ≥ 90mmHg

Following the first workshop which set a baseline, six participants from the total seven received a referral. Figure 50 shows the reasons why Sustainable Fishing Families participants were referred to seek further medical / health attention following their initial health assessment. A referral involved a written referral sent to their nominated health professional and a copy sent to them. On occasion, individuals were referred for more than one reason and the below representation includes these multiple referrals.

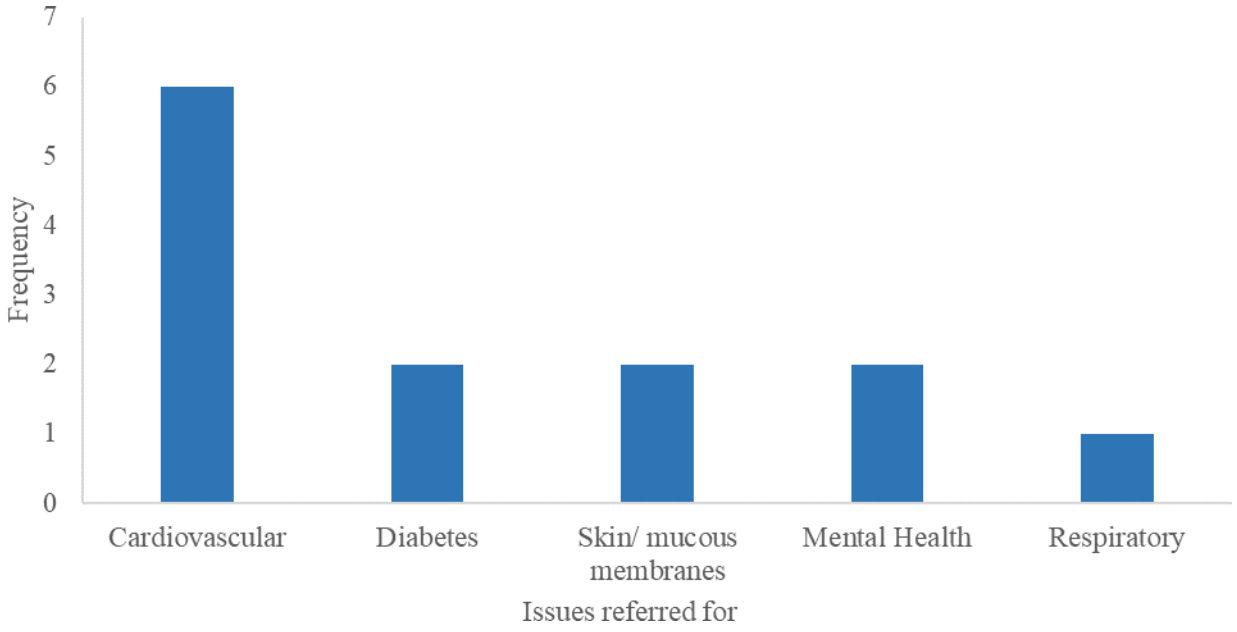

Figure 50. Referrals for participants (n=6 (i.e. 1 participant did not require a referral), a total of 13 health issues were identified that were included in the referrals. Noting that 6 out of 7 were identified as having a Cardiovascular Disease risk factor.

4.2.5. Participant evaluation

Following each module during the workshops, participants completed an evaluation form to assess each session and their satisfaction overall with each workshop. This required reflections on whether their knowledge had improved, they could use new knowledge, the delivery of the knowledge and learning techniques used was appropriate, the degree of active learning was appropriate, the organisation of the session was positive, the resource kit information and activities were helpful. These were posed as questions which asked participants to agree and disagree with on a seven-point Likert scale (Likert, 1932) (Table 10). High rankings were consistently achieved in all modules in the workshops, and the overall program mean score was 6.33 out of 7 (Table 11). Session results were consistent with Sustainable Farm Families™ results, with the first session usually scoring lower than the rest of the sessions.

Participants were also invited to provide qualitative comments on their experience with the session, including what they liked/disliked, how the workshops could be improved, and whether the participant would recommend the Sustainable Fishing Families program to others (Table 12). Participant comments included that the information provided was useful, delivered well, and made them think. Participants also liked the opportunity to meet new fishing families. Participant comments on how the content could be improved was greater information on weight loss strategies and greater discussion on depression. Some participants found the workshop format long and intensive. When asked if people would recommend the program, 100% of participants said they would recommend the program. Further comments were very positive and included that focussing on health was important for the fishing industry, and that they had learned a lot.

Table 11. Seven-point Likert Scale

Likert score	1	2	3	4	5	6	7
Response	Strongly disagree	Disagree	Mildly disagree	Undecided	Mildly agree	Agree	Strongly agree

Table 12. Likert scores for each module covered in the workshops

Module	**Mean Likert Score**
State of fisher health	5.78
Cardiovascular health	6.31
Diabetes	6.37
Fisher health & safety	6.20
Diet, nutrition & alcohol	6.17
Supermarket tour	6.19
Stress less in fishing	6.67
Wise women's health	6.97
Wise men's health	6.39
Action planning	6.44
Depression	6.21
Anxiety & suicide	6.17
Cancer	6.15
Physical activity	6.32
Respiratory health	6.43
Health assessment	6.47
Overall Program	6.33

Table 13. Detailed responses from participants on what they liked/disliked about the program, and whether they would recommend the program

Question	**Responses**
What did you like about the workshop overall?	• *Medical information – work book as a reference.* • *Good overall, easy to understand information.* • *It was good to spend some time with like-minded people and learning they have similar health problems.* • *The emphasis on mental health strategies.* • *Meeting new people. Highlighting my health and prompting action* • *Networking. Learning from others and hearing others speak openly about mental health.* • *Content is informative and well presented.* • *It has made me realise and think about some of the ways I go about things.* • *It gets you thinking about health and safety.* • *The relaxed delivery of information, videos, antidotes, chatter between slides.* • *List of helpful applications for each topic* • *Talking to other fishers and learning about different parts of the body* • *The chance to learn and evaluate my health plus the opportunity to meet and talk to other fishers* • *Information, opportunity to meet fishers from different region and learn about their work and lives. A friendly non-threatening environment too.*

What do you think could be improved?	• *A bit less time spent on talking about nutritional value of foods. I thought most people had a reasonable understanding.* • *More weight loss strategies (specific planning advice?).* • *Maybe more discussions on depression. Found it very important to speak openly about it.* • *A bit more compressed, not as long.* • *Opportunity for movement had to sit all day.* • *Closer together programs, sometimes forget info over several months* • *Sometimes information was a bit rushed through and over teach a bit. On the upside we have a fabulous reference book to refer too. Thank you*
Would you recommend the workshops to your friends or industry people?	• *100% of participants said they would recommend the program to others* • *Many men need to be more aware of their lifestyle effects on their health.* • *I learnt some things that may help with my health.* • *Health check was good. Day 2 all good/useful information.* • *Very informative - highlights your health and safety.* • *Helpful to increase own personal health and knowledge. Personal health assessments interesting and good for those who don't regularly see GP.* • *I have found both sessions informative and helpful.* • *I've learned some valuable things and it makes you think about your health and safety.* • *Allows people to explore health and issues in an easy environment.* • *Highlighting health and viewing your health* • *To take time to focus on health* • *Thought it was good to see your own health status* • *Wishing you success. I think bringing the fishing industry together in this format is important* • *It is so informative and relevant to people wanting to keep healthy and active and seem a balance in work and relaxation. Many health tips in all areas and it's good to have goals and try.*

In the final Program evaluations, fishing families were asked *'Has the program made a difference to you or your family's health and wellbeing over the last six months and twelve months?*' Overwhelming positive responses were received including:

- *'The supermarket tour made me use nutritional labels and I lost weight'*
- *'I've got a better understanding of how things work, such as cholesterol and that. It's easier to do something about when you know what to eat and not, and also to manage the alcohol'*
- *'I've been a bit more careful about what I eat and changed attitude to safety too' 'After we talked about the PFD's I went and bought some and wore them. That's because of this program. I have a better look at the nutritional labels now'*
- *'It's changed my family's stress resources. I'm aware of the physical components of stress and better to notice them day to day'*
- One couple shared their conversation after they had attended workshop one on the way home, *'we HAVE to do something'.* And they did and followed up with their action plans and have made a difference to their lives.

Fishers were also asked, *'What are the 3 most important learnings for you from participating in this program?'* Their responses included:

- *The men's health session was really good and informative – women learning about men's health.*
- *It's been good to have the opportunity to ask more in-depth questions about different issues.*

- *It was good learning about the men's stuff I didn't know and stuff about depression. It was pretty intense, it was good*
- *Do a physical activity every day*
- *I have to do more exercise, less alcohol, relax more and have more family time*

Participants were asked to give testimonials about the Sustainable Fishing Families program. Their testimonials can be found here:
https://www.youtube.com/watch?v=_1VvvIDwyE4&feature=youtu.be

4.2.6. Images from the workshops

Supermarket tour as part of learning about nutrition and diet

Brad Roberts from AMSA demonstrates a variety of PFD designs

Sustainable Fishing Families workshop

Sustainable Fishing families NCFH medical professionals, Susan Brumby (Director NCFH) and Alan Lowe

5. Discussion

5.1. Addressing the objectives of the project

Each objective of the project is addressed in turn below.

Objective 1. To improve the health and wellbeing of fishing families by promoting safer and healthier work practices:

The Sustainable Fishing Families pilot program on the Bellarine Peninsula, Victoria, promoted the benefits of safer and healthier work practices to the participants. Participant knowledge of health issues improved and were applied by participants through changing lifestyle and behaviours such as diet, stress management, increasing leisure time, taking more exercise, following up referrals with GPs/specialists, and improving fishing safety (purchasing and wearing PFDs). Measurable improvements included positive changes in health indicators on average of participants including Body Mass Index, waist circumference, blood glucose levels, cholesterol levels, systolic blood pressure. A total of 27kg was lost by the group.

In addition, at the time of submitting the report the Sustainable Fishing Families Program was about to be delivered again to a group of fishers in Corner Inlet, Victoria.

Objective 2. To develop strategies to inform fishing families of appropriate physical and mental health care programs and information, including strategies to address barriers to uptake:

The development of the Sustainable Fishing Families program materials means that there is now a dedicated health, safety and wellbeing program available for delivery to fishing families across the country. The NCFH are able to deliver the program and have greater knowledge of the fishing industry and relevant health issues. The Sustainable Fishing Families program provides participants with tangible and demonstrably effective strategies for enhancing their health.

In recognition and on reflection with participants of the Sustainable Fishing Families program, and the difficulties with recruitment, suggested strategies to improve the uptake of the program include:

- Conduct the program in fishing communities with a larger pool of fishers (although consider bringing fishing families from other areas as connecting with others was important to participants
- Conduct the first workshop (which is 2 days) during the closed season if the fishery has one as participants are more likely to return once they have started the program
- Try to have a homogenous group of fishers (e.g. all divers) as much as possible to be able to work out the best times to conduct workshops that suits the particular fishery
- Recruit champions of the program who will encourage peers to participate

However, the necessary resource intensity (time and financial cost) of the Sustainable Fishing Families program will remain a barrier for many fishing families. Sustainable Fishing Families is ‘gold standard’, and although not addressed in this project, a range of less costly approaches could be considered and contrasted for implementation. These would likely be ‘lighter’ versions of literacy and health programs given the research and expertise that has informed the Sustainable Farm Families™ (and now Sustainable Fishing Families) program development. One basic program might

be annual health checks for active fishing industry members, informed by knowledge of fishing-related health concerns.

In response to the survey findings on preferences for accessing health information, the project is in the process of designing a communication brochure (of key findings) and a flier for the Sustainable Fishing Families program (to be finalised with publishing of Final Report). The Fisher GP brochure attached in Appendix 6 is a draft of what could be included but is not the final product. The intention of the brochure (as well as to be distributed widely to stakeholders) is for fishers to be able to take it to their GP. The intention is for this approach to go some way to assist in facilitating a more open dialogue between fishers and their doctors about industry-related health issues. Surveyed fishers also stated their preferred methods of receiving general health and wellbeing information specific to the fishing industry were hard copy written material, one-on-one verbal information and through reading information on the internet. The communications brochures will be distributed to industry associations and industry stakeholders, as well as to those fishers the project has contact details for. The communications may be included in industry publications which are both hard copy and electronic. Furthermore, surveyed fishers stated they preferred information provision to be through 'community health organisations'. As such, the project will be distributing the key project findings brochure, and a Sustainable Fishing Families flier to the Primary Health Networks in coastal areas in Australia.

The information from this project, which was presented at Seafood Directions 2017, has been used to inform industry-led programs of work, including Project Regard (Women in Seafood Australasia), Staying Afloat (Tasmanian Seafood Industry Council), FRDC Mental Health workshop (Aug 2018), Seafood Industry Australia media releases (World Mental Health Day, R U OK? Day) and is now aligned with a number of safety-focussed projects and programs. This greater industry-wide conversation should enable strategies to overcome barriers to be developed by industry.

Objective 3. To provide rigorous research that will raise the profile of the health issues and needs of Australian fishing families, and inform government, industry and health services of specific health issues and needs of, and effective support pathways for, fishing families as distinct from farming families:

The 2017 National health, wellbeing and safety survey provided the first baseline dataset of the state of health in Australian commercial wild-catch fishers, the perceived factors that affected health, health and safety behaviours, and barriers to accessing healthcare services. Key findings included:

- 703 paper questionnaires were returned giving an estimated response rate of 15.3%. In addition, 169 online surveys were returned, giving a total of 872 responses. Australian Bureau of Statistics (ABS) Census data estimates the total national wild-catch employment was 5,777 people in 2016. The project survey response rate was 15.1%, which compares favourably with the sample used in the ABS National Health survey of 19,259 persons from a population of over 20 million (0.001%).
- In comparing the survey sample with Australian Bureau of Statistics (ABS) 2016 Census data, Western Australia and Victoria appear to be over-represented in our sample, with Queensland, South Australia, Northern Territory and NSW under-represented. Representation of gear types was examined however due to different gear categorizations, it is difficult to determine the representativeness of the sample by gear. The sample appears to be roughly representative on

gender (men make up the majority of the survey sample and ABS industry statistics) and full time/part-time status.

- While the Australian wild-catch fishing industry face health, safety and wellbeing challenges that overlap with other sectors of the Australian population, particularly primary industries such as farming, there appear to be fishing occupation-related particularities that impact on the health, safety and wellbeing of those in the fishing industry. These are summarized in more detail below:

Reported physical and mental health

- 60% of fishers who responded to the survey had moderate to very severe bodily pain (reported for the four weeks prior to survey). This is higher than reported by the ABS on the general population (46.5%). Over half of the respondents said pain had interfered with their normal activities, suggesting that bodily pain is an occupation-related health issue.
- The most common health symptoms experienced by the fishers surveyed included back pain, joint pain, fatigue, stress, trouble sleeping, sunburn, infections, and hearing problems. Over 30% of surveyed fishers experienced these health symptoms.
- Surveyed fishers reported being diagnosed with a number of conditions at a higher rate that the general population, particularly high blood pressure, high cholesterol, depression, type 2 diabetes and cancer. This suggests that these conditions may be occupation-related health issues.
- Fishers who responded to the survey experience significantly higher levels of 'high' and 'very high' psychological distress than the Australian population as a whole. High or very high levels of psychological distress were experienced by 16.0% and 6.2% of fisher respondents respectively, compared to 8.0% (high) and 3.7% (very high) of Australians aged 18 years and over. This suggests that high or very high levels of psychological distress is an occupation- related health issue. Surveyed fishers reported significantly lower levels of low psychological distress that the Australian population. Low levels of psychological distress were experienced by 54.3% of fisher respondents, compared to 68.0% of Australians aged 18 years and over. National statistics are from the 2014-15 National Health Survey.

Factors affecting health, wellbeing and safety

- Around half of surveyed fishers had social capital index scores that suggest they feel highly connected to and included in their community. Over a quarter have a low score, suggesting they feel only weakly connected or not connected to, and weakly or not included in, their community.
- The top contributors to health and wellbeing were identified by respondents. Physical health factors at sea was the most common response (24%) of which over a third related to fatigue; followed by fisheries management (22%) which related to regulatory burden and change, and perceived lack of fairness; mental health (17%) which linked stress, anxiety and depression with isolation, uncertainty and insecurity; and financial burdens (12%) which related to level of remuneration and entitlements, governance costs and running costs of a fishing business.
- The top sources of stress reported by respondents was related to uncertainty about future changes to government regulations, government regulations on access to fishing, and red tape (>50% responses). Negative media and poor public image were also significant sources of stress (>30% responses). In contrast, factors such as isolation, physical danger of fishing, climate change, and succession were not perceived to be associated with stress.

Health and safety behaviours at sea and on shore

- Less than 11% of respondents wear a personal floatation device (PFD) every time they go to sea and nearly 84% of respondents said they never wear an Emergency Position Indicating Radio Beacon (EPIRB) when at sea. Almost half of the fishers surveyed work in areas without good phone or internet reception.
- 65% of respondents wear sun protection when outside for long periods.
- More than three-quarters of respondents worked on boats with a drug and alcohol policy, and more than two-thirds were alcohol free.
- Less than 15% of respondents reported 'usually' or 'everyday' smoking or drinking alcohol 'until a little drunk'. Just over 20% drank more than four cups of coffee every day.
- Less than 40% of fishers surveyed usually or always exercise and less than 25% usually or always do something to relax each day.
- 3620 instances of assistance at sea were identified by respondents. Over half of the instances involved recreational users (e.g. fishers, windsurfers, jet-skiers, swimmers).

Health seeking behaviours

- Work commitments and perceived impact of health issues on productivity and finances influenced surveyed fishers' decisions to seek health advice or treatment. Over 40% of surveyed fishers agreed to statements: 'appointments clash with work', 'I don't think my health concerns are reducing my productivity', My health concerns aren't that serious'. Over 30% agreed with: 'I don't want to let my co-workers down/employees down by taking time off to seek treatment'. Over one quarter agreed with: 'I can't afford to stop working to seek treatment' and 'Appointments and medications are too expensive'.
- There was a perception by 39% of respondents that 'the doctor doesn't understand the pressures of the fishing industry'.

Accessing health information

- Surveyed fishers stated that the preferred methods of receiving general health and wellbeing information specific to the fishing industry were hard copy written material, and one-on-one verbal information, followed by reading information on the internet.
- Surveyed fishers stated they preferred information provision to be through 'community health organisations'.

The National survey preliminary results were presented at Seafood Directions in 2017, raising the awareness of the health issues facing the seafood community, particularly in relation to experiences of poor mental health among industry. In the 2017/2018 the issue of mental health in the fishing industry was covered in a number of media stories. The profile-raising (through the media as well as via discussions, conference papers and other forms of information sharing), of this particular issue has contributed momentum to those within the industry to address mental health as a matter of urgency. For example, the release of the preliminary results of the survey contributed to the decision of a number of Tasmanian industry bodies to initiate an industry-led campaign to address poor mental health among their members (pers comm. Julian Harrington, 6th September, 2018).

A range of relevant service providers are now aware of the gap in mental health services to fishers and are actively involved in discussions about their potential future role in filling this gap, including

the Employment Assistance Program servicing the blue water sector, Hunterlink, Rural and Remote Mental Health, Beyond Blue, and Rural Alive and Well.

Through the advertising and running of the Sustainable Fishing Families program, this project has identified the health, safety and wellbeing of fishers and their families as an industry priority. If the program is rolled out across more fishing communities, the benefits will spread further. Similar to the Sustainable Farm Families™ experience, the more fishing families that participate, the greater the momentum and encouragement from peers to engage in the program. The Sustainable Farm Families™ program has been delivered to over 2500 farmers since 2003. Industry associations are now aware of the Sustainable Fishing Families program and its availability, particularly in Victoria (via Seafood Industry Victoria) as the focus of the pilot was in Victoria, however, more can be done to advertise the program nationally. The Sustainable Farm Families™ is run throughout Australia via industry bodies.

Objective 4. To develop a targeted, industry-led program that will address the health issues and needs of fishing families based on the proven Sustainable Farm Families™ protocol.

The existing Sustainable Farm Families™ program was adapted to make the information contained more relevant and appropriate for the fishing industry. Academic and grey literature was searched to glean relevant information for incorporation into the program materials and resources. The adapted program was piloted with 7 Victorian fishing family members, and 100% of participants said they would recommend the program to others.

The resulting Sustainable Fishing Families program now exists and consists of:

- A Resource workbook (12 chapters of health information tailored to the fishing industry)
- Program slides for three workshops with industry-tailored information and examples
- Three staff from the NCFH who facilitated the pilot with fishers, are able to deliver more programs with members of the fishing industry (as well as continuing with their core business of delivering programs to the agriculture sector). This contribution is significant as it means that there is now a team of health professionals who are conversant with the particular health, safety and wellbeing issues particular to the fishing industry.
- Based on the success of the pilot program's first two workshops, the Victorian State government have agreed to direct funding into two more Sustainable Fishing Families programs in Victoria, from existing funding already allocated to run the Sustainable Farm Families™ program with farmers (Corner Inlet is the next group to complete the program). There is scope to use this allocation to encourage other State and Territory governments to provide similar funding for Sustainable Fishing Families programs interstate.

5.2. Discussion of the Findings

The National survey of health, wellbeing and safety of the Australian commercial wild-catch fishing industry illuminated clear physical health and safety concerns that must be addressed. However, of immediate concern is the high self-reported levels of stress and psychological distress among the respondents. There has been recent work by industry stakeholders to raise awareness of, destigmatise, and address poor mental health in the commercial fishing industry (Ogier and Fudge, 2018; Seafood Industry Australia, 2018; Tasmanian Seafood Industry Council, 2018).

5.2.1. At sea health and safety – key areas to address

Diet

One key area which survey respondents identified as having an impact on health was poor diet. This may be linked to the self-reported high levels of cholesterol and diabetes also found in the survey. The holistic health benefits of an optimal diet and good nutrition are well known (Fontana and Partridge, 2015; Miller and et al., 2017), and this may be a key focal area to improve the overall health and wellbeing of the seafood industry. The unpredictable nature of the job of fishing, and that fishers may eat differently on land compared to at sea may be a reason for poor diet. These differences are likely be influenced by the fishing trip length (e.g. day trip, multi-day trips, fishing from ports other than home).

Back and joint pain

The self-reported incidence of back and joint pain was high. This is an unsurprising result given other studies findings. Fishing requires continuous, body-stabilising movements on the deck of a boat, which is combined with heavy lifting and repetitive actions. More may be done to promote ergonomic technologies both on board and in land-based work contexts (e.g. processing), as well as awareness of the importance of minimising harmful lifting/repetitive postures.

Fatigue

Working around weather, seasons, and tides and other environmental and fishing conditions requires many fishers to work long hours that also do not accord with regular sleeping patterns. Of those who responded to the survey, 58% reported that they had experienced fatigue in the past year. While self-reporting of fatigue is subject to individual interpretation, taken in combination with evidence of fatigue being the largest single contributing factor in accidents (Matheson *et al.*, 2001; Mayhew, 2003; O'Connor and O'Connor, 2006; Allen, Wellens and Smith, 2010; Remmen *et al.*, 2017), this finding confirms the need to address issues of fatigue as an industry imperative in Australia. Fatigue in fishing is generally considered to be 'part of the job', and it is an under-prioritised area of research (á Høvdanum, Annbjørg *et al.*, 2014). Greater understanding is needed to assess how much of the variance in fatigue is attributable to particular fishing activities e.g. length of trip, hours of work without rest, and type of job and specific tasks. A greater understanding of the similarities and differences between acute and long-term fatigue is also needed. In addition, it may be possible that strategies are available from industries where fatigue is also a known issue (e.g. transport, forestry, farming, mining). It may be useful to review strategies for transferability to the fishing industry (Grech, Grech and Rita, 2016; Kim *et al.*, 2018).

Substance use

Most survey respondents worked on boats with a drug and alcohol policy, and which were alcohol free. However, for the open question asking respondents about the factors influencing poor health and wellbeing, 6% of responses referred to substance abuse including alcohol and illegal drugs.

While not the more common response, it still may be an area of concern for particular fisheries and places. A 2012 study into alcohol and drug abuse in Australian fishing and farming industries found that 8% of fishing participants reported high risk/dependent alcohol use, and this was linked to psychological distress. (Allan, Clifford, *et al.*, 2012; Allan, Meister, *et al.*, 2012). An analysis of National Drugs Strategy Household Survey (NDSHS) data, found that commercial fishing workers had the highest level of use of at least one illicit drug (40.5%) (Gates, Roxburgh and Copeland, 2008). Other studies into particular fisheries have found high rates of marijuana, amphetamine, alcohol, intravenous drug use, and that even if workers consumed drugs and alcohol on shore, they may still be under the influence of alcohol and drugs when back to work (MacDonald *et al.*, 1998; Carruthers, Boots and Midford, 2002; Evans *et al.*, 2005). There has also been some research in the fishing industry in New England, which found opioids were used by fishers to prevent chronic pain and were at high risk of developing an opioid use disorder (Walter *et al.*, 2018). Given the rising use of opioids for pain management in Australia, (Australain Institute of Health and Welfare, 2018) it may be prudent to include a question about opioid use in future health surveys of the fishing industry.

Use of safety gear

The survey findings indicate Personal Floatation Device (PFD) and personal Emergency Position Indicating Radio Beacons (EPIRB) use is still very low, with less than half of respondents wearing a PFD and only 11% wearing one every day. Only 6% of respondents reported wearing a personal EPIRB every day. However, this is a slightly more positive result compared to other assessments of PFD use in Australian fisheries in the past. PFD wear rates are as little as 1% in a small sample of South Australian fishers (Brooks, 2005), for example. The most common cause of death at sea was drowning (between 1992-8), and only 5% of those who died were wearing PFDs (O'Connor and O'Connor, 2006). Indeed, this study noted that of the incidents recorded, only 29% of boats carried enough PFDs for everyone on board. While there is some cause for optimism that rates of safety gear usage are improving, it is slow. There is a need for ongoing support for improving the rates of safety equipment use (Mitchell *et al.*, 2001; Brooks, 2011, 2018; Casey, Krauss and Turner, 2018).

Rescues by fishers

In contrast to the negative areas of health and safety at sea reported above, fishers contribute to a safer maritime environment through their role in assisting other vessels and water-users in distress at their own cost. Survey respondents indicated that they had provided assistance to recreational users, commercial and merchant fishing vessels and crew at sea 3,620 times in the past five years (although the same instance may have been reported by a number of respondents). Efforts were made to determine an approximate cost to the tax-payer for an at-sea rescue, but such a figure was not available via the Australian Maritime Safety Authority. The cost to the individual, and to the government, of these acts of assistance at sea are difficult to quantify, as there is no simple way to calculate the cost of each rescue [pers. comm. Brad Roberts, AMSA].

A centralised record of incidents in which fishers provided assistance to other marine users and a calculation of the in-kind value of assistance would be beneficial to the industry. This would give an

economic value to the contribution of the industry to safety at sea. Compiling a record of rescues at sea by fishers would render this safety-service visible and go some way to recognising the contribution of the industry in this space. Such recognition could increase the perceived value of the industry to those in the wider community, as well as providing an avenue for acknowledging and thanking fishers for their contributions to community safety at sea.

5.2.2. Stress and psychological distress

Stress featured prominently in responses to the survey with over half of all respondents self-reporting they had experienced 'stress' in the past year. The survey also indicated higher rates of depression and anxiety diagnoses than that of the Australian general public (Australian Bureau of Statistics, 2015). However, it is important to note that direct comparisons are not possible because of the difference in sampling (e.g. the survey sample was dominated by men). The rates of psychological distress, as indicated by the K10 test, are reason for significant concern. There was a high rate of high and very high distress among fisher respondents. The K10 was designed to test for unspecified psychological distress, with a focus on anxiety and depression Specific mental health conditions are not the focus of the K10 test, and the test is not a diagnosis. Those who return an elevated score are advised to see their general practitioner for assessment and/or referral.

Despite issues of comparison with the Australian population, the levels of stress, anxiety, depression and psychological distress in the commercial wild-catch fishing industry are deeply concerning. Mental health is complex, and can be difficult to diagnose and treat (Lacasse and Leo, 2005) p. 1211]. The best understanding we have is that symptoms can arise through some combination of individual brain chemistry and environmental factors, i.e. the situation including work environment, childhood trauma, and/or responses to traumatic events (Ferrie *et al.*, 2006; Kivimaki *et al.*, 2007; Woo and Postolache, 2008). More analyses will be undertaken on the survey data to elucidate more specific results which may be useful for the industry, including the relationship between mental health indicators, and individual and household demographics, role in fishing, and social capital.

Many surveyed fishers reported that livelihood insecurity, red tape, uncertainty about future regulation change, which can be classified as 'modern uncertainties', contributed substantially to their stress levels. Efforts to distinguish between different kinds of stressors in the fishing industry have been made by others. For example, researchers have separated risks to physical safety, threats to financial security, and those that undermine on-boat relationships (Pollnac *et al.*, 2011). With this project we sought to build upon the classification developed in the Australian context (King, Kilpatrick and Willis, 2014; King *et al.*, 2015) and which drew on qualitative data. It distinguished between "traditional risks" and "modern uncertainties" and suggesting that the enactment, and even the threat of "modern uncertainties" can have a detrimental effect on fishers' mental wellbeing (Shaw, Johnson and Dressler, 2008; King, Kilpatrick and Willis, 2014). Anecdotal data also supports our approach [6 p. 12].

> we emphasise [the distinction] between the kinds of stressors fishers have always faced as part of their job—"traditional risks"—and those that emerge from the tenuous nature of the licences they hold to harvest a common-property resource—"modern uncertainties" [2 p. xi– xii].

This earlier work conceptualised traditional risks as those fishers argue they "signed up for". In other words, the physically dangerous nature of the job, the variable weather, long and unsocial hours, crew dynamics, variations in catch and, fluctuations in market prices, among others. While fishers

cannot always directly mitigate these risks, they undertake fishing activities with a degree of preparedness. Preparation might include monitoring meteorological sources, historical logbooks and tide charts to better anticipate the conditions, hiring crew who have demonstrated their reliability, or selling through a processor trusted to negotiate a fair price.

Modern uncertainties, on the other hand, are those factors that fishers have little or no control over, but which have the capacity to control and change what fishers can and cannot do. Government and regulatory agencies make policy decisions about fisheries access and fishing practices, which may be informed by scientific evidence, but the process of policy formulation and implementation is able to be influenced by a highly politicised licence to operate (Leith, Ogier and Haward, 2014; Ogier, Leith and Haward, 2014; Cullen-Knox *et al.*, 2017; King and O'Meara, 2018), and the ability of fishers to have influence themselves may be outside of their capacity.

Certainly, such perceptions about the influence of modern uncertainties on mental health were reflected in the survey data. For example:

> 'Bureaucratic red tape and watch dogs are adding much stress and uncertainty to the job'

> 'Living in Queensland seems to be one of the worst states for poor government policy resulting in the loss of fishing grounds for viable commercial fishing families. No disrespect, but you'll do this study, complete it and provide results to government who honestly won't give a shit! You'll move onto something else and yet again we'll be left with a mess and every election continue to lose access to a very viable important fishing ground'.

> 'My stress is the result of Commonwealth Government disparity in the rigorous standards applied to our fishery, while allowing imports from developing countries where no fishery management exists, and the constant cover-ups, lies, denial of culpability, lack of transparency and hypocrisy'.

Around half of surveyed fishers had social capital index scores that suggest they feel highly connected to and included in their community. Over a quarter have a low score, suggesting they feel only weakly connected or not connected to, and weakly or not included in, their community. There is a widely acknowledged, but largely unscrutinised, role of social isolation in the presentation of depression and instances of suicide among seafarers (Mellbye and Carter, 2017; Seafarers' Trust, 2017).

In discussions about mental health during the Sustainable Fishing Families program, individuals tended to conflate the perceived causes of the stress, with the symptoms (e.g. sleeplessness, nausea, shaking). It is imperative to distinguish between the perceived causes of stress, and the experienced symptoms of stress. Both need to be addressed but do require very different approaches by those with different skill sets.

It should be acknowledged that it is often those who play supporting and advocacy roles in the fishing industry (e.g. family, industry associations), who find themselves identifying symptoms of mental health, and try to provide support. Typically, they have to work out what to do with no training, and with no follow-up support for their own mental health maintenance. For this reason, we

make a recommendation in this report that industry associations, family members and others who regularly engage with the seafood industry undergo mental health first-aid training, as a priority.

Addressing the perceived causes of poor mental health is a completely different problem. Many of the comments by respondents about fisheries management and policy decision-making being a cause of poor health relate to 'procedural justice' (Tyler, 1989; Lawrence, Daniels and Stankey, 1997). Procedural justice is the idea that the perceived 'fairness' of a management decision can influence the acceptance of that outcome. In other words, if a process seems fair and transparent, people are more likely to accept the result, even if that result is negative. The results of the survey suggest that there is a lack of trust in governance agencies managing fisheries and making policy decisions. This ambivalence (at best) and hostility (at worst) relates both to the perception of procedural justice which impacts on fisher community support for government-led reforms, and the mental health of fishers, many of whom identify the uncertainty of fisheries management decisions as impacting on their levels of stress. A considerable amount of work has been done on the role of procedural (and distributive) justice in organisations and governance (Lind and Tyler, 1988; Folger and Konovsky, 1989; Tyler, 1990; Daigle, Loomis and Ditton, 1996; Shaw, 2005; Viteri and Chávez, 2007; King and Murphy, 2009; Gustavsson *et al.*, 2014), and it may be worth further investigation in relation to impacts of government regulation on fishers' active stakeholder participation in policy reform processes as well as their mental health.

It is clear that changes to fisheries management and new policy decisions are having a significant impact on the mental health of wild-catch fishers in Australia. This project strongly recommends that social impact assessments which explicitly include health and safety are carried out by government agencies when proposing regulatory change.

5.2.3. Improving health outcomes

A number of findings from the survey could help shape the most effective and culturally effective points of intervention to improve the health outcomes of fishers.

While most respondents, the majority male, reported making their own health appointments, it should be noted that in over 30% of cases, someone else made their appointment and that this was usually the person's wife, partner or mother. The role of women in the maintenance of health and wellbeing in the fishing industry is apparent and could be capitalised upon to facilitate improvements in uptake of effective health interventions for male fishers. For example, it may be useful to take a 'whole-of-family' approach or a 'whole-of-business' approach to health and wellbeing and drawing on these 'soft entry points' as a way of garnering support for and uptake of health initiatives (Kilpatrick, King and Willis, 2015).

There were a range of factors that deterred surveyed fishers from seeking assistance for health issues. There were clear financial barriers including appointments and medications being too expensive, how far they had to travel, and fishers felt could not afford to take time off work to go to a medical appointment. There were also more cultural barriers to seeking medical assistance, including believing their health issues weren't serious enough, or damaging enough to their productivity to take time off, and many respondents said they did not want to let their co-workers down by taking a day off. Although difficult to address changing mindsets, the Sustainable Fishing Families program emphasises the link between health and productivity and teaches fishers to value their health as a business asset.

Nearly 40% (39%) of those surveyed felt their doctor did 'not understand the pressures of the fishing industry'. While this statement wasn't qualified in the survey, it may have been interpreted as doctors don't always understand whether advice and treatments are appropriate for the environment fishers work in (e.g. unstable platforms, a wet environment), or in relation to mental health, what the key causes may be. With this last finding in mind the project produced a draft brochure (to be finalised and distributed upon Final Report) which could be used by both fishers seeking assistance from their doctor, and for General Practitioners and health providers who want to know more about the industry-specific challenges of the fishing industry (Appendix 6). All of the State and Territory Primary Health Networks in coastal areas will be sent the final communications.

Surveyed fishers had different attitudes towards seeking medical information and help for physical and mental health issues. 91% of respondents said they would seek information for bodily pain and 86% said they would see a doctor for pain that prevented them from working. In comparison for mental health, less than 75% would seek information if they felt 'down' for two weeks or more even if it was affecting their work, and only 38% would seek the assistance of their doctor if they felt 'down' for two or more weeks (an indicator that the person may be suffering a mental health issue).

The most likely health issue for which respondent fishers would first consider phone services or help lines was for mental health issues. Respondents indicated that the preferred methods of receiving general health and wellbeing information specific to the fishing industry were hard copy written material, one-on-one verbal information, and by reading information on the internet. These results are not able to be broken down into specific health issues, so it is not possible to know whether respondents preferred to hear about certain kinds of issues via different methods.

The most popular source of health information for respondent fishers was 'community health organisations' such as community nurses or health workers, specific health issue organisation such as Beyond Blue, or the Cancer Council. The least popular source of health information was a government industry organisation such as fisheries departments.

5.2.4. Limitations

The National survey data has limitations to interpretation, in terms of representation of the fishing industry, the nature of subjective self-assessments of health, and timing.

In comparing the survey sample with Australian Bureau of Statistics 2016 Census data, Western Australia and Victoria appear to be over-represented in our sample, with Queensland, South Australia, Northern Territory and NSW under-represented. Representation of gear types was examined however due to different gear categorizations, it is difficult to determine the representativeness of the sample by gear. The sample appears representative on gender (men make up the majority of the survey sample and ABS industry statistics) and full time/part-time status.

There are findings from the survey which indicate the complexity of subjective self-assessments, and how individuals rate their health may vary substantially. For example, 40% of respondents considered themselves to be in 'excellent' or 'very good' health, yet, around 60% of respondents recorded experiencing 'moderate', 'severe' or 'very severe' bodily pain in the past month. Those who were experiencing moderate or worse bodily pain may have considered themselves to be in 'very good' or 'excellent' health. This result points to the necessity of conducting both self- assessments of health as well as other, less subjective measures of health, such as through clinical measures. A key part of the Sustainable Fishing Families program was the individual health and wellbeing assessments conducted by health professionals. These assessments were valued by the program participants and

resulted in referrals and behavioural changes. There is a need for the fishing industry to overcome barriers to accessing health assessments and services and ensure the appropriate assistance and interventions are sought.

The timing of the survey elicited comments in response to particular issues from different jurisdictions. For example, in comments from respondents, concerns about the NSW fisheries reform was the most cited issue. At the time of sending the survey the NSW department was in the process of reforming the NSW net fishery (Voyer et al., 2017). Concerns about QLD and WA reforms were also mentioned specifically.

The Sustainable Fishing Families pilot program, although proven to be very effective (fishing families gave up at total of 28 days of their time, with demonstrable benefits), was very resource intensive, and recruitment of fishing families was challenging. This is discussed further in Section 5.1 Objective 2.

6. Conclusion

The health, safety and wellbeing of fishers and their families is vital to the ongoing strength and productivity of the commercial wild-catch industry. The national health, wellbeing and safety survey found clear health issues that require addressing, primarily those relating to stress and poor mental health, but also around high rates of cholesterol and blood pressure, diabetes, general bodily pain, as well as back and joint pain.

Interventions must be diverse. Initiatives such as the Sustainable Fishing Families program comprehensively addressing holistic health and safety concerns and cultures of responsibility. But rolling out the Sustainable Fishing Families program to large numbers of fishers would take time and be expensive and may only be part of the solution. Other measures that address the immediate needs of those in the fishing industry are necessary, and the full range of options should be explored, taking into consideration advice from industry about their preferred method of delivery and accessibility.

Proven models from other industries, particularly farming, could be adapted and taken up by the seafood industry, only after careful consideration of the relevance of the interventions to the particular requirements of the target fishery. Not all fishing businesses are the same, and the technical and health factors that impact on each cohort will make a difference to how an intervention or service is (or is not) taken up.

Significantly, a key difference between those in the fishing industry and those in agriculture relates to the nature of the access rights they enjoy; while farmers hold free-hold title on their land, fishers' fish common pool resources and may have strong or weak access rights. There may be health implications of this difference, particularly mental health implications (which will have related physical health implications), which should be taken into consideration when considering the suitability of health intervention models proven in the agriculture sector. Other industries such as forestry, mining, or even the taxi industry, may also yield useful models for comparison.

Further analysis from the national survey will be forthcoming.

7. Recommendations

1. Capitalise on the shared concern for the mental health of the industry and determine the most effective strategies to address the issue through engagement (grassroots to leaders), investment, and collaboration with service providers.
2. Appropriate health, safety and wellbeing programs and models for health literacy, behavioural change, and support systems have been developed by other industries, such as agriculture. These should be modified for use by the fishing industry, however assumptions about the shared health and safety issues faced by fishers and those in other rural/regional industries (e.g. farming, mining), need to be tested further before adapting for implementation with the fishing industry.
3. Wild-catch fishers need to be explicitly considered as a specific target population in health services' strategic plans in areas with populations of fishers given their occupation-specific health and wellbeing needs.
4. Social impact assessments on all those affected, including fishers and their businesses should be carried out before all major policy reforms, with a particular focus on the physical and mental health of those impacted.
5. Mental health first-aid training of those in key 'frontline' positions with the fishing industry would be a cost-effective and pro-active first step to help address immediate mental health concerns in the fishing industry.
6. Investigate and scope alternative strategies to address and prevent the chronic health issues faced by the fishing industry, including back and joint pain, high blood pressure, cholesterol, depression, cancer and type 2 diabetes among fishers. While the Sustainable Fishing Families program is an effective option, it bears a high financial and time investment. Alternative less costly approaches could also be considered and contrasted and may be useful for industry to consider implementing in their jurisdiction. One example may be an investigation of the feasibility of providing annual health and lifestyle assessments health for active fishing industry members (this may be through NCFH or another health service organisation that is experienced in working with fishing or rural communities).
7. The Sustainable Fishing Families program has been shown to be effective in positively impacting on the health, wellbeing and safety of fishing families. To improve uptake of the program:
    - Conduct the program in fishing communities with a larger pool of fishers (although bringing fishing families from other areas to connect with others was also important to participants)
    - Conduct the first workshop (which is 2 days) during the closed season (if applicable) as participants are very likely to return once they have started the program
    - Try to have a homogenous group of fishers (e.g. all divers) as much as possible to be able to work out the best times to conduct workshops that suits the particular fishery
    - Recruit champions of the program who will encourage peers to participate
    - Identify funding sources for the Sustainable Fishing Families program (government, industry)
8. Link these project findings (survey and pilot program) on work health and safety at sea (e.g. low usage of PFD and EPIRB, high levels of fatigue and fatigue-related injury, issues related to musculo-skeletal pain, sunburn, hearing problems, infections) with FRDC project 2017-046 "What's stopping you from keeping you and your mates' safe?", identified health organisations (Rural Alive and Well) and industry organisations (e.g. Women in Seafood Australasia, Seafood Industry Australia) to collectively investigate, monitor and communicate effective strategies to improve work health and safety within the industry. For example, this may include a centralised

web-based platform for housing all information relating to the health, wellbeing and safety of the industry, and include direction on how fishers can seek help. A hard copy health and wellbeing resource for all fishers (could be kept on vessels) which lists health, wellbeing and safety services in their region may also be a first step.

9. Monitor the health, safety and wellbeing of Australian fishers through repeated National Health, Safety and Wellbeing surveys (suggested every five years). Although we note that these surveys are self-reports, there is merit in undertaking health, wellbeing and lifestyle health assessments to obtain health snap-shots of the industry to track progress and given the poor uptake of conventional health services.
10. Industry associations to keep contact details of licence owners, operators and crew, and potentially next of kin. Often only licence and quota owners are the point of contact for distributing information to the fishing industry. Therefore, important information such as health information may not be reaching the whole industry, and importantly all of the active fishers.

8. Extension and Adoption

8.1. Distribution of report and outputs

This report, and following research papers, will be distributed in PDF form via email to stakeholders:

- Industry peak bodies and associations
- List of wild-catch fishers (who provided contact details on survey)
- FRDC including Research Advisory Committee members
- Jurisdictional government agencies
- Primary Health Network contacts
- Research network

Key findings of the project will be able to be use for

- Industry publications
- Media releases
- Social media
- Academic conferences

8.2. Second Sustainable Fishing Families program underway

Based on the success of the pilot Sustainable Fishing Families program on the Bellarine, two more programs have been made eligible for Victorian government funding. A program is currently under development in Corner Inlet (South Gippsland, Victoria), with firm commitment from local fishers.

8.3. Communications

Stakeholders

During the course of the project a communications list was developed to keep those who had indicated an interest in the project updated. This list was added to as names and organisations became aware of the project. This list contains the contact details of a large number of fishing licence holders who indicated their interest after receiving the national survey. There are currently 207 fishers who nominated to be contacted regarding the project via the national survey, and 82 others, including fishers, peak bodies, members of parliament, who have emailed the project. Updates were sent out periodically, typically coinciding with key research milestones.

Blog

A key part of the communications strategy for the project was the project blog hosted by Deakin University, Anthropology department: https://blogs.deakin.edu.au/anthropology/sustainable-fishing-families-project-progress-page/ The blog holds details of the project and has been updated regularly throughout the project (Figure 51).

Figure 51. Example of Sustainable Fishing Families project page on the Deakin University anthropology blog site

Media coverage

In the 2017/2018 financial year the issue of mental health was covered in a number of media stories about the fishing industry.

8.4. Project materials developed

- Sustainable Seafood Families workbook, workshop materials (these remain the IP of WDHS).
- Health and wellbeing survey of commercial fishers, and data (to be made available after a suitable period for use by other researchers with appropriate acknowledgement).
- The project is in the process of designing a communication brochure (of key findings) and a flier for the Sustainable Fishing Families program results (to be finalised on publication of Final Report).

Appendix 1. Advisory Committee Advertising and Terms of Reference

SUSTAINABLE FISHING FAMILIES ADVISORY COMMITTEE

Deakin University and the National Centre for Farmer Health has established an Advisory Committee for the FRDC funded project 2016-400 "Sustainable Fishing Families: Developing industry human capital through health, wellbeing, safety and resilience".

The project will develop an evidence-based health and safety training program for Australian fishing families, adapting the successful Sustainable Farm Families™ program developed over 10 years ago by the Western District Health Service and the National Centre for Farmer Health. The award-winning program has improved the health, wellbeing and safety of over 2500 farm men and women, workers, and families across Australia, acknowledging the relationship between health and business productivity. The current project will develop a program for fishing families across Australia which will do the same.

The Advisory Committee is responsible for advocating the health needs of fishing families and for guiding the development of the Sustainable Fishing Families health program, as well as monitoring and promoting the timely achievement of the project goals and milestones. The Advisory Committee will act as ambassadors for the Sustainable Fishing Families project by providing support and developing ideas for pathways for transferability of the completed project to other regions and states.

The Advisory Committee will have between 8 and 10 members, with a balance of industry, health agencies, researchers, and at least three community members who are currently fishing or part of a fishing family.

Applications are sought from suitably experienced persons to serve as members for the Advisory Committee. It is desirable the applicants have an interest in rural health and wellbeing, commercial fishing or maritime safety.

Members will be appointed for 14 months and will be required to attend four Advisory Committee meetings (2 x face to face, and 2 x teleconference)

Member Selection Criteria for Industry/Agencies and Community Representatives: The following criteria will be used, but not limited to:

- Demonstrated commitment to rural/community health and wellbeing, commercial fishing and fishing safety matters;
- Knowledge to provide advice and input into rural/community health and wellbeing, fishing and fishing safety matters;

- Capacity to consider and consult on a wide range of health issues affecting fishing families from diverse fisheries;
- Ability to effectively participate and contribute in meetings;
- Experience in a similar role would be an advantage, but not necessary.

Nominees should use the nominee information form to list specific experience and/or qualifications as related to the selection criteria.

Prospective candidates should read the Sustainable Fishing Families Advisory Committee role description and the Terms of Reference prior to applying.

Appointed external reviewers and the Sustainable Fishing Families project team will consider all applications received against the key selection criteria before making a recommendation on the appointment to the Advisory Committee.

Please note up to $200 reimbursement for travel will be available for face to face meetings.

Applications should be addressed to:

Dr Tanya King
Principal Investigator, Sustainable Fishing Families

Applications must be received by 15 December 2016, and should be emailed to Dr Tanya King - tanya.king@deakin.edu.au

Enquiries can be directed to:

Dr Kirsten Abernethy
Associate Research Fellow, Sustainable Fishing Families
E: kirsten.abernethy@gmail.com

Sustainable Fishing Families Advisory Committee Terms of Reference

PROJECT OVERVIEW

Healthy Australian fisheries need healthy fishing families.

In August 2016, the FRDC awarded a grant to develop an evidence-based health and safety training program for Australian fishing families. The project is hosted by Deakin University and is in partnership with the University of Tasmania and the National Centre for Farmer Health in Hamilton.
Sustainable Fishing Families will be based on the successful Sustainable Farm Families™ program that has been run for more than 10 years by the National Centre for Farmer Health. The program has received a number of awards, and improved the health, wellbeing and safety of farm men and women, workers, and families across Australia.

Over the next 14 months we will be adapting the program for fishing families, so that it is appropriate to the specific needs of the fishing sector. The program will then be available to fishing communities across Australia.

How Sustainable Fishing Families can help fishers:

- The Sustainable Fishing Families (SFF) program aims to address the health, wellbeing and safety issues specifically facing fishing industries through a sustainable and evidence-based health promotion program based on solid research and collaboration.
- Fishing family health is a major issue facing fishing businesses because:
    - Fishers have high rates of injury and premature death;
    - Fishers are at risk of certain kinds of illness including skin and diet related disease, and high levels of stress related illnesses;
    - Fishers have reduced access to health services because they often live in rural and remote places, they don't keep office hours, and there is a culture of self-reliance.
- SFF is a program that aims to change:
    - Attitudes and behaviour to personal health, wellbeing and safety;
    - Behaviour of fishing families;
    - Real health outcomes for participating fishing families.
- The SFF Program uses the Sustainable Farm Families™ model of three workshops delivered to about 20 participants (typically fishers and their partners) at no financial cost. The workshops include:
    - Identifying and tracking individual's health, confidentially assessed by health professionals in private appointments (e.g. cholesterol, weight, blood pressure, cardiovascular assessment, stress);
    - An education program that helps fishing families identify ways they can improve their health, wellbeing and safety, that has been tailored to the needs of fishing families;
    - Development of personalised action plans, identifying personal goals and strategies to achieve goals;
    - Anonymous evaluations of the education sessions to provide participant feedback to the program so that it can be further improved;
    - Providing information on the relationship between family health, health as a social issue in communities and fishing productivity;
    - Collecting anonymised data to understand the relationships between the fisher, their family, their health, their practices and fishing business sustainability.
- In addition to developing the health program, the project will develop health communication materials for the wider fishing industry and associated government/non-government organisations.

- It will also identify pathways and funding opportunities for transferability of the completed SFF Program to other regions in Victoria and other states.

How Sustainable Fishing Families will be developed

- The basis for the SFF program is already in place, with the Sustainable Farm Families™ program and associated materials already developed and delivered to farming communities across Australia for over 10 years.
- The SFF program will be developed by researchers with input from an expert Advisory Committee of fisher men and women, industry, and health experts.
- The first SFF program will be trialled in the Geelong/Bellarine area with fishers and their partners, beginning in early 2017. Participants will have plenty of opportunity for feedback to refine the program as it progress.

Sustainable Farm Families™

The Sustainable Farm Families™ program is an initiative of Western District Health Service, Hamilton and is changing the way Australian agriculture views their health, wellbeing and safety, and how health professionals work with farming families.

Commencing in 2003, the SFF™ program has been delivered to over 2500 farmers across Australia, with Victoria being recognised as a leader in farming family health, health promotion and prevention.

The Sustainable Farm Families™ program focuses on the 'triple bottom line' model and the overlooked human factor within farming enterprises. Results reveal a great deal about issues effecting agricultural industries and their significant health and social factors. This has provided important insight into the health and wellbeing of farming families, and the impact of the Sustainable Farm Families™ model.

For more information, see http://www.farmerhealth.org.au/

THE ROLE OF THE ADVISORY COMMITTEE:

The advertised role is as a member of the Sustainable Fishing Families Advisory Committee.

The role and function of the Advisory Committee is to act as a strategic committee to assist the Sustainable Fishing Families project team by providing advice and recommendations in relation to development of the program and strategic planning of transferability of the completed SFF Program to other regions in Victoria and other states. This includes:

- Advocating for the needs of fishing families to the SFF Project team;
- Guiding the development of the Sustainable Fishing Families Program and resource kit so they are appropriate for fishing families;
- Monitoring the project overall and promoting the timely achievement of project goals and milestones;
- Acting as ambassadors for the Sustainable Fishing Families project;
- Providing support and encouragement to the SFF team in the development of the program;
- Developing ideas for pathways for transferability of the completed program to other regions and states.

This role will not involve acting or speaking on behalf of Deakin University or the National Centre for Famer Health.

UNDERTAKING:

This role is a voluntary position but reimbursement up to $200 per face-to-face meeting for travelling expenses will be available. In accepting the role, the incumbent commits to:

- Be an advocate for the Sustainable Fishing Families program outcomes;
- Attending four Sustainable Fishing Families meetings over a 12-14 month period (two face-to-face and two via teleconference);
- Requesting leave of absences and notifying the Sustainable Fishing Families Principle Investigator of apologies prior to meetings;
- Appreciate the significance of the Sustainable Fishing Families Project for all major stakeholders and represent their interests;
- Be genuinely interested in the initiative and the outcomes being pursued in the Sustainable Fishing Families Program;
- Have a broad understanding of project management issues and the approach being adopted.

TERM:

The Sustainable Fishing Families project will appoint Advisory Committee members for a 14 month period.

VALUES AND BEHAVIOURS:

The following values and behaviours will inform the way in which Advisory Committee members will operate and interact. As individuals we will:

- Recognise each other's worth and acknowledge each others contributions both within the Advisory Committee and with our external clients and stakeholders;
- Actively embrace and value the input and collaboration of colleagues;
- Foster a culture of information, knowledge and skill-sharing between our respective organisations;
- Support each other to resolve difficulties;
- Communicate in an open and honest manner;
- Give feedback and ask questions in a constructive manner;
- Always demonstrate professional behaviours to our colleagues and stakeholders; and
- Always demonstrate a genuine desire for the best outcomes.

MEETINGS:

Four meetings are planned, though additional advice from the Advisory Committee may be sought if particular issues arise in planned between meetings. The planned schedule for meetings is as follows, though please note there may slight changes: January 2017 (face-to-face), February 2017 (teleconference), June 2017 (teleconference), and November 2017 (face-to-face).

A quorum shall be a minimum of 50% of members plus one.

Minutes will be distributed to all Advisory Committee members within ten working days of the meeting. Agendas will be circulated at least ten working days prior to the scheduled meetings, and items for Advisory Committee consideration should be sent to the Sustainable Fishing Families Principle Investigator at least 15 working days before the scheduled meeting.

Appendix 2. Sustainable Fishing Families Plain Language Statement and Consent Form

PLAIN LANGUAGE STATEMENT FOR PARTICIPANTS

Further information:
Sustainable Fishing Families
Deakin University
Tanya King: tanya.king@deakin.edu.au
Kirsten Abernethy: kirsten.abernethy@gmail.com

Dear Participant,

We would like to invite you to participate in a project that has been designed to explore links between fishing family health and wellbeing, fishing related accidents and fishing sustainability. The project also involves the delivery of a health education program to assist fishers and fishing families to identify strategies to enhance individual and family health, wellbeing and safety. We are particularly interested in working with fishers (male and female) who are currently fishing and would like to be involved in this project over a 10-12 month period.

Before you decide whether to accept this invitation, it is important that you understand what the purpose of the project is and what is required of you. This information is provided below and if there is anything that is not clear, or if you would like more information, please contact us.

GENERAL PURPOSE OF THE PROJECT

The general purpose of this project is:

- For fishers to participate in a health education program that helps them recognise and identify factors that affect family health, wellbeing and safety.
- For fishers to write up a health action plan and support their improvement in health, wellbeing and safety.
- Undertake a health assessment of participating fishers initially and in 4 months and in 8 months, and to monitor health status over time.
- To interview through focus groups, fishers' experiences of the project.
- To investigate the link between fishing family health, fishing related accidents and fishing sustainability.
- To continue developing the Sustainable Fishing Families program that can be used across a range of fisheries in Australia.

DO I HAVE TO TAKE PART?

You are under no obligation to participate in this project. Your decision to participate is entirely voluntary. Should you decide to take part and then change your mind, you are free to withdraw without giving a reason.

AM I ELIGIBLE TO PARTICIPATE?

We would like fishers to participate and we would like some to be from the same family for example as spouses or children. You are eligible to participate if you:

- are over the age of 18 years and under the age of 75;
- are currently fishing, used to fish, or are involved in the fishing/seafood industry;
- speak English
- are competent to decide and have capacity to consent to participate, attend the health education program and health assessments, and be interviewed as a member of a focus group

WHAT IS REQUIRED OF ME IF I PARTICIPATE?

If you participate, you will be required to:

- Sign the attached consent form (to attend health education, undergo health assessment, participate as a member of focus group and to have some comments documented – the comments will de-identified);
- Attend health education sessions of approximately 2 days at the first workshop of 6 hours per day, 1 day at the second workshop and 1 day at the third workshop;
- Complete surveys and action plans;
- Participate in focus group sessions which occur throughout the workshops about your thoughts and experiences as a participant in the health program;
- Undergo a physical assessment which includes blood pressure, pulse, blood cholesterol, weight, blood glucose, height, waist and hip measurement, body fat percentage, body mass, respiratory assessment, eyesight, skin assessment and/or a venous blood sample.

WHAT ARE THE POSSIBLE COSTS, RISKS AND BENEFITS TO ME OF PARTICIPATING?

There may be some minor travelling costs associated with attending the venue for the health education sessions and focus groups. Unfortunately, our budget does not permit us to reimburse you for these. There are no readily foreseeable risks associated with the conduct of this project, however, should in a physical assessment we find an indication of an illness or disease you will be referred to a practitioner of your choice and/or health service. You may also withdraw from the project altogether. Please note that nurses are mandated by law to report certain findings – such as *child abuse, domestic violence.*

There may be some benefits of participating in the project such as increasing your understanding of wellness, lifestyle factors, prevention of ill health, and a health assessment and report. You may decide to change personal behaviour to improve your health, wellbeing and safety.

WILL MY INFORMATION AND RESPONSES BE KEPT CONFIDENTIAL?

Your responses will be kept confidential and your anonymity assured by the following processes: all health information will remain confidential as a health record with Western District Health Service and / or key health services and will not be deleted until 7 years after the last occasion on which the health service provided a service to you. Should it be recommended that you seek further medical advice your information about you will only be passed on if you consent to the referral.

For the purposes of the project all health and general information will be de-identified for project purposes. The de-identified data for the purposes of analysis will be undertaken in partnership with Western District Health Service and Deakin University.

Transcripts of individual and focus group interviews will be identified by a number, to ensure that you cannot be identified. The data collected during the study may be published (may include photographs), and a report of the project outcomes will be provided to the relevant health service. Any information, which will identify you, will not be used, except for photographs.

The findings of the wider Sustainable Fishing Families project report may be presented in a final FRDC report and will also be made available through the publication of articles in professional journals and presentations at rural industry and health conferences. Neither of these works will contain personally identifying information.

COMPLAINTS

If you have any complaints about any aspect of the project, the way it is being conducted or any questions about your rights as a research participant, then you may contact:

The Manager, Ethics and Biosafety, Deakin University, 221 Burwood Highway, Burwood Victoria 3125, Telephone: 9251 7129, research-ethics@deakin.edu.au

Please quote project number [2016-367].

WHO SHOULD I CONTACT IF I HAVE ANY QUESTIONS?

The best person to contact regarding any queries on your physical assessment is Susan Brumby. Susan is a registered nurse (RN Div1) and can be contacted directly on (03) 55518460. Enquiries about the project more generally can be directed to Tanya King XXX, who leads the project to convert the farming content to fishing-relevant material.

Yours sincerely,

Tanya King and Sue Brumby

Appendix 3. National Survey of the health, wellbeing and safety of the commercial fishing industry

Health and Wellbeing:

A national survey of the commercial fishing industry

from
Deakin University
2017

ALL SURVEYS ARE CONFIDENTIAL

You are invited to participate in a study being conducted by Deakin University. We would like to know about the health and wellbeing of those in the commercial fishing industry, and about factors that may contribute to stress and poor mental health. We are particularly interested in how your reported health and wellbeing compares to that of other Australians (particularly farmers), and fishers from overseas.

This survey is part of a wider project about fisher health, wellbeing and safety. Deakin researchers are working with Victoria's Western District Health Service, the University of Tasmania, and Exeter University (Cornwall, UK). The project is funded by the Fisheries Research Development Corporation (FRDC) (project 2016-400). The FRDC are not involved in the research design or analysis, and funding is not dependent on the research outcomes.

We will use the results to provide policy advice to government, industry stakeholders and health providers, as well as to write academic papers and communicate more widely through the media about the health and wellbeing status of Australian commercial fishers. No information on any **individual** will be reported in a way that would allow them to be identified. Only aggregate (or group) data will be reported. Any comments you choose to add will be made anonymous.

You have been invited to participate because you are associated with an industry peak body. Your peak body is voluntarily helping us with our research by affixing your address to the sealed and pre-paid envelopes we have provided, containing this survey and a reply-paid envelope. Nationally, we are inviting nearly 4,000 people involved in the fishing industry to participate in the survey, including concession/licence owners, lease-dependent skippers, deckhands and owner-operators.

In order to assure the confidentiality of your responses, Deakin researchers will **never** have access to the list (ie. names and addresses) of those invited to participate in the study, and peak bodies will **never** have access to completed surveys, which will be posted directly to Deakin.

If you do not wish to participate in this survey, please do nothing, and ignore the one reminder letter we will send you. Completed surveys will be kept securely at Deakin University for at least six years, then destroyed.

Your consent to participate in this project is implied by your completion and return of the survey. Please note that withdrawal from this project will not be possible, because once completed, we have no way of knowing the identity of people who completed the survey.

This survey is thirteen pages long and will take **approximately twenty minutes** of your time to complete.

If you have any questions about the content of this survey, or would like to know more about the research, please contact the project Chief Investigator, Dr Tanya King, on XXX (EST) or tanya.king@deakin.edu.au

Online version of survey

You can choose to do an online version of this survey, if you prefer. Both surveys are exactly the same.

Please only complete ONE survey – either paper OR online.

Please pass this link on to anyone you think may be relevant, such as your deckhand/s or business partner/s. The more responses we get the more useful the data.

https://www.surveymonkey.com/r/fisherhealth

Remember, please complete only ONE copy of this survey per person

Complaints

If you have any complaints about any aspect of the project, the way it is being conducted or any questions about your rights as a research participant, then you may contact:

The Manager, Ethics and Biosafety, Deakin University, 221 Burwood Highway, Burwood Victoria 3125, Telephone: 9251 7129, research-ethics@deakin.edu.au

Please quote project number [**2016-367**].

WHERE TO SEND YOUR COMPLETED SURVEY

- When you have completed this survey, please post it back in the enclosed reply-paid envelope provided. No stamp is required.
- If you have misplaced the envelope, the survey can be returned to:

  Tanya King, SHSS, Locked Bag 20,000, Geelong, Vic, 3220.

  Alternatively, you could complete the survey online (see above).

THANK YOU VERY MUCH FOR FILLING OUT THE SURVEY! WE ARE CONFIDENT THAT OUR FINDINGS WILL HELP BRING ATTENTION TO THE HEALTH AND WELLBEING OF THE COMMERCIAL FISHING INDUSTRY.

If you think you might benefit from talking to someone about any health and wellbeing challenges you are facing, please contact the following organisations:

Lifeline **13 11 14**

Beyond Blue **1300 22 4636**

Suicide	**1300 659 467**
Kids Help Line	**1800 55 1800**

1. YOUR PERSONAL HEALTH AND WELLBEING STATUS

These questions are designed to assess your general health and wellbeing, and will be used for comparison with other jurisdictions, etc. This section relates to your personal experience. Your individual results will not be made available, only aggregate (or group) results.

Q1. How would you rate your general health?
☐ Excellent
☐ Very good
☐ Good
☐ Fair
☐ Poor

Q2. How much bodily pain have you had during the past four weeks?
☐ None
☐ Very mild
☐ Moderate
☐ Severe
☐ Very severe

Q3. When was your last general check-up? _____

Q4. When did you last go to the dentist? _____

Q5. Who usually makes **your** appointments to see the doctor or other health professionals?
☐ I do
☐ My spouse or partner
☐ Someone else *(Who?)*_____

Q6. How much did your health interfere with your normal activities (outside and/or inside the home) during the past **four** weeks?
☐ Not at all
☐ Slightlys
☐ Moderately
☐ Quite a bit

Q7. In the past **12 months**, around how many days **that you could have worked** did you stay home because of a personal health or wellbeing concern? *Include major injuries, as well as any days that you felt too low or despondent to go to work.*

_____

Q8. In the past **12 months**, around how many days **that you could have worked** did you stay home because one or more of the people you work with (e.g. deckhand, skipper, diver), could not work because of a health or wellbeing concern?

_____

Q9. During the past **12 months**, have you experienced any of the following symptoms? *Please tick all that apply.*

Back pain	☐	Poor eyesight	☐
Joint pain	☐	Problems with hearing	☐
Infection in cut or abrasion	☐	Toothache or sore gums	☐
Indigestion or heartburn	☐	Stomach problems	☐
Chest infection	☐	Persistent cough that doesn't clear up	☐
Asthma (since childhood)	☐	Asthma (adult onset)	☐
Breathing problems	☐	Migraines and/or frequent headaches	☐
Hayfever	☐	Skin rash or allergy	☐
Sunburn (red skin)	☐	Sunburn (so bad your skin blisters and/or peels)	☐
Fatigue	☐	Panic attacks	☐
Stress	☐	Trouble sleeping	☐
Trouble with memory	☐	Trouble concentrating	☐
Blood in urine	☐	Blood in poo	☐
Haemorrhoids (piles)	☐	*Other*……..	☐

Q10. Have you ever been diagnosed with any of the following conditions/illnesses? *Please tick all that apply.*

High blood sugar/Diabetes	☐	Irregular pulse	☐
High blood pressure	☐	High cholesterol	☐

Kidney problems	☐	Asthma (excl. childhood asthma)	☐
Heart attack	☐	Chest infection	☐
Stroke	☐	Eye infection	☐
TIA (mini-stroke)	☐	Ear infection	☐
Depression	☐	Anxiety	☐
ADD or ADHD	☐	Gout	☐
Cancer	☐	*Other*……	☐

Q11. The following question relates to how you feel about your local community. Do you agree or disagree with the following statements?

	Strongly Disagree	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly Agree**
"I feel welcome here"	☐	☐	☐	☐	☐
"I feel part of my community"	☐	☐	☐	☐	☐
"We are all 'in it together' in my community"	☐	☐	☐	☐	☐
"I feel like an outsider here"	☐	☐	☐	☐	☐

Q12. In the last **four** weeks, how often have you felt:

	None of the time	**A little of the time**	**Some of the time**	**Most of the time**	**All of the time**
Tired out for no good reason	☐	☐	☐	☐	☐
Nervous	☐	☐	☐	☐	☐

So nervous nothing could calm you down	☐	☐	☐	☐	☐
Hopeless	☐	☐	☐	☐	☐
Restless or fidgety	☐	☐	☐	☐	☐
So restless you could not sit still	☐	☐	☐	☐	☐
Depressed	☐	☐	☐	☐	☐
That everything was an effort	☐	☐	☐	☐	☐
So sad that nothing could cheer you up	☐	☐	☐	☐	☐
Worthless	☐	☐	☐	☐	☐

2. YOUR PERSONAL HEALTH AND WELLBEING BEHAVIOURS

Q13. **How often** you engage in the following personal behaviours, from **never**, to **every day**:

	Never	**Rarely**	**Some of the time**	**Usually**	**Every day**
I wear a lifejacket or PFD when I'm out at sea	☐	☐	☐	☐	☐
Wear an EPIRB when at sea	☐	☐	☐	☐	☐
I smoke	☐	☐	☐	☐	☐
I drink alcohol until I am at least a little drunk	☐	☐	☐	☐	☐
I drink four or more cups of coffee per day	☐	☐	☐	☐	☐
I wear sun protection (sunscreen, wide-brimmed hat, sunglasses)	☐	☐	☐	☐	☐

when I'm outside for long periods					
I exercise for 30 minutes per day (activity that makes you breathe faster and feel warmer).	☐	☐	☐	☐	☐
I eat fresh or lightly cooked vegetables (excluding potatoes)	☐	☐	☐	☐	☐
I eat fresh fruit	☐	☐	☐	☐	☐
I do something to help me relax for 30 minutes (e.g. meditate, stroll).	☐	☐	☐	☐	☐

Q14. This question asks about the health and wellbeing policies on the boat you work on, or which is attached to your main fishing concession. *Please tick all that apply.* My boat:

☐ Is designated 'alcohol free'
☐ Is designated 'smoke free'
☐ Has a drug and alcohol policy (e.g. 'zero tolerance'; 'must not interfere with work')
☐ Has a sun-shade
☐ *Requires* employees to wear sun protection
☐ Has a 'no-bullying' policy
☐ Has good phone/internet reception
☐ Not applicable (I don't work on a boat)

Q15. What—if anything—makes it difficult or deters you from seeking advice or treatment from a doctor or other healthcare professional? *Please indicate how much do you agree with the following statements?*

	Strongly disagree	**Disagree**	**Neither agree or disagree**	**Agree**	**Strongly agree**
I can't afford to stop working to seek treatment	☐	☐	☐	☐	☐
Appointments and medications are too expensive	☐	☐	☐	☐	☐
It takes too long to get there	☐	☐	☐	☐	☐

The cost of travelling there is too high (e.g. fuel)	☐	☐	☐	☐	☐
My health issues aren't that serious	☐	☐	☐	☐	☐
I don't think my health concerns are reducing my productivity	☐	☐	☐	☐	☐
I don't want to let my co-workers/employees down by taking time off to seek treatment	☐	☐	☐	☐	☐
I don't want my co-workers/employees to know there is anything wrong with me	☐	☐	☐	☐	☐
Appointments clash with work	☐	☐	☐	☐	☐
The doctor's explanations are often unclear and I feel left in the dark	☐	☐	☐	☐	☐
The doctor doesn't understand the pressures of the fishing industry	☐	☐	☐	☐	☐
I find talking about my body and health issues embarrassing	☐	☐	☐	☐	☐
I am uncomfortable talking openly with my local health professional	☐	☐	☐	☐	☐

The remainder of the questions in this section ask about how you **currently** access health and wellbeing information, and how you would **prefer** to get this information.

Q16. If you found you had a health or wellbeing concern, what source of information—if any—would you consult **first**? *Select only one response for each health or wellbeing issue.*

Health or wellbeing issue…	**Internet** (via computer or phone)	**Friends or family**	**Doctor or health specialist**	**Phone service or help line**	**I would not seek help – I would wait and see if the problem went away**
A major physical health concern (e.g. cancer,	☐	☐	☐	☐	☐

diabetes)					
A minor physical issue or injury (e.g. cut or rash)	☐	☐	☐	☐	☐
An embarrassing issue	☐	☐	☐	☐	☐
Bodily pain that made working **difficult/uncomfortable**	☐	☐	☐	☐	☐
Bodily pain that **prevented** you from working	☐	☐	☐	☐	☐
Mental health issue that made it **difficult/uncomfortable** to work	☐	☐	☐	☐	☐
Mental health issue that **prevented** you from working	☐	☐	☐	☐	☐
A sexual health issue (e.g. impotence, a concerning rash)	☐	☐	☐	☐	☐
Feeling 'down' for two weeks or more	☐	☐	☐	☐	☐

The next question is about 'tele-health' or 'e-health' services. These terms refer to when you receive a health or medical service over the phone, or over the internet. For example, can you have a 'consultation' with your specialist via Skype? Or, can you communicate with your doctor about your blood-sugar levels, anxiety levels or blood pressure over the phone?

Q17. Are 'tele-health' or 'e-health' services available in your region?

☐ YES, and I **have** used the service/s
☐ YES, but I have **not** used the service/s.

☐ No, and I **would not** use the service/s if they were available

☐ No, but I **would** use the service/s if they were available

☐ Not sure

☐ Can you explain your answer?

The following two questions refer to preventative health information rather than advice you might seek from your doctor for a personal health issue, even if it is fishing related. For example, information about how to prevent and treat sting-ray injuries, rather than information on an *actual* sting-ray injury you have yourself.

Q18. **How** would you prefer to receive general health and wellbeing information **specific** to the fishing industry? *Please tick up to **three** options.*

☐ Talking and listening in person, one-on-one
☐ Talking and listening in a group of people (such as at a field-day or information evening)
☐ Talking and listening over the phone (i.e. having a conversation with someone)
☐ Listening to a radio or podcast
☐ Watching a video or animation (e.g. on television, or on the internet)
☐ Reading information on the internet (e.g. email, social media, website)
☐ Reading information in hardcopy (e.g. a brochure or pamphlet or book)

☐Other_____

Q19. **From whom** would you prefer to receive general health and wellbeing information **specific** to the fishing industry? In each case the information would be the same. We are asking about **whom you would prefer to communicate with**. *Please tick up to **three** options.*

☐ General health organisation (e.g. community nurse or health worker)
☐ Research institute staff (e.g. from a university, CSIRO)
☐ Specific-health-issue organisation (e.g. staff from Cancer Council, Beyond Blue)
☐ Another member of the fishing industry (e.g. another fisher, a processor)
☐ A non-government industry organisation (e.g. someone from your peak body, or co-op)
☐ A government industry organisation (e.g. fisheries department staff)
☐ Someone completely removed from the fishing industry (e.g. a paid consultant, or facilitator)

☐Other_____

3. HEALTH, WELLBEING AND SAFETY IN YOUR FISHERY

The following questions relate to your perception of health issues in your fishery. They may relate to your personal experience, but may also reflect your views of the fishery as a whole and the experiences of other fishers.

Q20. What do you think are the most important factors that affect the health and wellbeing of fishers in your fishery? (Maximum of five).

1…….
2…….
3…….
4…….
5…….

Q21. The following question asks you to comment on factors that affect Australian fisher health. **In your fishery,** how much do you think these factors impact on fisher health and wellbeing?

	Not at all	**A little**	**Moderately**	**Quite a bit**	**Very much**
Poor diet	☐	☐	☐	☐	☐
Stress	☐	☐	☐	☐	☐
Wear-and-tear on joints, (e.g. knees, hips, shoulders)	☐	☐	☐	☐	☐
Injuries from tool use, including cuts from knives, crush injuries	☐	☐	☐	☐	☐
Sun exposure	☐	☐	☐	☐	☐

This question asks about the role of the commercial fishing industry in the general safety of those who use the ocean. From time-to-time fishers do things like respond to distress calls, provide assistance (advice, a tow) to broken down boats, and rescue people from disabled vessels, windsurfers or the water.

22. How many times in the **past five years** has one of your boats (and/or crew) provided assistance to another boat, vessel or person at sea? *Please provide a number, from 0 upwards*

☐ Commercial fishing vessel and/or crew_____

☐ Recreational users (e.g. fishers, windsurfers, jetskiers, swimmers)_____

☐ Merchant vessel and/or crew_____

Q23. How much do following factors contribute to **stress** among those in your fishery?

Stress caused by…	**Not at all**	**A little**	**Moderately**	**Quite a bit**	**Very much**
Severe weather	☐	☐	☐	☐	☐
Fluctuating market prices	☐	☐	☐	☐	☐

Changes to government regulations on access (e.g. area closures)	☐	☐	☐	☐	☐
Government red tape	☐	☐	☐	☐	☐
Uncertainty about *future* unknown changes to government regulations	☐	☐	☐	☐	☐
Negative media representation, poor public image	☐	☐	☐	☐	☐
Uncertainty about seafood stocks	☐	☐	☐	☐	☐
Physical danger of fishing	☐	☐	☐	☐	☐
General demands of running a business	☐	☐	☐	☐	☐
Financial concerns	☐	☐	☐	☐	☐
Recreational fishing sector	☐	☐	☐	☐	☐
Climate change	☐	☐	☐	☐	☐
Skills required to do your job (e.g. drive a boat, gutting skills)	☐	☐	☐	☐	☐
Isolation	☐	☐	☐	☐	☐
Relationship/s with co-worker/s	☐	☐	☐	☐	☐
Succession planning	☐	☐	☐	☐	☐

Q24. Between 1–5, how physically risky is **your** fishery compared to other Australian fisheries?

Far less risky	**1**	**2**	**3 (same)**	**4**	**5**	**Far more risky**

4. YOUR ROLE IN THE FISHING INDUSTRY

Q25. Are you currently an active fisher or seafood harvester? (e.g. skipper, deckhand, diver)

☐ Yes

☐ Normally I am fishing, but I am temporarily not fishing (e.g. injured, working elsewhere)

☐ No, I have never fished (e.g. I'm a licence holder, or business partner)

☐ No, I have retired from actively fishing

Other _____

Q26. What is your **main** working role in the fishing industry?

☐ Skipper, or in charge of harvesting operations

☐ Crew or worker

☐ Not applicable (e.g. I am an investor)

Q27. Is your role in the fishing industry:

☐ Full time

☐ Part time

Q28. Who does the bulk of the administrative or book-work in your fishing business?

☐ I do

☐ Someone else. *Who?* (e.g. wife, brother, accountant?) _____

Q29. We would like to ask you if you own, or part-own, a licence/concession. Which of the following applies to your situation? *Please tick all that apply*

☐ I own a licence/concession

☐ I own a licence/concession, which I lease to someone else

☐ I lease a licence/concession, to use in my own business

☐ None of the above

Q30. We would like to ask you if you own, or part-own, quota (include 'units', 'days', etc.). Which of the following applies to your situation? *Please tick all that apply*

☐ I own quota

☐ I own quota, which I lease to someone else

☐ I lease quota, to use in my own business

☐ None of the above

Q31. Do you own or co-own a commercial fishing vessel?

☐ Yes

☐ No

Q32. Do you own or co-own other fishing, harvesting, or processing gear, worth **more than $5,000**? *E.g. pots, nets. Exclude work vehicles.*

☐ Yes

☐ No

Q33. As part of your role in the fishing industry, do you receive:

☐ A stable wage

☐ A percentage of the catch/take

☐ Both a stable wage *plus* a percentage of the catch/take

☐ Not relevant

Q34. If you feel your role has not been fully identified in Q25-33, please describe below your role or additional roles you have in the fishing industry (e.g. owning a retail outlet)

_____

Q35. Do you personally supplement your income in the fishing industry with other paid work?

☐ YES

☐ NO

If so, what do you do? _____

Consider what you would call your **main** fishery, or the fishery that takes up most of your **time**. If you can't decide between multiple fisheries (e.g. if you're are equally involved in shark and lobster, or you invest in a number of fisheries but don't physically operate any), your main fishery would be the fishery you **most recently** worked in or were associated with operating. Don't mark this answer down, just keep it in mind when answering the following questions.

Q36. Where does your main fishing business operate most of the time?

Commonwealth waters	☐	Victoria	☐
New South Wales	☐	Western Australia	☐
South Australia	☐	Tasmania	☐
Queensland	☐	Northern Territory	☐

Q37. What best describes your **main** fishing business/activity?

☐ Inshore or coast (within 3 nm of shore)

☐ Offshore (beyond 3 nm of shore)

☐ Bays, estuaries and/or inlets

☐ Beach (e.g. cockles, pipis)
☐ Aquaculture (marine)
☐ Aquaculture (fresh water)
☐ Freshwater (wildcatch)

Q38. What gear is used for your main fishery? *Please tick all that apply.*
☐ Pots or traps
☐ Trawl
☐ Dredge
☐ Net
☐ Dive
☐ Line (e.g. longline, troll, rod and reel, dropline, jig)
☐ Hand collection (no boat) (e.g. pipis)
☐ Floating farms
☐ Pump

☐ *Other*_____

Q39. How many people typically work in the harvesting process (e.g. on the boat, or on the beach) used in your main fishery? (include yourself, if applicable).____

Q40. How long is a typical fishing trip (or harvesting period) for your main fishery?

……Hours (if less than a day) .....Days (if more than 24 hours)

Q41. What kind of phone/s do you use while fishing? *Please tick all that apply*.
☐ Mobile phone (no internet connection)
☐ Mobile phone (with internet connection)
☐ I don't have a mobile phone. *Please go to section 5.*
☐ I can't use my phone when I fish (e.g. no reception). *Please go to section 5*.
☐ Other (e.g. satellite phone)_____

Q42. How do you use your phone while at sea? *Please tick all that apply*.
☐ Communicate with business partners
☐ Communicate with other fishers
☐ Communicate with fisheries officials
☐ Communicate with friends and loved ones
☐ To access electronic logbooks
☐ Other official reporting (not electronic logbooks)
☐ To check the news
☐ To get health information
☐ To check the weather
☐ To use social media (e.g. Facebook)
☐ Videos or movies or games
☐ To take photos/videos
☐ *Other*…….

5. PARTICIPANT INFORMATION

This section asks some basic questions about you. They are very important to our research so we can see how these factors impact on your health, separate to your role in the fishing industry.

Q43. Where do you live most of the time?

Victoria	☐	Western Australia	☐
New South Wales	☐	Tasmania	☐
South Australia	☐	Northern Territory	☐
Queensland	☐	Other_____	☐

Q44. What is your gender?
☐ Male
☐ Female
☐ Other
☐ Rather not say

Q45. How old are you?_____

Q46. In which country were you born?_____
Q47. Are you of Aboriginal or Torres Strait Islander origin? *Please tick all that apply.*
☐ No
☐ Yes, Aboriginal
☐ Yes, Torres Strait Islander

Q48. How would you describe your ancestry? Provide up to two ancestries only. Examples of 'other': Vietnamese, Lebanese, Indonesian, Maori, Hmong.
☐ Australian
☐ English
☐ Greek
☐ Irish
☐ Italian
☐ *Other*_____

Q49. Do you consider yourself a religious person?
☐ No
☐ Yes

Q50. How many people **live in** your household?

☐ I live alone
☐ Myself and_____ other people

Q51. How many people in your household **contribute to your household income**?

☐ Only me
☐ Myself and_____ other people

Q52. What is your relationship status?
☐ Single, never married
☐ Defacto or in a committed relationship
☐ Widowed
☐ Divorced
☐ Separated but not divorced
☐ Married

Q53. What is the highest year of primary or secondary school you have *completed*?_____

Q54. What is the level of the *highest* qualification you have *completed*?_____

Q55. Would you like to be kept personally informed of the results of this research, or to participate in future research? If so, either write your name and email address here, or send an email to tanya.king@deakin.edu.au with the subject line: **Fisher health**

Q56. Would you like to include any additional comments or information? *Please add extra pages if required.*

THANKS AGAIN FOR FILLING OUT THE SURVEY!

Appendix 4. Bibliography of literature review

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Appendix 5. Demographic data

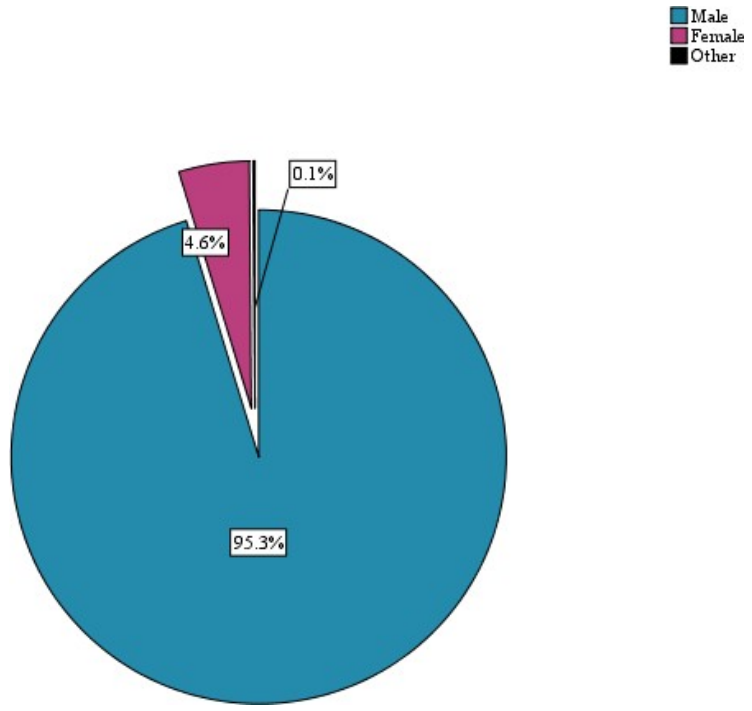

Figure 5.1. Respondent gender (N=803)

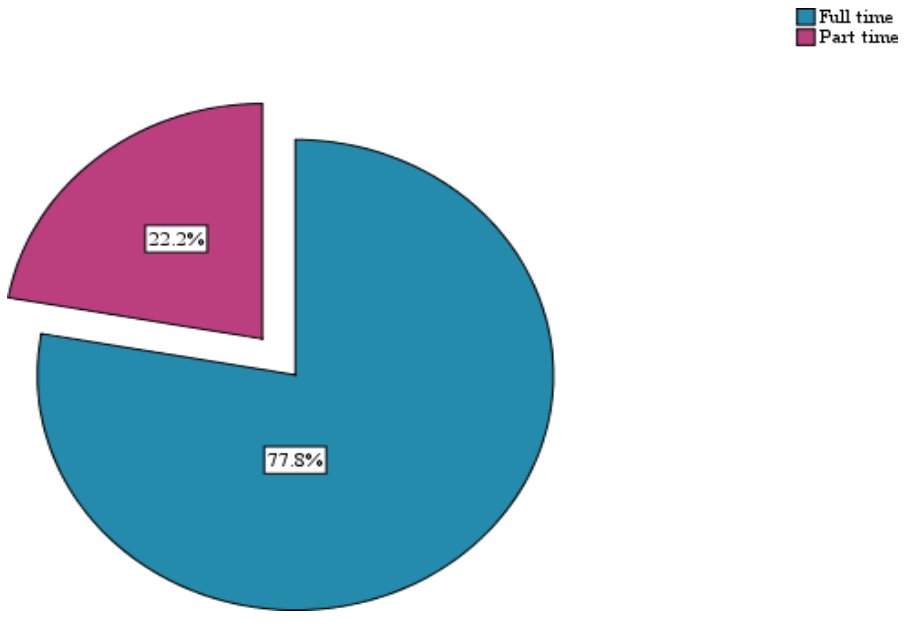

Figure 5.2. Respondent level of employment within fishing industry (N=802)

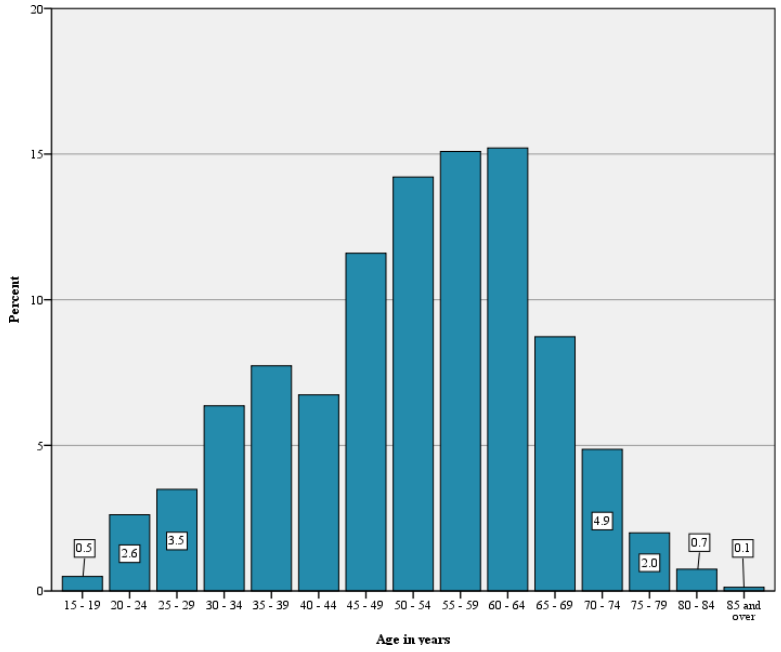

Figure 5.3. Respondent age distribution (N=802)

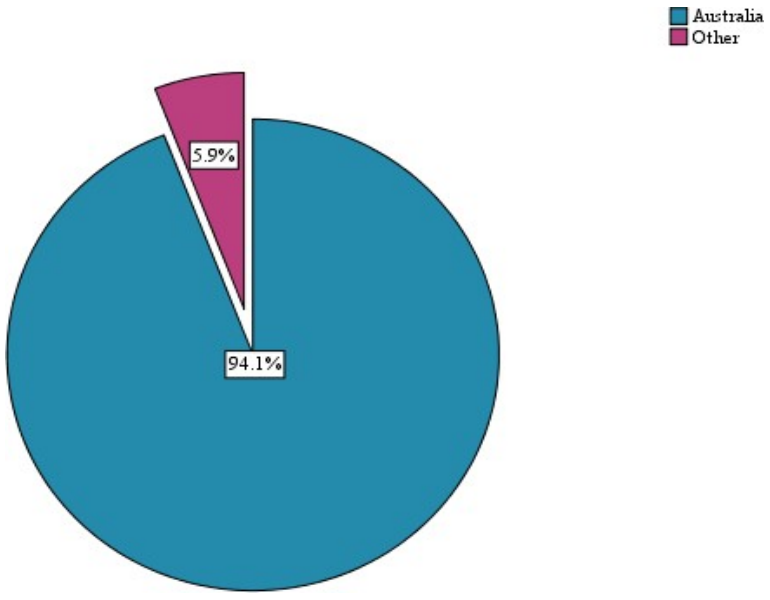

Figure 5.4. Respondent country of birth (N=803)

Table 5.1. Breakdown of respondent country of birth

Country	Number	Percent
Australia	756	94.1%
United Kingdom	19	2.4%
New Zealand	11	1.4%
Germany	3	0.4%
South Africa	3	0.4%
Canada	2	0.2%
France	2	0.2%
The Netherlands	2	0.2%
Austria	1	0.1%
Greece	1	0.1%
Italy	1	0.1%
Malaysia	1	0.1%
USA	1	0.1%
Total	**803**	**100%**

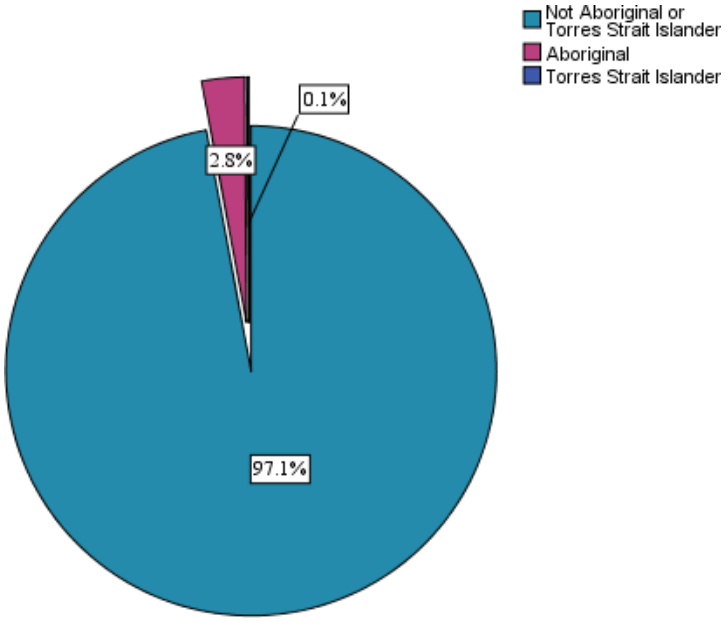

Figure 5.5. Respondent identification as being of Aboriginal or Torres Strait Islander origin (N=816)

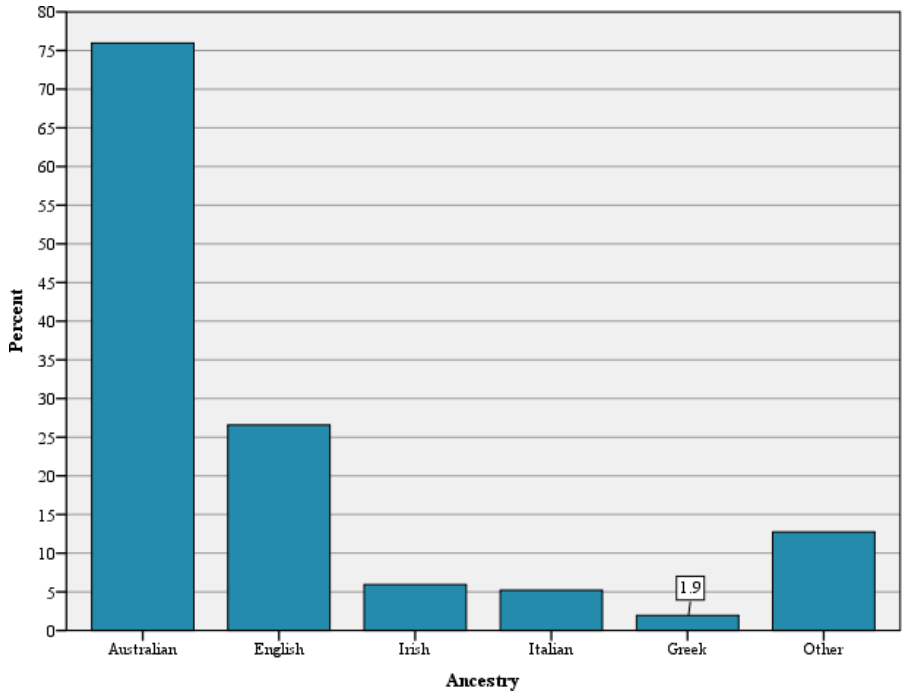

Figure 5.6. Respondent main ancestry (N=824)

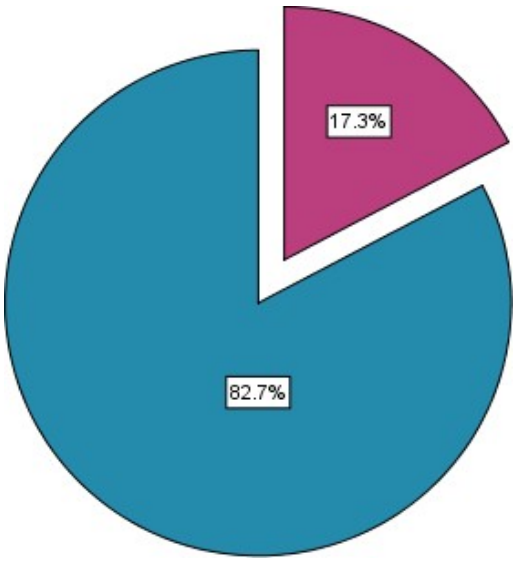

Figure 5.7. Respondent identification as religious (N=809). Blue: not religious, Maroon: religious

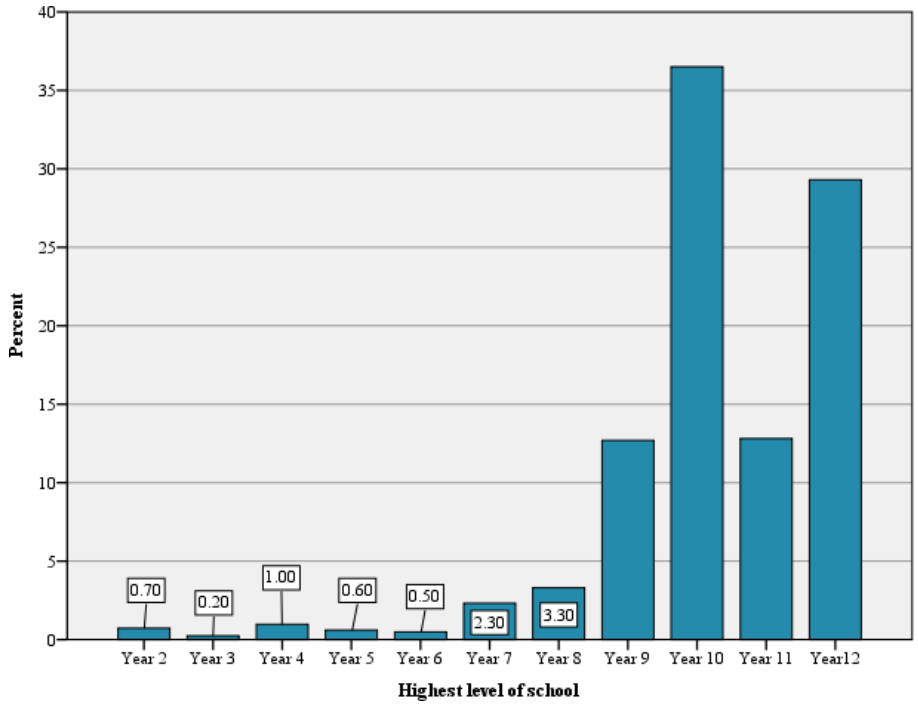

Figure 4.8. Respondent highest level of schooling (N=819)

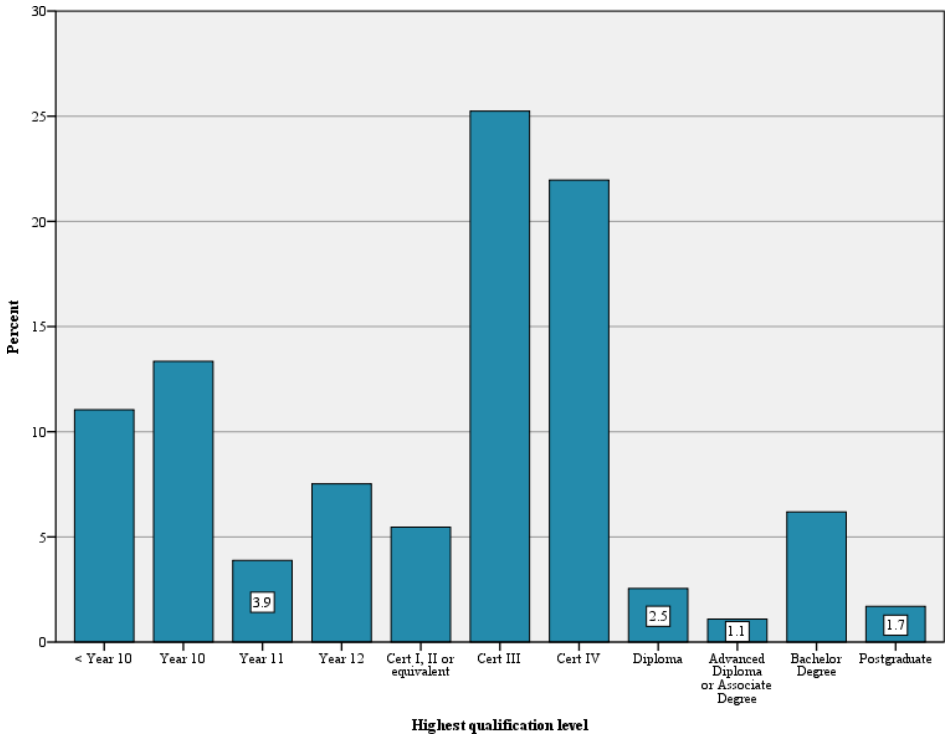

Figure 5.9. Respondent highest qualification level (N=824)

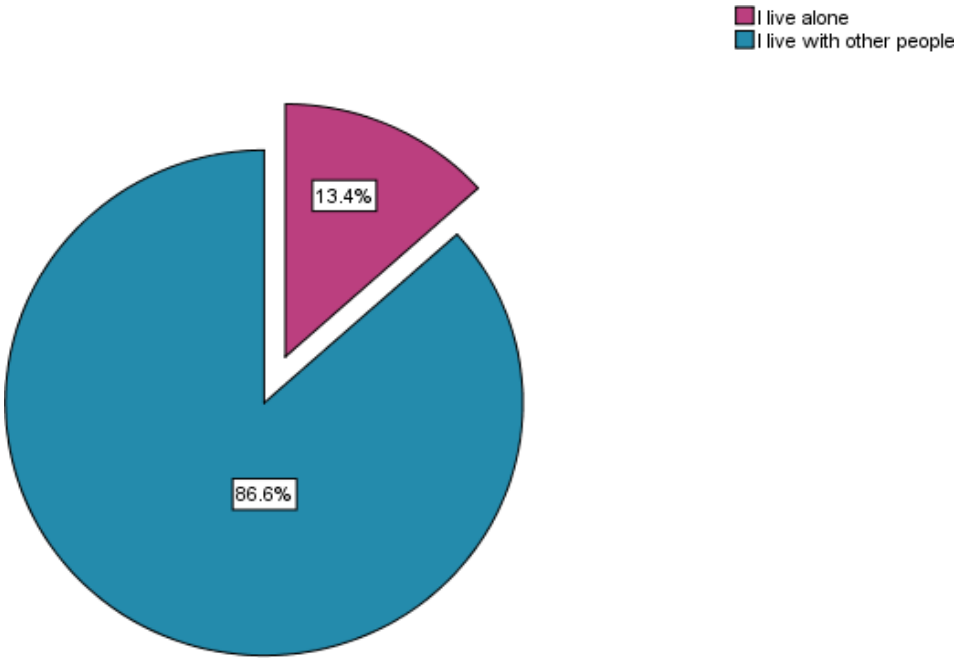

Figure 5.10. Respondent household composition (N=807)

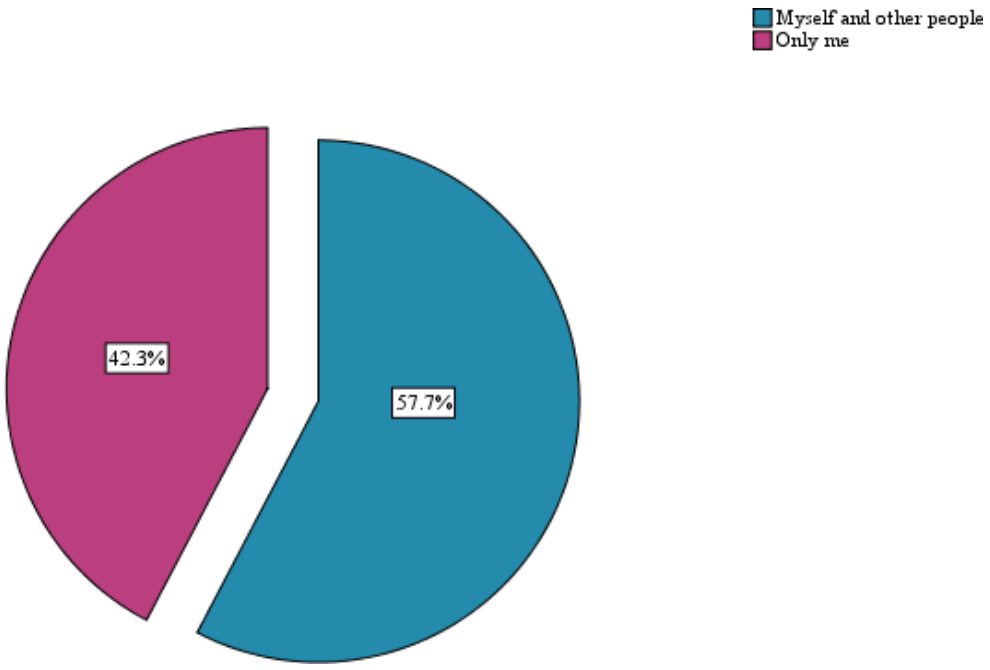

Figure 5.11. Respondent household income contribution composition (N=815)

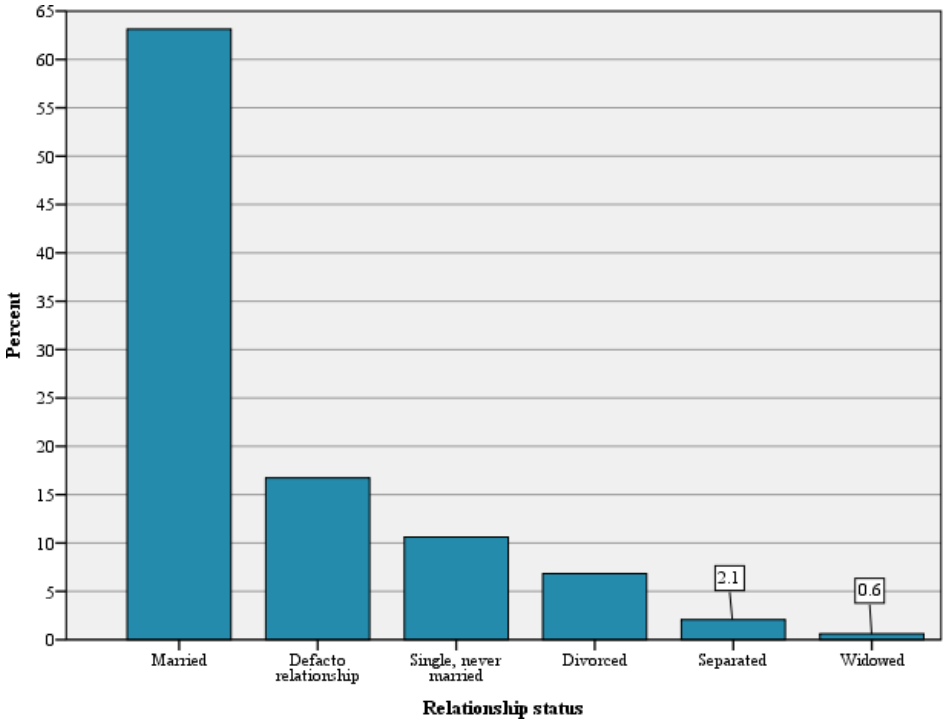

Figure 5.12. Respondent relationship status (N=819)

Appendix 6. Fisher GP Brochure (draft)

39% of fishers were dissuaded from going to the doctor because they felt their GP didn't understand the pressures of the fishing industry.

What can *you* do?

Medical specialists:

- Recognise that those in the fishing industry face a specific set of mental health challenges, primarily stress from **perpetual livelihood insecurity** and/or **loss**.

Fishing industry members:

- Address your **symptoms**, so that you're better able to address their **causes**
- Book a **double** appointment with your GP
- Take **this brochure** with you
- Inquire about **low cost** or **free** services
- Inquire about **Skype consultations**
- If you're in **real strife**, call Lifeline on **13 11 14**

About the research

Survey

4,500+ postal surveys of an anonymous, 56 question survey deployed nationally, along with an online version (n=872).

See the Report

Fisheries Research and Development Corporation, *Sustainable Fishing Families Developing industry human capital through health, wellbeing, safety and resilience* Project Number 2016/400.

Contact Us

Project PI: Tanya King
Phone: 0427889917
Email: tanya.king@deakin.edu.au

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MENTAL HEALTH IN THE AUSTRALIAN COMMERCIAL FISHING INDUSTRY

Information for Doctors and Fishing Families

In 2017 a national survey revealed significantly higher rates of poor mental health in the seafood industry than the general population.

K10:

Almost **DOUBLE** the rate of high or very high levels of **psychological distress** than general population (including farmers).

Depression diagnoses: 14%

Self-reported stressors :

Modern Uncertainties

- Red tape 91%
- Access changes 90%
- Governance uncertainty 89%
- Poor public image 75%

Traditional Risks

- Severe weather 65%
- Stock uncertainty 52%
- Physical dangers of fishing 45%
- Isolation 31%

Self-reported self-harm:

Qualitative responses indicate that a key method of self-harm involves **prescription medication overdose.**

Self-reported in past year:

- Fatigue 58%
- Stress 55%
- Trouble sleeping 48%
- Trouble with memory 26%
- Trouble concentrating 21%
- Panic attacks 8%

K10: level of psychological distress	Respondents Fisher health survey* (N=779)	Australians 18 years and over, National Health Survey 2014-15 (ABS 2015) (N=19,259)
Low	54.3%	68.0%
Medium	23.5%	19.5%
High	16.0%	8.0%
Very high	6.2%	3.7%

*Chi squared test shows difference is significant at 0.000001 level.

Why are those in the fishing industry exhibiting such poor mental health?

Known risk factors:

- Most fishers are **men**
- Many live or work in **rural or regional** Australia

Additional risk factors:

Permanent livelihood insecurity:

- Fishers harvest **public resources** so **can not own** assets securely (e.g. as freehold land); ongoing 'social licence' is required.

Culturally devalued:

- Australians do not **culturally value fishers**, as do other nations (e.g. Canada, Japan), and as we venerate farmers.

Environmental misperceptions:

- Public assumes industry is unsustainable, despite being **world-leaders in sustainability**, and primarily **small-scale.**

Threat of workplace violence:

- Fishers experience **verbal** and sometimes **physical abuse** and **property vandalism** from members of the public **while at work.**

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