WORKPLACE HEALTH PROMOTION

IN THE COMMERCIAL FISHING INDUSTRY

– A CASE STUDY OF PORT LINCOLN

Andrea Rona Barclay
BSc, MPH

THE UNIVERSITY
of ADELAIDE

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School of Nursing, Faculty of Health Sciences
The University of Adelaide

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Abstract

Background

Commercial fishing is one of the most hazardous industries as evidenced by international injury data comparisons. Its workforce includes seasonal, self-employed and vulnerable people, often lacking supportive structures. Along with workplace injuries, mental health problems and chronic health conditions have been identified in the literature. Even though there have been calls for health promotion interventions, there is no strategic approach or conceptual framework addressing workers' health and well-being within commercial fishing industries.

This research aimed to understand and describe the commercial fishing industry of Port Lincoln from multiple perspectives and to propose a framework for workplace health promotion interventions applicable to rural fishing industries. The central research question guiding this study was 'How could a pragmatic framework for effective workplace health promotion be structured for use within commercial fishing industries?' This question was addressed by surveying workers and exploring the perspectives of a variety of industry managers and stakeholders in the South Australian town of Port Lincoln, incorporating the sectors of wild-catch, aquaculture and seafood processing.

Methods

This study used a case study methodology that incorporated a mixed methods strategy of data collection and analysis. An integrative literature review of international literature was undertaken; a qualitative study investigated the views of industry managers, stakeholders and health providers; and a survey questionnaire explored the needs and perceptions of the industry's workforce. This mix of different methods highlighted various viewpoints and strengthened the findings by enabling triangulation of data. A realistic and credible range of key factors for an effective workplace health promotion program was thereby identified and a framework created from these findings.

Results

An integrative literature review of international literature on fishing industries pointed to high workloads, employment instability, as well as other pressures arising from uncertainties and unstable working conditions impacting on the health and well-being of the fishing industry's workers. Even though these workers are a difficult population to approach with interventions, a need for health support and a call for preventive and health promoting strategies was found throughout the international literature. The systematic search strategy revealed that, to date, no health promotion approach has been developed and implemented within a fishing industry workforce.

Semi-structured, face-to-face interviews with twenty-seven industry managers, stakeholders and health providers gave in-depth insight into the phenomena under investigation. An unstructured approach of supporting workers' health and well-being was identified and industry managers stated an interest in learning more about the possibilities of workplace health promotion. The culture of the industry was described as very competitive, with many psychosocial pressures resting on the workers, relating to low socio-economic background, isolation, the difficulty of maintaining stable relationships while out at sea and economic pressures. High rates of drug and alcohol use as well as mental health issues were described as problematic, with the interviews revealing the struggle of industry managers to deal with these issues. Due to workers migrating to other rural industries the participants also considered health and well-being interventions to be a valuable asset in contributing towards staff retention.

To further explore the workforce needs and from there develop a framework, a survey was undertaken among workers in the various industry subsectors, occupational groups and enterprises. For this purpose, a new data collection tool to survey the fishing industry's workforce regarding their health and well-being at the workplace was created. The survey included 179 participants and revealed a large potential for utilising workplace health promotion programs. Even though the term 'workplace health promotion' was not recognised by workers, they were interested in offers of health promotion and pointed to an array of services they would like to see their workplace provide. Moreover, there were evident benefits to be gained by employers. The survey underlined the large potential of workplace health promotion in keeping staff connected and committed to the industry.

Discussion and Implications

Based on the evidence of the data, a framework of workplace health promotion for the commercial fishing industry was developed. The DOME Framework of Health Promotion aims at creating a healthy workplace for workers and employers and revolves around the respectful interaction of both. The framework addresses four domains (*DO*) that incorporate an active approach to educating and empowering workers, social and emotional support, modification of organisational arrangements to enable workers to adopt healthy behaviour and engagement with the surrounding community. These domains are guided by principal mechanisms that steer the utilisation and implementation of the framework. These mechanisms (*ME*) are defined as mutual trust, leadership, communication and participation.

It is recommended that this multifaceted approach be presented to regional development boards to support the building of workplace health promotion strategies from within the industry and in collaboration with the community. A culture of valuing and promoting a healthy, qualified and motivated workforce is the primary objective, thereby leading to the improved retention of workers and enhanced productivity. It is suggested that theoretical propositions arising from this research, relating to the application of health promotion principles, can be generalised and the framework transferred to other commercial fishing industries.

Declaration

I, Andrea Rona Barclay, certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name, in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission in my name, for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and, where applicable, any partner institution responsible for the joint-award of this degree.

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Andrea Rona Barclay

Brief Content

Detailed Content

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List of Abbreviations

ABS	Australian Bureau of Statistics
ASGC	Australian Standard Geographic Classification
AFMA	Australian Fisheries Management Authority
ASBTIA	Australian Southern Bluefin Tuna Industry Association
CWHP	Comprehensive Workplace Health Promotion
DigA	Diagnose gesundheitsförderlicher Arbeit (Diagnosis of Health-Promoting Work)
DOME	Domains / Mechanisms
EBSCO	Elton Bryson Stephens Company
EMBASE	Excerpta Medica Database
ENWHP	European Network of Workplace Health Promotion
FISHP	Fishing Industry Survey of Health Promotion
FRDC	Fisheries Research & Development Corporation
GP	General Practitioner
HNA	Health Needs Assessment
HP	Health Provider
HREC	Human Research Ethics Committee
HW-HF	Healthy Workers - Healthy Futures
IM	Industry Manager
LGA	Local Government Area
NSW	New South Wales
OH&S	Occupational Health and Safety
PICo	Population, Phenomenon of Interest, Context
PIRSA	Primary Industries and Regions South Australia
PubMed	Public Medline
RIRDC	Rural Industries Research and Development Corporation Science
SA	South Australia
SAWIC	South Australian WorkCover Industrial Classification
SBT	Southern Bluefin Tuna
SCT	Social Cognitive Theory
SH	Stakeholder
SPSS	Statistical Package for the Social Sciences
TAFE	Technical and Further Education
THCU	The Health Communication Unit
TOOCS	Type of Occurrence Classification System
UN	United Nations
WHO	World Health Organisation
WHP	Workplace Health Promotion
WHS	Workplace Health and Safety
WRC	Workers' Rehabilitation and Compensation
WRIS	Work-Related Injuries Survey

Glossary

Commercial Fishing Industry Overarching term comprising industry sectors of wild-catch and aquaculture, as well as industry businesses of seafood processing and wholesale. Any workplaces directly related to fishing, aquaculture and seafood industries are included and subsumed under the term of 'commercial fishing industry' for the purpose of this study. Supporting industrial sectors such as transport businesses are excluded. Moreover, recreational and indigenous fishing activities are excluded and not part of this research.

Framework A supporting structure or a skeleton of interlinked items which may guide the creation and implementation of complex events or interventions, in this case of workplace health promotion. It serves as a guide that can be activated and modified as required.

Stakeholder Individuals who have an interest in the health and safety of fishing industry workers, including regulatory bodies; who represent the industry workers or enterprises on a higher level; or who have an interest in the development and sustainability of the industry; as well as experts on the industry.

Worker A person undertaking work within the commercial fishing industry, including hired and seasonally contracted staff, as well as family members and people working for owner-operated businesses.

Workplace Health Promotion According to the Luxembourg Declaration (European Network for Workplace Health Promotion 2007) the combined efforts of employers, employees and society to improve the health and well-being of people at work. This can be achieved by a combination of improving the work organisation and the working environment, promoting active participation and by encouraging personal development.

Acknowledgements

Presentations and Recognition

Conference and Poster Presentations (to date of submission)[1]

Retaining a Healthy and Operational Workforce in Fishing and Aquaculture Industries. Australian Southern Bluefin Tuna Industry Association (ASBTIA) & Fisheries Research and Development Cooperation (FRDC) Research Workshop, 27th of November 2014, Port Lincoln, Australia.

Health Promotion in the Commercial Fishing Industry - Perspectives of Managers and Stakeholders. Oral presentation at the International Commission on Occupational Health: Work Organization and Psychosocial Factors 2014 Congress, 17th - 19th of September 2014, Adelaide, Australia.

Fishing in the Dark - What are we doing about Health Promotion for Fishermen? Poster presented at the 7th Annual Faculty of Health Sciences Postgraduate Research Conference, 29th August 2013, Adelaide, Australia.

Keeping it Real: The Paradigm of Realism. Oral presentation at the University of Adelaide, School of Nursing Research Conversazione 2013, 'Beyond the Project', 24th - 26th July 2013, Adelaide, Australia.

Workplace Health Promotion in Commercial Fishing Industries - A Case Study of Port Lincoln. Oral presentation at the SafeWork SA 2013 Workplace Health and Safety Annual Research Forum, 8th July 2013, Adelaide, Australia.

Health promotion strategies utilised in international commercial fishing industries - results of an integrative literature review. Oral presentation at the National Australian Health Promotion Association Conference, 17th - 19th June 2013, Sydney, Australia.

Awards

School of Nursing Prize for the best poster at the 7th Annual Faculty of Health Sciences Postgraduate Research Conference, 29th August 2013.

Bendigo Bank Prize for best poster at the 7th Annual Faculty of Health Sciences Postgraduate Research Conference, 29th August 2013.

SafeWork SA WHS Supplementary Scholarship (3 years), 21st December 2011.

International Postgraduate Research Scholarship (IPRS) (3 years), 11th June 2011.

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[1] To the date of submission several journal articles were additionally prepared for publication.

Chapter 1:

Introduction and Thesis Overview

1.1 Statement of the Research Problem

Previous research shows that the fishing industry is one of the most dangerous occupational fields with continuously high numbers of workplace incidents (Evans et al. 2005; Fragar, Lower & Temperley 2011). A recent study states: "Globally commercial fishers experience high rates of disease, are at high risk of accidents and injuries, and are subject to many physical and mental health challenges" (King, Kilpatrick & Willis 2014, p. ix). The health risks are broad and include cardiovascular, dermatological and musculoskeletal risks, as well as risks of hearing loss, stress-related issues and anxiety (Jensen et al. 2012).

Continuing changes in working conditions, unstable employment and income uncertainty increase the pressure on the workforce. Being out at sea, working in isolation and being confronted with high workloads during harvest seasons add to the demands that workers of this industry encounter. As a largely uneducated and often vulnerable group, with a lack of supportive structures and social stability, workers in the fishing industry have been stated as being particularly susceptible to certain stressors that influence their mental health and well-being (King, Kilpatrick & Willis 2014).

Despite the health risks of workers within this industry having been documented internationally, research into preventing workplace injury and disease and promoting workers' well-being is limited. A lack of concern for health and safety within Australian fishing industries, as well as an acute need of health promotion interventions and targeted support is stated in recent reports (Brooks 2011; Fragar, Lower & Temperley 2011; Kilpatrick et al. 2013).

The views of key stakeholders, industry managers and workers on the possibilities of workplace health promoting strategies within commercial fishing industries are at present largely unknown and areas of priority to support workers' health and well-being need to be identified (Fragar, Lower & Temperley 2011). This applies not only to the Australian fishing industry, but also, internationally, research and development of health supportive structures for fishing industry workers are called for (Jensen et al. 2012).

1.2 Purpose of this Research

Using Port Lincoln as a case study, this research aims to understand and describe the commercial fishing industry from multiple perspectives and examine the possibility of utilising workplace health promotion strategies. It explores how a framework could be structured to offer effective workplace health promotion within the specific setting of commercial fishing industries. The perspectives of workers, industry managers, local health providers and key stakeholders are identified in order to explore the need for health promotion within the industry. Moreover, pragmatic considerations, such as the possibilities and restrictions of utilising health promotion strategies within commercial fishing industries, are investigated. Suggestions on how best to target the fishing industry workforce with health promotion programs and match such a program to the specific context are derived.

To be able to achieve this overall purpose, a specific research aim and several supporting research objectives were formulated from an initial literature review, an analysis of WorkCoverSA compensations statistics, and in cooperation with experts in the field, including industrial advisors. This background information is presented in Chapter 2 of this thesis.

A mixed methods approach allows creating a comprehensive picture of the phenomena under investigation. By bringing together the results of an integrative literature review, a survey among the workforce, as well as interviews with managers, stakeholders and health providers, implications for the creation of a framework for effective workplace health promotion aimed at the commercial fishing industries are identified. A pragmatic framework is proposed that seeks to meet international standards of best practice for workplace health promotion, while concurrently addressing the specific issues identified within the Port Lincoln fishing industry. By ensuring the representativeness of the Port Lincoln case study, transferability of the framework to other fishing industries or communities is considered possible.

1.2.1 Research Aim

The aim of this research is to understand and describe the commercial fishing industry of Port Lincoln from multiple perspectives and propose a pragmatic framework for effective workplace health promotion for commercial fishing industries.

1.2.2 Overall Research Question

How could a pragmatic framework for effective workplace health promotion be structured for use within commercial fishing industries?

1.2.3 Research Objectives

To be able to achieve the aim of the proposed research, a set of research objectives were formulated:

A. To identify the key health issues and health promotion needs of the industry's workforce, as perceived by workers, industry managers and key stakeholders of the Port Lincoln fishing industry, as well as local health providers.

B. To identify successful workplace health promotion frameworks used by international commercial fishing enterprises.

C. To identify the current workplace health promotion strategies and measures of health support adopted by commercial fishing enterprises of Port Lincoln.

D. To assess perceptions and understanding of workplace health promotion, as well as to explore the perceived roles and responsibilities of industry managers, key stakeholders and local health providers when implementing workplace health promotion strategies within the industry.

E. To explore barriers and facilitators to implementing workplace health promotion strategies within the industry as perceived by industry managers and key stakeholders.

F. To investigate workers' preferences in regard to obtaining information and identify drivers and barriers to using workplace health promotion offers.

1.3 Significance of the Research

This research provides important information and new knowledge for one of Australia's most valuable primary industries. The commercial fishing industry brings about significant economic and social benefits and supports regional development (Department of Agriculture 2014a). As an important source of employment in rural areas, the fishing industry has been cited as an integral component of the South Australian community and way of life (Australian Bureau of Agricultural and Resource Economics and Sciences 2011; Fisheries Research and Development Corporation 2014b; Wildcatch Fisheries of South Australia 2014).

The large effects of the industry on the communities in which it operates have been outlined by previous research, highlighting the need for this industry to take into account the health and well-being of its workforce. A healthy workforce has been stated as an essential element of the "sustainable development and prosperity of a country" (Karadzinska-Bislimovska et al. 2007, p. 292), as the health and well-being of rural industry workforces is "one of the critical factors in sustaining quality products and developing local and global markets" (Allan et al. 2012, p. iii).

This research supports the commercial fishing industry in remaining profitable and suggests adding to its value by investment in the industry's workforce. An innovative approach to implementing workplace health promotion strategies is presented. Healthier fishing communities that facilitate "greater productivity, more reliable and resilient human capital, fewer illnesses and a more efficient industry" may thereby be developed (King, Kilpatrick & Willis 2014, p. iii). Moreover, workplace health promotion strategies have shown to reduce rates of staff turnover and improve staff retention (Burton 2010; European Agency for Safety and Health at Work 2012; World Health Organisation 2014). As the current threat of migration of fishing industry workers into other rural industries constitutes the most pressing issue facing South Australian fishing industries (Forrester 2014; Miller, Ellis & Petherick 2013), the potential of utilising such strategies is emphasised.

This research provides new insight and an in-depth understanding of the commercial fishing industry as a workplace setting. A pragmatic framework for workplace health promotion tailored to commercial fishing industries is developed and presented. Specific industry characteristics, such as the many small-sized operators and high rates of casual employees, are taken into account. It is suggested that, by utilising such a framework, opportunities of gaining a healthy, motivated and productive workforce arise and contribute to the sustainability of commercial fishing industries.

1.4 Thesis Outline

The thesis presented provides a comprehensive insight into the possibility of utilising strategies of workplace health promotion for the commercial fishing industries. The introduction, background and methodology chapters provide the basis for this research and provide the background and design (Chapters 1 - 3). The empirical studies comprise three strands of data collection and analysis: an integrative literature review, interviews with key stakeholders and a survey among workers (Chapters 4 - 6). These data strands showcase different perspectives on the phenomena under investigation and are presented consecutively. Chapter 7 synthesises the findings of these three results chapters and brings together the various perspectives. Considerations upon designing a framework for commercial fishing industries are highlighted and a pragmatic framework for effective workplace health promotion is presented. Chapter 8, as the final chapter, describes the strengths and limitations of the research and gives recommendations.

Chapter 1: Introduction and Thesis Overview

The introduction to the thesis contains a detailed statement of the research problem, the purpose and the research question as well as the research objectives. The outline of the thesis is presented and the significance of promoting the health of workers in the commercial fishing industry highlighted. It is demonstrated how this research brings forward new knowledge and answers a current call for health promotion in this industry.

Chapter 2: Background and Presentation of the Case

This chapter provides the background to the phenomena under investigation. The commercial fishing industry of Port Lincoln as the setting and context for this case study is presented. The choice of Port Lincoln as a representative coastal fishing town with a substantial and innovative industry, having the potential for workplace health promotion strategies, is argued for. The demographics of the Port Lincoln fishing industry workforce are displayed, and an analysis of WorkCoverSA data gives insight into the types of workplace incidents occurring within this specific industrial setting. Additionally, an initial literature review outlines different concepts of workplace health promotion and presents the theoretical foundations of health promotion frameworks.

Chapter 3: Methodological Overview

In this chapter the underlying paradigm of realism and the utilised methods of this research are described. The benefits of using an exploratory case study design to gain a holistic view of a contemporary phenomenon within its real life context are outlined. The integration of several methods into a convergent parallel approach within this case study is depicted. Moreover, the various data strands of collecting, analysing, and interpreting different types of quantitative and qualitative data to answer the stated research objectives are illustrated. According to the underlying paradigm of realism, knowledge is seen as subjective, making various alternative perspectives on the phenomena under investigation necessary. Therefore, after this methodology chapter, three empirical chapters, displaying different perspectives, follow.

Chapter 4: Perspective on the Industry – An Integrative Literature Review

This chapter comprises an integrative review of the literature referring to strategies of workplace health promotion utilised in the fishing industries of developed countries worldwide. This review is the first of three results chapters and gives a broad perspective on the industry. The search strategy addressed electronic and grey literature from 1992 to 2014 and identified 665 papers. After a comprehensive review process, 21 papers were found to meet the inclusion criteria. From these, the targeted health risk, the type of suggested health promotion approach and its degree of utilisation were analysed and compared. The results of the integrative review give pragmatic suggestions for the utilisation of workplace health promotion strategies and inform the development of a framework for the commercial fishing industry.

Chapter 5: Perspectives of Industry Managers, Stakeholders and Health Providers – Face-to-face Interviews

This chapter describes a qualitative study that was undertaken in order to identify the views and perceptions of industry managers and stakeholders in the fishing industry, as well as local health providers, on workplace health promotion. Semi-structured interviews were conducted with 27 participants within Port Lincoln and evaluated using a comprehensive process of thematic analysis. The chapter presents the method of data collection and analysis and presents the results obtained. Four overarching themes

revealing perceived health needs, various ways of understanding health promotion, as well as barriers and drivers in utilising strategies of workplace health promotion were identified. The findings inform the framework development and suggest including strategies of empowering workers, as well as social support structures and cultural values into a workplace health promotion framework.

Chapter 6: Perspective of the Workforce – A Cross-sectional Survey

This chapter presents a cross-sectional survey that was conducted with 179 workers in Port Lincoln fishing, aquaculture and seafood processing enterprises. It comprises a representative sample of different industrial sectors, industry sizes and varying occupations. By utilising a newly developed survey instrument, the perceptions of the fishing industry workforce are explored. The findings reveal an overwhelming interest of workers in making use of offers of health support at work and point to the potential of workplace health promotion as a tool to keep staff connected and committed to the industry. Moreover, specific areas of need, preferred type of health promotion delivery, as well as potential barriers to participation were identified that further inform the development of a framework for workplace health promotion.

Chapter 7: Synthesis of Perspectives and Development of a Framework

This chapter compares and synthesises the findings from the three strands of data collection and brings together the various perspectives in the context of other published work. Pragmatic considerations informing the design of a framework for effective workplace health promotion for the commercial fishing industry are deduced. Content to be addressed within workplace health promotion programs is discussed and systematically presented in four domains that provide the framework its structure. In a further step, the framework is tailored to the commercial fishing industry and principal mechanisms included that function as activators of the framework. The utilisation of this pragmatic framework is outlined and practical applications of the suggested framework presented.

Chapter 8: Conclusions and Recommendations

This chapter highlights the significance of the research undertaken and illuminates the novelty of using an innovative approach to workplace health promotion for commercial fishing industries. Furthermore, the limitations of this research are addressed and discussed. Due to the concept of health promotion being largely unknown throughout the fishing industry, further measures to translate the framework into practice and successfully utilise it within commercial fishing enterprises are presented. Recommendations to future researchers, commercial fishing industries and regulatory bodies are made and a final conclusion drawn.

Chapter 2:

Background and Presentation of the Case

2.1 Introduction

The first part of this chapter provides an overview of the commercial fishing industry as a workplace setting and contextualises the fishing industry of Port Lincoln. As this research is based on a case study methodology, a broad presentation of the case of the Port Lincoln fishing industry is required. The commercial fishing industry is described in the following sections by moving from broad to specific: Firstly, the fishing industry as industry of employment is broadly presented; secondly the various workplace settings and occupations are outlined; lastly the workforce characteristics and the health of workers within the industry are presented. This is achieved by utilising both a broad international approach by reviewing literature as well as a detailed approach through examining occupational hazards and workers' health in the Port Lincoln fishing industry by analysing Census data and WorkCover claims data. Thereby the case under investigation is comprehensively described, as well as conclusions drawn, which refer to the need to support workers' well-being and prevent injuries.

In the second part of the chapter, the concept of health promotion is defined and the key principles of workplace health promotion underlying this research are described. In the pursuit of an effective health promotion strategy for the commercial fishing industry, a strong theoretical foundation is necessary. For this reason two theoretical models informing intervention development are presented, as well as the World Health Organisation's suggested 'avenues' of content of workplace health promotion outlined.

When bringing together both sections, the value of strategies of workplace health promotion for commercial fishing industries becomes apparent, as well as gaps in utilising such approaches are identified.

2.2 The Fishing Industry as Industry of Employment

The commercial fishing industry is one of the most valuable Australian primary industries, worth more than $2.2 billion to the Australian economy each year (Australian Fisheries Management Authority 2014; Fisheries Research and Development Corporation 2009). Next to the long existing sector of wild-catch, aquaculture is one of the fastest growing primary industry sectors in Australia (Fisheries Research and Development Corporation 2014a) and the leading producer of seafood in South Australia (EconSearch 2014). Additionally, the commercial fishing industry is an important rural employment sector (Australian Bureau of Agricultural and Resource Economics and Sciences 2011). It is estimated that in 2011/12 approximately 2,600 workers were employed directly in the South Australian commercial fishing and aquaculture industry (EconSearch 2013a, 2013b). Apart from this direct employment in jobs of catching, processing and retailing seafood, another 4,000 workers were employed in flow-on businesses, including ship chandlers, fuel, transport and packaging companies (EconSearch 2013b, 2014; Wildcatch Fisheries of South Australia 2014).

With South Australia being a national leader in the seafood industry, embracing a strong export division and the largest and most diverse aquaculture industry of Australia (South Australian Seafood Industry Federation 2009; Woodhams et al. 2011), it is deemed a viable study setting. The state's total value of seafood production in 2012/13 was around $442 million (EconSearch 2014), with the Southern Bluefin Tuna (SBT) sector being the largest contributor to the industry's value. As most of the full-time positions of South Australian aquaculture are placed in regional areas, the significance of the industry to regional development becomes apparent (Department of Agriculture 2014b; EconSearch 2014).

The contribution of the commercial fishing industry to South Australia's local economy and region has therefore been stated as substantial, with important economic and social benefits arising within coastal communities, such as direct employment and income, as well as flow-on activities of employment, broader lifestyle and health benefits (Fisheries Research and Development Corporation 2014b; Schirmer & Pickworth 2005). As the

fishing businesses are mainly locally owned and governed as family businesses, the fishing industry is viewed as an integral component of the South Australian community and way of life (Wildcatch Fisheries of South Australia 2014).

As defined in the glossary, this research makes use of the term 'commercial fishing industry' as an overarching term, comprising industry sectors of wild-catch and aquaculture as well as the industrial businesses of seafood processing and wholesaling. Recreational and indigenous fishing activities are excluded and not part of this research. Only workplaces directly related to the fishing industry are examined, excluding any supporting industrial sectors such as transport businesses.

2.2.1 The Setting of Port Lincoln

This research focuses on the commercial fishing industry of Port Lincoln, which constitutes a representative and at the same time feasible study setting. Port Lincoln is a coastal city located on the Eyre Peninsula of South Australia, approximately 650 kilometres by road from Adelaide (figure 2.1). It is therefore classified as 'remote' by the Australian Standard Geographic Classification (ASGC) system of remoteness areas (Australian Department of Health 2009). With a population of approximately 14,500 people according to 2011 Census data (Australian Bureau of Statistics 2012b); Port Lincoln is, however, commonly referred to as a rural centre (Hoon-Leahy et al. 2012).

Figure 2.1: Map of Port Lincoln (Google Maps 2014)
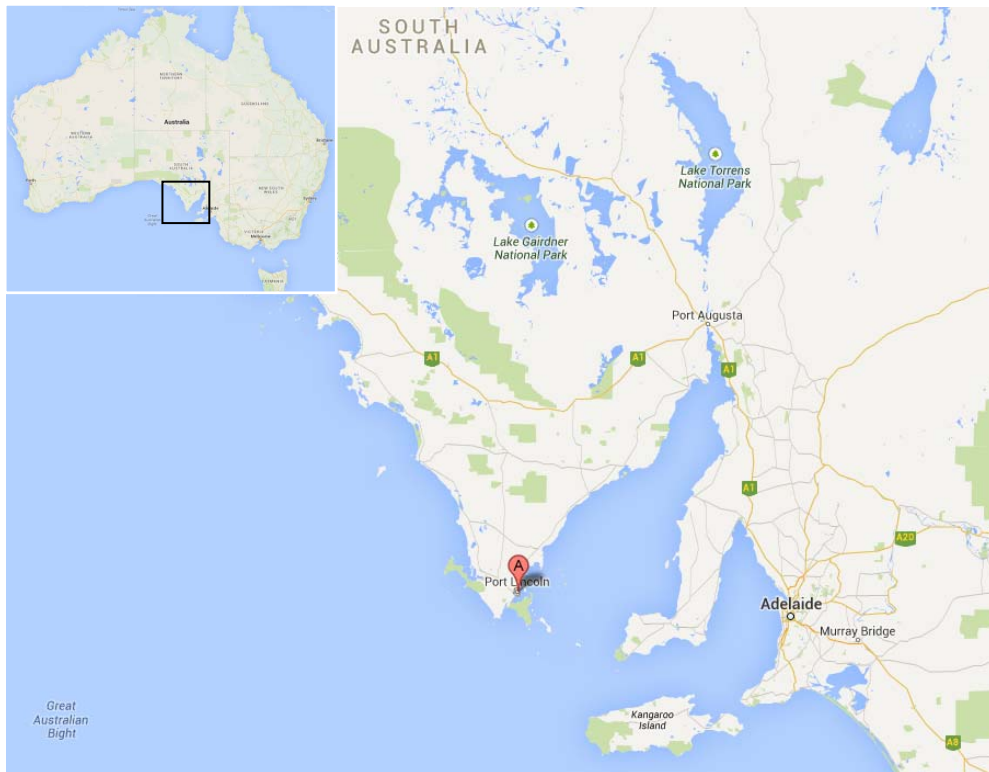
Like many of the regional towns in South Australia, Port Lincoln relies heavily on commercial fishing in terms of employment and economic growth. It is therefore a good example of a coastal rural setting and commercial fishing industry. A recent report shows that the Eyre Peninsula regions account for 81% of South Australia's direct employment within aquaculture businesses (EconSearch 2014). Port Lincoln, as a major player in this region, forms the centre for aquaculture in South Australia (PIRSA Fisheries and Aquaculture 2012), and therefore constitutes a valuable case study.

The town itself claims to be the 'Seafood Capital of Australia', since it holds Australia's largest commercial fishing fleet (PIRSA Fisheries 2012). With approximately 10% of the town's workforce employed in the commercial fishing industry (Newton et al. 2007), Port Lincoln is the town with the largest proportion of people employed within the fishing industry of coastal towns in Australia (Larcombe et al. 2006). With the majority of commercial fishing licences and boat registrations in Port Lincoln belonging to private

people that live locally (Inshore Fishing Limited 2013), the local impact and intertwinement of the industry with the community become evident.

Most influential and internationally renowned is Port Lincoln's tuna industry. It has been called a pioneering industry due to its innovative techniques of catching and ranching Southern Bluefin Tuna (SBT) (Regional Development Australia Whyalla and Eyre Peninsula 2014d), thereby revolutionising Australia's SBT fishing industry. With over 95% of Australian SBT quota owned by Port Lincoln operators (Australian Southern Bluefin Tuna Industry Association 2014a), substantial economic impacts and the consequent transformation of the town and its image have been stated (Studdert 2011). Much of the town's activity revolves around this industry sector, including tourist attractions, a tuna festival (Tunarama) and the many flow-on effects of the industry on the town's economy and infrastructure. There are few places nationwide where the impacts of a fishing industry sector are as noticeable as in Port Lincoln. The impact of the fishing industry further becomes evident with the media describing Port Lincoln as Australia's leading fishing port, a vibrant community and home to a significant number of very wealthy citizens, many of whom have made their fortunes from the fishing industry (Bayvel 2006; Doyle 2013). Figures 2.2 and 2.3 depict the Port Lincoln marina and the centrally located businesses of the commercial fishing industry that characterise the town and were part of the case study.

Figure 2.2: Port Lincoln marina (Callaway 2008)

Figure 2.3: Case study setting of Port Lincoln (modified from Google Maps 2014)
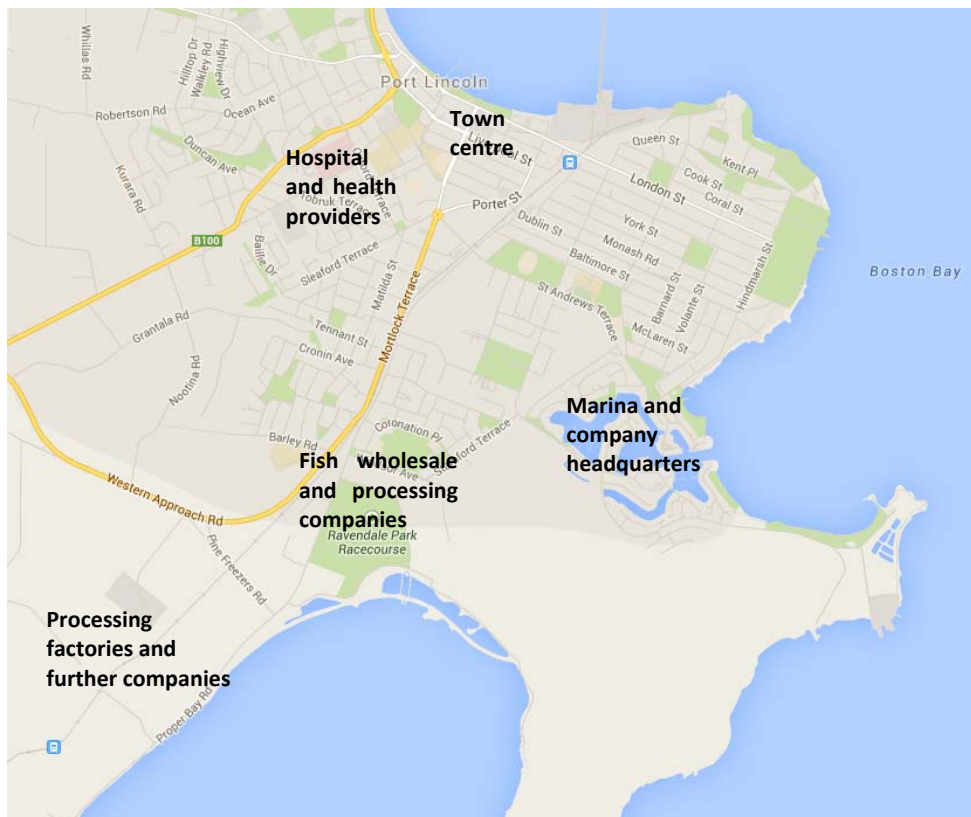
Presenting itself as innovative and structured and a world-leader in quality, innovation and research (PIRSA Fisheries 2012; Regional Development Australia Whyalla and Eyre Peninsula 2014b), the Port Lincoln fishing industry is seen as an exemplary setting with great potential. The innovative and well-managed approach of the industry suggests a potential for workplace health support and it is suggested that approaches of health promotion within an Australian fishing industry are most likely to arise from this kind of setting. At the same time, by presenting an average coastal community in terms of its demographics and infrastructure, Port Lincoln states a representative example. By investigating which measures the Port Lincoln commercial fishing industry is taking to support the health and well-being of its workers, a good baseline of knowledge is created with findings assumed to be transferable to other fishing communities.

2.2.2 Characteristics of the Fishing Industry

Several unique features of the commercial fishing industry shape the workplace setting. These include features of industrial management, the regional setting of the industry and the reliance on a natural product. These characteristics are outlined in the following section to allow further insight into factors forming the broader workplace environment.

Fishing sectors often face the challenge of having to address increasing pressures on fisheries' resources and having to work according to the seasonality of a live product and varying weather conditions. Additionally, rapid changes due to external circumstances, political decisions and fishery management severely impact the industry's enterprises (Pickworth, Schirmer & Casey 2006).

As is the case with most fisheries worldwide, South Australia's commercial fishing industry is regulated by a quota system. A species-specific total allowable catch is determined for certain species, and Statutory Fishing Rights are granted by the Australian Fisheries Management Authority (AFMA) according to the prevailing Fisheries Management Act (Australian Fisheries Management Authority 2012). Quota shares or permits are treated as private property that can be permanently transferred or leased to another person or company (Australian Fisheries Management Authority 2012). While some stakeholders in the commercial fishing industry see the implementation of quota systems as a key to successful and sustainable fishery management and point to the benefit of this system, others feel restricted and censure authorities when quota sizes are cut back. It becomes apparent that fishing industry enterprises rely heavily on the sizes of fish stocks and allowable fishing quotas. The fishing businesses therefore need to adapt flexibly to constantly fluctuating markets and variable catch sizes (King, Kilpatrick & Willis 2014). Additionally, ecological projects and political decisions, such as the implementation of marine park sanctuary zones, further influence the scope of action and profit margins in the industry and were controversially debated during the course of this research.

Due to this unpredictable nature of the commercial fishing industry, the seasonality of the industry sectors as well as defined quotas, an uncertainty of employment arises. This is

often reflected in high rates of staff turnover (Curtotti, Hormis & McGill 2012) and an increasing lack of employment tenure. Previous research has therefore stated that the fishing industry workforce is most complex in terms of variety, showing a high rate of mobile workers (Hayman, Anderson & Lamm 2010). Industry reports state that with 61%, the majority of employees in the South Australian fishing industry are temporary, casual or seasonal workers (Miller, Ellis & Petherick 2013).

Next to seasonal fluctuations, current reports point to an increased number of workers planning to leave the South Australian fishing industry due to competing rural industries, such as the mineral resources sector, enticing workers (Miller, Ellis & Petherick 2013). A report, commissioned by the Local Government Association of South Australia to investigate the impact of Mining and Resource Development, shows that 15 developing minerals projects (excluding those already approved) are located in or proximate to the Eyre Peninsula and therefore to the Port Lincoln fishing industry (O'Neil, Kaye & Trevithick 2013). Within this report, the transition of workers is clearly stated as one of the outcomes of these newly developing industries (O'Neil, Kaye & Trevithick 2013). With media statements indicating that mining projects will employ about 2,000 people at their peak (England 2013; Shepherd 2014), a drain of workers is feared by councils and existing rural industries of the region.

A report within the South Australian fishing industry found that more than half of the workforce is currently contemplating leaving the industry (Miller, Ellis & Petherick 2013). With sectors already experiencing tight staffing situations, significant workforce challenges and issues of attracting, retaining and up-skilling staff are stated (Curtotti, Hormis & McGill 2012; Miller, Ellis & Petherick 2013). The report concludes that "without new strategies, capacity for the industry to reach its goals for production and value will not be realised" (Miller, Ellis & Petherick 2013, p. 6). In a recent statement the Commonwealth Fisheries Association (2013, p. 3) underlines the importance of retaining qualified workers as "vital to underpinning a viable and economically sustainable fishing industry". In the near future innovative measures of retaining qualified staff are therefore needed to be openly discussed and revised within the South Australian commercial fishing industries.

2.3 Fishing Industry Sectors

The South Australian commercial fishing industry enterprises range from single, low-technology owner operators, for whom fishing is a lifestyle, all the way to large companies that efficiently use technology and have created multi-million dollar businesses (Fisheries Research and Development Corporation 2014b; Perez et al. 2011). A large number of small, self-contracted or one-man operators, as well as family-run businesses create a unique workplace setting.

The Port Lincoln fishing industry incorporates a wide variety of industry sectors, with the most prominent ones being tuna, prawn, rock lobster and abalone, as well as sardines and mussel sectors. These various sectors create diverse workplace settings with many different environments. Within each sector a range of occupations are found: working on boats, fish farms, at the wharf, in net sheds, as well as in the office and other environments. As each sector maintains its own characteristics, regulations and tasks, the following sections briefly present each industry sector in order to give a picture of the fishing industry sectors as workplace settings.

2.3.1 Wild-catch Sectors

Wild-catch fisheries include seafood products caught or harvested out at sea, with the largest wild-catch contributors to South Australia's gross state product being Southern Rock Lobster, Western King Prawn and Abalone fisheries (PIRSA Fisheries 2014a). In the following paragraphs these, as well as the South Australian Sardine Fishery are presented individually.

Rock Lobster Sector

The South Australian Rock Lobster fishery is primarily based on the capture of Southern Rock Lobster and contributes significantly to the state's economy, as it provides a product of large value (PIRSA Fisheries 2014b; South Australian Rock Lobster Advisory Council 2014). The industry sector is quota managed with boats usually working 80 to 100 days to

fulfil the quota, by setting out 'pots' that are pulled in the morning (Seafood Jobs 2014b). Figure 2.4 shows the fishing gear used and the possible size of a caught rock lobster. Further work is then undertaken on land with 90% of the live product being exported to China (South Australian Rock Lobster Advisory Council 2014).

The fishery developed and adopted its own standard of best practice, the 'Clean Green' program. It represents the world's first fully integrated product management system for commercial fisheries (McShane et al. 2005). This standard covers environmental and product quality, but also Occupational Health and Safety (OH&S) aspects and is independently accredited and audited each year (South Australian Rock Lobster Advisory Council 2014). Workplace standards as well as product and environmental standards are outlined, presenting a comprehensive product certification program (McShane et al. 2005). The 'Clean Green' program was initiated as a response to adverse community perceptions and underscored the sector's responsibility and environmental sustainability to the broader population. Unfortunately the program was unexpectedly terminated during the course of this research.

Figure 2.4: Rock lobster catch (Seafood Jobs 2014b)

Prawn Sector

The Spencer Gulf Prawn industry based at Port Lincoln is recognised as one of the best-managed fisheries in the world, driven largely by the fishermen themselves (Doyle 2013). Limits have been set on when, where and how many prawns can be caught by a licensed number of vessels (Doyle 2013; Regional Development Australia Whyalla and Eyre Peninsula 2014c). The workers go out to sea for about 50 nights per year, usually spending two weeks at sea during each trip. Approximately another 50 days are spent on the maintenance of vessels and equipment (Seafood Jobs 2014c).

Trawling is undertaken at night, from sunset to sunrise, every night for the entire trip (PIRSA Fisheries 2014d). As figures 2.5 and 2.6 show, each boat is a mini-processing factory, where the skipper and crew cook or snap-freeze the catch on-board before packing it in boxes to be trucked for national and international distribution (Bayvel 2006). The crew is often paid a percentage of the catch and many workers hold other jobs, next to their seasonal employment in the prawn sector.

Figure 2.5: Processing work on-board a prawn trawler (Australian Council of Prawn Fisheries 2014)

Figure 2.6: Freezer facilities on-board a prawn trawler (Australian Council of Prawn Fisheries 2014)

Abalone Sector

Up to 90% of Australia's abalone is harvested in the wild and therefore subsumed under the wild-catch sectors of the fishing industry for this research. While Australia produces nearly half of the world's wild-caught abalone, it currently contributes less than 4% of farmed abalone (Seafood Jobs 2014a). However, the farmed sector is growing (Regional Development Australia Whyalla and Eyre Peninsula 2014a). The South Australian commercial abalone fishery targets both the Blacklip Abalone and Greenlip Abalone (PIRSA Fisheries 2013).

Abalone divers operate from small boats with only a single diver and a crewman or 'sheller' on-board (Bayvel 2006). Divers harvest abalone by hand and sometimes use self-propelled cages that provide protection from sharks (PIRSA Fisheries 2013). Quota regulations are very strict as the product is highly sought-after and valuable. Divers take around 70 to 75 days over a period of six to eight months a year to catch the allowed quota. A lot of the work is done on the catching vessels, as a 'sheller' shucks the abalone out at sea. Further washing, grading and packing is undertaken on land and the majority of the product then exported to Asia.

The abalone sector is renowned for its lucrative and simultaneously dangerous business. It has been stated as "one of the most dangerous professions in the world" (News Limited 2013) and even initiated a Discovery Channel series. This documentary was filmed in Port Lincoln and depicts the "fiercely competitive abalone diving crews as they set out into these hostile waters and risk their lives to earn a small fortune" (Discovery Networks International 2014).

Figure 2.7: Abalone diver (Lang 2012)

Figure 2.8: Abalone harvest (Lang 2012)

Sardine Sector

The sardine fishery is part of the broader Marine Scalefish Fishery, but with 98% makes up almost the entire sector (PIRSA Fisheries 2014c) and is therefore treated as a sector on its own for this research. The South Australian sardine fishery is a significant industry sector and consistently harvests the highest volume of single species (South Australian Sardine Industry Association 2014). Fishing may be undertaken over 12 months of the year, with large boats catching the sardines using purse seine nets. Approximately 34,000 tons of fish are caught every year, of which the vast majority (94%) is used as feed for the Southern Bluefin Tuna sector (PIRSA Fisheries 2014c; South Australian Sardine Industry Association 2014).

2.3.2 Aquaculture Sectors

South Australia is home to the most diverse range of aquaculture in Australia with sectors still growing (PIRSA Aquaculture 2013a). As opposed to the wild-catch sectors, aquaculture involves the farming of aquatic organisms, in this case of mussels and fish in various water environments onshore and offshore (Department of Agriculture 2014a).

Mussel Sector

The South Australian mussel aquaculture industry is based on the production of the Blue Mussel (PIRSA Aquaculture 2013b). The businesses of the mussel sector describe themselves as 'vertically-integrated', incorporating all processes from collecting the seed, as well as growing and maintaining it, to the harvest and processing of the product. As is the case in most aquaculture sectors, three areas of catching, ranching, and processing the product can be defined that all interlock with each other. Of large importance are the days of harvest that create especially work-intense phases. In the mussel sector boats harvesting in the early hours of the morning deliver the product to be processed and shipped on the same day (Australian Mussel Industry Association 2010). As mussels have a low wharf price, the sector works with large volumes and is governed by access to areas of water as well as the market demand.

Tuna Sector

Port Lincoln's most famous seafood product is Southern Bluefin Tuna (SBT) (Regional Development Australia Whyalla and Eyre Peninsula 2014d). As previously stated, the Port Lincoln industry pioneered the 'ranching' technique for SBT in the early 1990s which has transformed the Australian SBT fishing industry. The tuna sector is not only the key player of Port Lincoln's commercial fishing industry, but also has a reputation of a very tough and high value business (Port Lincoln Times 2013).

Like other industry sectors the SBT industry adheres to strict regulatory requirements such as zones, quotas and licensing. With decisions to increase the Australian quota for SBT by more than 20% to a total of 5,665 tonnes in 2015 (Australian Southern Bluefin Tuna Industry Association 2014b), industry experts say this increase in quota may "kickstart a new era of prosperity" in the Port Lincoln region (Austin 2013). As previously stated, a small number of local corporate companies hold most of the quota for this sector (Inshore Fishing Limited 2013), creating a large number of local jobs with Port Lincoln businesses. The variety of occupations is wide, including deckhands and skippers, divers, management and processing staff, as well as storage staff, truck drivers, mechanical services staff and others. The seasonality provides most work from December to August and largely influences the work of this and the surrounding sectors.

Southern Bluefin Tuna are captured live between December and March, with workers being out at sea for as long as two months, targeting shoals of tuna until the quota is achieved (Seafood Jobs 2014d). Fish are then towed back in pontoons to the waters of Port Lincoln at a speed of only 1 knot, so as not to damage the fish (Australian Southern Bluefin Tuna Industry Association 2014c; Inshore Fishing Limited 2013). These fish are then kept for several months and ranched in large nets off the coast of Port Lincoln (figure 2.9). The tuna are well-looked after, fed twice a day and 'fattened' up. Additionally maintenance work to uphold infrastructure is undertaken during this time.

Figure 2.9: Offshore tuna rings (White 2011)

Around July / August SBT are harvested and as in other aquaculture sectors, this is the most labour-intensive time of the year with high pressure to meet the market demands. Customers from the market and freezer vessels that can take 40 tons of fish in a day come from Japan to Port Lincoln. Divers catch each SBT by hand and bring the fish up into a conveyor and out of the water where it is killed and transferred directly to the freezer boat to be graded and processed (Powell 2009) (figures 2.10 and 2.11). In 2014 a total of more than 8,000 tonnes of ranched harvest was achieved.

With the SBT being big, powerful animals, weighing up to 100 kg, this technique of catching the fish by hand is unique. The divers are therefore referred to as 'tuna wranglers' and have gained an international reputation through documentaries. The Discovery Channel pictures the work with the following caption: "It takes a certain kind of person to willingly jump into a tuna pen 120 miles offshore, wrestle deadly sharks out with their bare hands and live to tell the tale - but for South Australia's tuna fishermen, it's all in a day's work" (Strickson 2008).

Figure 2.10: SBT diver (White 2011)

Figure 2.11: Processing of SBT (White 2011)

2.4 Workplace Hazards

The commercial fishing industry is reportedly one of the most dangerous occupational fields with high risks of occupational diseases (Frantzeskou, Jensen & Linos 2014). Globally the fishing industry is by far the highest risk industry in terms of fatal accidents (Fragar, Lower & Temperley 2011) and one of the highest in terms of accident rates (Pétursdóttir, Hannibalsson & Turner 2001). As a recent study by Roberts (2010, p. 49) shows: "The elevated relative risk of a fatal accident in the fishing industry, when compared with the general workforce, has continued to increase sharply".

Similar findings are made for the Australian fishing industry: Despite declining trends in incidences, the industry is still the sector with the second highest OH&S claims (Brooks 2011). In fact, claims for fatal injuries in aquaculture and non-fatal in marine (wild-catch) fisheries are increasing relative to employment (Brooks 2011). Recent statistics by SafeWork Australia show that the combined agriculture, forestry and fishing industry has been one of the industries with the highest incidence rates of serious injury for many years, with fatality rates nine times higher than the average Australian rate (Safe Work Australia 2013).

In previous years the high level of fatalities occurring on boats has been explicitly targeted and a large body of research is found on improving vessel safety and safety management to prevent falls overboard and incidences of drowning (Hughes 2006; Lucas & Lincoln 2007). Exposure to cold, wind, rough seas, and the high physical demands of working on unstable platforms (Jeżewska et al. 2012) produce one of the risk factors in occupational health and safety and create demanding workplace characteristics. Additionally, moving objects as well as machinery and fishing gear create the main agents of injury on fishing vessels (Lincoln et al. 2008; Nagesh & Rastogi 2007; Thomas et al. 2001).

An industry report found that the main mechanism of injury that workers in the commercial fishing industry suffered was stress placed on muscles, tendons, ligaments and bones, followed by falls, trips and slips, being hit by moving objects and hitting

objects with a part of the body (Brooks 2011). Due to these mechanisms, as well as the rough weather conditions, it is not surprising that the largest category of workplace injuries is that of musculoskeletal disorders. The international literature states that lower back pain, musculoskeletal stress, as well as strains and sprains create the largest group of injuries suffered in the fishing industry (Aasmoe et al. 2008; Fulmer & Buchholz 2002; Marshall et al. 2004; Palsson et al. 1998). These do not only apply to work on board fishing boats, but also to workers in processing factories and in aquaculture businesses. In addition, large rates of fractures, cuts and bruises are reported throughout the international literature (Bull, Riis & Moen 2001; Frantzeskou et al. 2012).

Next to the identified risks of injuries, a range of further workplace diseases occurring in commercial fishing industries is found throughout the literature. The overall poor health status of fishermen relative to the wider population has been stated (Lawrie et al. 2004; Matheson et al. 2001), with health risks including cardiovascular incidents, dermatological, musculoskeletal, hearing, stress, and anxiety problems (Jensen et al. 2012). Multiple studies point to skin cancer and especially lip cancer as health risks that fishing industry workers face due to the high levels of exposure to UV-radiation (Andersen et al. 1999; Ji & Hemminki 2005; Kaerlev et al. 2005; Pukkala et al. 2009). Other studies show a high prevalence of asthma (Arif et al. 2002; Shiryaeva et al. 2011; Steiner et al. 2008) and allergies (Lopata et al. 2004; Seitz, Bröcker & Trautmann 2008) as well as dermal risks and skin problems that might arise through exposure to pesticides (Eng et al. 2010) or contact with marine animals (Burke et al. 2006; Marshall et al. 2004). Other studies reveal an increased risk of hearing disorders through constant exposure to industrial noise (Kaerlev et al. 2008).

Recent literature on the workplace health of fishermen is concerned with lifestyle factors impacting on workers' health. High rates of tobacco, alcohol and other drug usage are among the most prominent health risks of fishing industry workers (Allan et al. 2012; Carruthers, Boots & Midford 2002; Evans et al. 2005; Fort et al. 2012; Lawrie et al. 2004). Additional health risk factors found in the international literature include poor diet and lack of physical activity (Frantzeskou et al. 2012; Lawrie et al. 2004; Novalbos et al. 2008),

diabetes and obesity, resulting in an increased risk of cardiovascular diseases (Hansen, Hjarnoe & Jepsen 2011; Pougnet et al. 2013).

According to the literature, the risk of workplace injuries is intensified through the high levels of fatigue and stress that fishing industry workers face (Allen, Wellens & Smith 2010). "Shift work and the intense and prolonged working activity typically associated with fishing can cause fatigue, a common factor in many fishing-related incidents" (Windle et al. 2008, p. 2). Several studies underline factors of workplace stress as a result of working conditions in the commercial fishing industry. High day-to-day and seasonal variability in work patterns and workload (Gander, van den Berg & Signal 2008), as well as long working hours with disrupted sleep patterns (Matheson et al. 2001) resulting in fatigue and stress (Hayman, Anderson & Lamm 2010), are described throughout the literature. Further challenges arise through everyday psychological stress and constant economic pressures (Jeżewska et al. 2012) as well as tight operating margins (Hayman, Anderson & Lamm 2010) and the lack of a good safety climate (Jensen et al. 2012). Nielsen, Bergheim and Eid (2013) even suggest that external demands by customers or contractors may be prioritised over worker well-being.

Considering the wide variety of injuries, diseases, lifestyle risk factors and psychological pressures, workers in fishing industries endure a number of challenges impacting on their health and well-being. International evidence therefore indicates that fishermen not only experience higher rates of disease, they are at high risk of accidents and injuries, and also encounter severe mental health challenges (King, Kilpatrick & Willis 2014). To further examine how these affect workers and how health risks could be targeted with a health promotion program the following section will examine the occupational hazards of the workers of the Port Lincoln fishing industry in detail.

2.5 The Workforce of the Port Lincoln Fishing Industry

2.5.1 Demographics

The 2011 Census of the Australian Bureau of Statistics gives insight into the demographics of the Port Lincoln workforce of the commercial fishing industry. The Census data was filtered to include only people working within the Local Government Area (LGA) of Port Lincoln. According to the definition of the commercial fishing industry underlying this research, the classification of employment was filtered to include only workers within industries of aquaculture, fishing, fish and seafood wholesaling, as well as seafood processing[2]. The data presented in the following section refers to this sample taken from the Australian Bureau of Statistics 2011 Census.

Of the Port Lincoln workforce of 6,162 workers in total, 493 workers (8% of the workforce) were employed within the commercial fishing industry and in the sectors of wild-catch (fishing), aquaculture, processing and wholesale. This finding matches previous statements that approximately 10% of the Port Lincoln working population are employed in the fishing industry, leading to about 500 employees in the examined industry (Newton et al. 2007). The Bureau of Rural Sciences (2006) confirms that Port Lincoln has around 600 persons employed in the industry, nearly three times more than any other Australian town. However, it has to be noted that these official statistics for commercial fishing often under-report the number of workers, as the data may not take account of the contribution of family members in a fishing business, or the level of part-time or seasonal casual employment (Bureau of Rural Sciences 2006). For this reason it is likely that the actual number of workers within the fishing industry is higher. Nevertheless the Census data presents a reliable source of information and the best data available on the Port Lincoln fishing industry workforce and was therefore further examined.

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[2] Within the Census data the industry of employment is coded according to the Australian and New Zealand Standard Industrial Classification. The included classifications comprise the codes of Aquaculture (02); Fishing (041); Seafood Processing (12); Fish and Seafood Wholesaling (3604).

The Census data reveals that with an average age of 38 years, the workforce of the Port Lincoln fishing industry matches the median age of the Port Lincoln population. Two thirds of all workers were male, with females found mainly in the sectors of processing and wholesale. The large majority (84.2%) of the workers of the fishing industry lived locally in Port Lincoln and were Australian born. Almost half the workers (45.8%) were employed as 'labourers' and did not hold any extended qualification. With 54% of workers working 40 hours or more per week, long working hours within the fishing industry become apparent. At the same time the income level is slightly under the average income of the Port Lincoln workforce with an average of $41,000 per year. However, as fishermen are often paid by their share in a catch or earn large sums of money in a short period of time when employed casually for a season, these numbers are only estimates and need to be viewed with caution.

2.5.2 Workplace Injuries

As the Census data does not report on health status or occupational hazards, further data sources were explored to gain insight into the occupational health of the Port Lincoln fishing industry workers. WorkCoverSA claims for the Port Lincoln fishing industry were made accessible by SafeWork[3] SA and analysed during the course of this research. The types of injuries and diseases occurring within the commercial fishing industry of Port Lincoln were thereby identified. The dataset of the Workplace Health and Safety (WHS) Tabulator 2012 incorporates all workplace injury / illness compensation claims sourced from WorkCoverSA over a nine-year period, including the financial years 2001/02 to 2010/11. Even though more recent versions of the WorkCoverSA data became available during the course of this research, this time period was chosen so as to be able to directly relate findings to the broader Census data.

It has to be noted that not all workplace injuries are depicted in the dataset, as not every injury is reported to WorkCover and not all reported incidences prove to be a claimable workplace injury by fulfilling the criteria defined by the South Australian Workers

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[3] SafeWork is the Australian Government statutory agency, entrusted with occupational health and safety as well as and workers' compensation regulations and improvements.

Rehabilitation and Compensation (WRC) Act in order to be included in the WorkCoverSA dataset. However, the analysis of the claimable workplace injuries gives insight into the type and frequency of workplace injuries occurring and provides a helpful baseline for this research.

WorkCoverSA Data Analysis

Several filters were used to extract the relevant data from the WorkCoverSA dataset for this research. Only claims occurring within the Port Lincoln postcode area of 5606 and claims from industry divisions that matched the research's definition of the commercial fishing industry were included for further analysis. Similar to the Census data, the WorkCoverSA statistics classify occupations by a standardised system, the South Australian WorkCover Industrial Classification (SAWIC) system. The industry classifications of aquaculture, marine fishing, as well as seafood processing, fish agents and fish wholesaling were included[4]. In addition, the occupations of aquaculture worker, aquaculture farmer and deckhand, fishing hand, fisheries officer, fish process worker and seafood process worker were added to the analysed dataset.

Out of all the claims from commercial fishing industries across South Australia, half (49%) stemmed from the Local Government Area (LGA) of Port Lincoln and another 10% from Port Lincoln surroundings. This emphasises the large impact the Port Lincoln fishing industry has on South Australia in terms of workplace injuries. Of all workplace injuries occurring in the Local Government Area of Port Lincoln 32% came from the defined industry classifications, subsumed as commercial fishing industry. This again underlines the large impact that the fishing industry has on the town and makes it the employment sector with the highest number of workplace injuries. Within the given time period of 2001/02 to 2011/12, a total of 990 workplace injuries occurred in the enterprises of the Port Lincoln fishing industry and were registered with WorkCoverSA as claimable injury.

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[4] Included occupations according to the 2012 SAWIC classification system: Marine fishing (041); Aquaculture (042); Seafood processing (2174) Fish wholesaling and fish agents (4763).

From 2002 until 2010 an average of two (2.1) workplace injuries occurred every week within the Port Lincoln fishing industry, with rates of workplace injuries per worker having increased over the past years (from 2005/06 onwards). In 2010 the highest workplace injury rate of the nine-year period was reached, double the workplace injury rate of 2006. This is an alarming trend, as injury rates in other industries, such as in the construction industry, have generally been declining over the past years.

The analysis of the WorkCoverSA dataset further revealed that with 31 years as the average age of injury and with most workplace injuries occurring in the group of the 20- to 29-year-olds, fishing industry workers suffered injuries at a younger age than the Port Lincoln average worker. This corresponds with a statement of an industrial report that points to 20- to 24-year-old workers as the group most at risk in the fishing industry (Fragar, Lower & Temperley 2011). The analysis further revealed that, of all Port Lincoln fishing industry workers reporting injuries to WorkCoverSA, almost 90% were male. Even though the workforce is heavily male dominated, as the Census confirmed, a greater proportion of males suffers injuries, as opposed to females. It can be questioned whether this is due to the more dangerous occupations males have within the fishing industry or to the more risky behaviour males might show.

More than a third (36%) of all workplace injuries came from workers new to the occupation. This high percentage of new workers could indicate the fluctuation of workers throughout the fishing industry or could highlight that workers have to learn on the job and gain experience in avoiding injuries. However, repeated workplace injuries were often found. Of all workplace injuries reported in 2009 and 2010 almost half (45%) stemmed from a worker previously having reported a workplace injury within the past nine years. This is of significant concern, especially when considering the young age of injured workers, and points to a need of further investigation into possible prevention of recurrent workplace injuries.

Most workplace injuries (69%) were experienced by workers within the wild-catch sector (ANZISC of ocean and coastal fishing). Claims from aquaculture and seafood processing sectors together accounted for most of the remaining injuries (27%) and underline the

necessity of including these into prevention programs. In particular, the occupational group of deckhands experiencing a higher number of injuries (47%) compared to the other occupational groups.

Consistent with the findings of the preceding literature review, throughout the examined nine-year period of WorkCoverSA claims, musculoskeletal injuries were by far the most common type of injury within the Port Lincoln fishing industry. These accounted for more than half (53%) of all workplace injuries and incorporated mainly sprains and strains of joints and adjacent muscles (29%). Almost half (47%) were obtained through muscular stress while lifting, carrying or putting down objects. Most affected by these problems were the workers' lower back area (22%), neck and shoulders. Musculoskeletal injuries also accounted for the largest number of days of work lost due to injury and need to be strategically targeted with preventative measures. Other injuries comprised wounds and other skin defects as well as contusions as figure 2.12 shows.[5]

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[5] In the WorkCoverSA dataset the nature of injury indicated is defined as the most serious injury or disease sustained or suffered by the claimant. It is coded using the Type of Occurrence Classification System (TOOCS). To be able to give a more comprehensive picture of the workplace injuries occurring, the TOOCS were grouped into overarching categories, specifically created for this research as depicted in Appendix I.

Figure 2.12: Types of workplace injuries occurring in the Port Lincoln fishing industry
(According to WorkCoverSA data from 2001/02 - 2010/11)
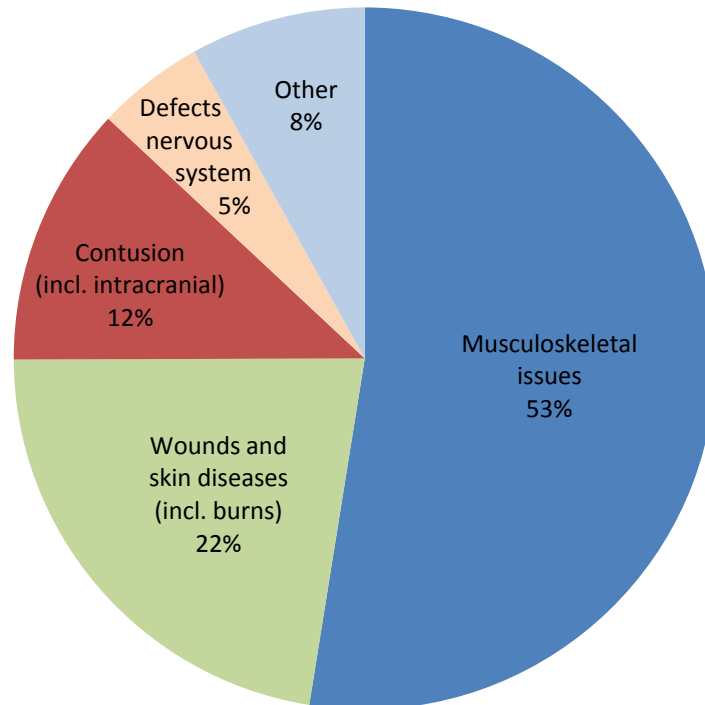
Within the WorkCoverSA data most claims refer to physical injuries. Only a few other health and well-being issues, such as mental health issues, were claimed. Over the examined nine-year period two workers in the Port Lincoln fishing industry lodged claims for anxiety / stress and depression and another four for being assaulted / bullied / harassed or suffering workplace violence. Two of these claims, however, were rejected by Work Cover and were not categorised as workplace injuries. The difficulty of proving issues to be work-related becomes evident and it is assumed that workers often do not report on well-being issues and instances of distress or mental health. As SafeWork Australia (2012b) states, claims for general harm, emotional distress or discrimination as well as mental health issues are known to be underreported in the statistics of workplace injuries.

Compared with other industries in Port Lincoln, the number of days lost per workplace injury was rather small for the fishing industry and only 7% of all workplace injuries accounted for days off work. It can be assumed that the workers try avoiding taking sick

leave and that many days lost are not reported to WorkCover, as even injuries requiring hospitalisation were not listed to have days lost within the examined dataset.

Limitations of the WorkCoverSA Data

During the analysis of the WorkCoverSA dataset, several instances of underreporting were identified. These limitations of the analysed data need to be accounted for and are presented in the following paragraphs.

As the majority of Port Lincoln's commercial fishing enterprises are small or owner-operated businesses that work with the help of family members, as Chapter 2 depicted, many of these would not necessarily have to register with WorkCover if they do not reach a certain level of remuneration[6]. The WorkCoverSA data revealed that the smallest enterprises in the dataset had a minimum of six employees, indicating that smaller businesses are not included in the dataset. In personal communication with several industry experts (in August 2012) it was explained that employers only register during years with a productive season when they are temporarily employing a larger number of workers. This would also account for the large variation of enterprise numbers found in the WorkCoverSA data of the Port Lincoln fishing industry, with numbers of registered businesses dropping by half from one year to the next several times during the analysed nine-year period.

Additionally, only workers fulfilling the definition of a worker[7] under the South Australian Workers Rehabilitation and Compensation (WRC) Act 1986 are eligible for workers' compensation and included in WorkCover data. Following this definition only slightly more than half of the workers (54%) of fishing industries were classed as employees and were covered by workers' compensation (Safe Work Australia 2012a), creating a larger percentage of 'own account' workers than in any other industry (Safe Work Australia

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[6] Remuneration is defined by WorkCoverSA as payments made to or for the benefit of a worker and includes items such as superannuation contributions, fees or bonuses, uniform, clothing, accommodation, travel allowances and other factors (WorkCover Corporation of South Australia 2014).

[7] According to the South Australia Workers Rehabilitation and Compensation Act 1986 'worker' means: (a) a person by whom work is done under a contract of service (whether or not as an employee); (b) a person who is a worker by virtue of section 103A; (c) a self-employed worker (Workers Rehabilitation and Compensation Act 2013).

2009b). Moreover, the WRC Act states that "a member of the crew of a fishing boat who is remunerated by a share in profits or gross receipts obtained by working the boat is not a worker for the purposes of this Act" (Workers Rehabilitation and Compensation Act 2013, p. 8). This definition excludes a further large number of workers of the commercial fishing industry from compensation entitlements. Therefore, the depicted findings of the WorkCoverSA data analysis only show a fraction of the workplace injuries that actually occured.

Furthermore, not only does WorkCover data represent part of the workforce that is eligible for workers' compensation, it also only gives information about incidences that were reported to WorkCover. To estimate the actual number of workplace injuries occurring a Work-Related Injuries Survey (WRIS) was conducted in 2005/06 by the Australian Bureau of Statistics on behalf of SafeWork Australia to identify areas that the WorkCover and SafeWork datasets did not depict (Safe Work Australia 2009a). According to the findings of the WRIS, only one in five work-related injuries in the agriculture, forestry and fishing industries are described in the WorkCover and SafeWork statistics (Safe Work Australia 2009a). It can therefore be assumed that at least five times as many workplace injuries occur within the Port Lincoln fishing industry than found in the analysed WorkCoverSA data.

Through analysis of the WorkCoverSA data, an average of two workplace injuries (2.1) was found to have occurred per week over the examined nine-year period in the Port Lincoln fishing industry. Even when adjusting this finding to account for the increased WRIS injury rates, it can be suggested that approximately 550 workplace injuries occur every year within the Port Lincoln fishing industry. When adjusting the workforce size of 493 employees (as given in the Census data) to allow for possible unidentified, self-employed workers, the amount of workplace injuries is alarming.

2.6 The Concept of Workplace Health Promotion

2.6.1 Principles of Health Promotion

This research is based on a definition of health as being a state of balance between risk factors and protective factors that is achieved when a human manages to accomplish both internal (physical and mental) as well as external (social and material) demands (Hurrelmann 2000). According to this definition, health is more than the absence of disease, incorporating a broader well-being perspective. This understanding matches the definition of health promotion by the World Health Organisation (WHO), which is stated in the 1986 Ottawa Charter:

> *"Health promotion is the process of enabling people to increase control over, and to improve, their health. To reach a state of complete physical, mental and social wellbeing, an individual or group must be able to identify and realize aspirations, satisfy needs, and change or cope with the environment. […] Health is a positive concept emphasizing social and personal resources, as well as physical capacities. Therefore, health promotion is not just the responsibility of the health sector, but goes beyond healthy lifestyles to well-being."*

Following on from this definition, the promotion of health supports individuals in achieving a positive state of health and well-being by enhancing their protective factors. Through the strengthening of personal resources individuals gain increased control over demanding conditions and learn to cope more effectively with adverse conditions, thereby improving their overall health and well-being (Mikhailovich, Morrison & Arabena 2007). It becomes evident that health promotion goes beyond concepts of prevention "to augment health status in general rather than to prevent particular diseases" (Palmer & Short 2010, p. 227). While disease prevention tries to avoid or delay a damage of health (Walter et al. 2003) by taking influence on risk factors (Hurrelmann, Klotz & Haisch 2007), health promotion seeks to facilitate persons having a higher degree of self-determination to make them achieve their full health potential (Baum 2007; Hurrelmann, Klotz & Haisch 2007; Laaser & Hurrelmann 2003). The focus of health promotion is therefore on entire populations and so includes healthy individuals (Naidoo & Wills 2003). It refers to

emphasising the positive development of characteristics and actions, instead of avoiding negative factors and actions (Smith et al. 2009).

Despite various strategies of utilising health promotion, there is agreement that the embedding of health promoting concepts into everyday life settings, such as schools and workplaces, is the most valuable approach (Baum 2007). Given that the majority of the population spend a large amount of their life at work, this setting has a large potential for health promotion approaches (Noblet & Murphy 1995). The advantage of the workplace setting for health promotional approaches is that a bounded 'community' exists, with which a daily interaction in the form of organised communication is possible (McMichael 1990). The World Health Organisation (2012) even states that the workplace is one of the priority settings for health promotion because it influences physical, mental, economic, and social well-being and offers an ideal infrastructure to support the promotion of health. Population groups that are otherwise difficult to target within other settings are thereby reached (Fleming & Parker 2006).

Workplace health approaches in Australia have largely been driven through health and safety legislation, placing emphasis on the prevention of physical accidents (Boyd & Lees 2012). Possibly due to legal requirements, occupational health and safety strategies predominate in the workplace setting in terms of health measures. OH&S focuses on the adherence to compulsory regulations and is primarily concerned with health protection through the decreasing of physical and chemical hazards in the work environment (Polanyi et al. 1999). However, according to Baum (2007), simply reducing the number of workplace injuries and diseases is not sufficient. Researchers claim that the 'health' in 'occupational health and safety' needs to gain importance, with organisations moving from an injury management approach to a 'whole person' approach that recognises the overall health of employees as fundamental in undertaking work safely (Musich & Zelinsky 2006).

For this reason previous research suggests that health and safety aspects as well as health promotion need to be part of an effective workplace health management (Scanes 2003). Scanes (2003) emphasises that the division of the two approaches is artificial and often

counterproductive. In order to manage the complex workplace effects on employees' health, the utilisation of an 'integrative holistic model' of workplace health management, which incorporates occupational health and safety, disease prevention, health promotion and organisational development processes, has been recommended (Chu & Dwyer 2002). Thereby the overall goal of improving workers' motivation, job satisfaction and identification with the organisation may be achieved (Faller 2010).

2.6.2 Elements of Workplace Health Promotion

Added to the given definition of workplace health promotion, the following sections highlight two main principles of this concept that need to be considered when creating a conceptual framework.

Ecological Perspective

The international literature presents a wide variety of health promotion approaches that follow different strategies. As Baum (2007, p. 443) states, health promotion strategies have "varied widely in different countries, at different times and among different professional groups [...], some try to change individual behaviour, while others try to change social and economic structures". European approaches to workplace health promotion often have a stronger focus on the impact of the work environment than on the impact of individual behaviour (Kirsten 2002). Emphasis is placed on influencing health-related living and working conditions, rather than on health-related behaviour alone. As Kirsten (2002, p. 557) states, "work organization [...] and working conditions are regarded as a high priority, and behaviour-related interventions are only implemented within this context".

This ecological component has gained increased importance within workplace health promotion programs, as "efforts to influence the beliefs and attitudes of workers and, thus, motivate them to follow safe practices may fail if the environment is non-supportive" (DeJoy 1996, p. 66). For this reason this research is based upon the Luxembourg Declaration on Workplace Health Promotion of the European Union

(European Network for Workplace Health Promotion 2007, p. 2) which describes Workplace Health Promotion (WHP) as:

> *"The combined efforts of employers, employees and society to improve the health and well-being of people at work. This can be achieved by a combination of improving the work organisation and the working environment, promoting active participation and by encouraging personal development."*

According to this approach the workplace is not merely seen as the setting of health promotion, but is utilised as a key determinant of health that in itself needs modification. Emphasis is placed on a collaborative approach, integrating improvements of the workplace organisation and environment as an integral part of workplace health promotion (Naidoo & Wills 2003). Workplace health promotion programs thereby strive to create healthy environments, encompass the creation of social, environmental, political and economic components for workers to make healthful choices (Green & Kreuter 1999; Green et al. 1980) and then motivate and educate individuals about those choices (de Villiers, Senekal & Fourie 2011).

Empowerment

The second main focus of workplace health promotion, according to the definition of the Luxembourg Declaration (European Network for Workplace Health Promotion 2007), is on personal development and the empowerment of workers. This matches the broader definition of health promotion of enhancing workers' health and well-being by developing their competence and increasing their skills to actively accomplish work-related demands (Wieland, Hölper & Tint-Antusch 2005). The concept of empowerment has been stated as an essential feature of a workplace health promotion program (Rootman et al. 2001) and is of special interest for vulnerable groups and groups in isolated rural communities that may otherwise have limited access to health resources (Jenkins 1991; Rissel 1994).

In the Ottawa Charter (World Health Organisation 1986) empowerment was referred to as the "process of enabling people to increase control over, and to improve, their health". This is accomplished through an improvement of individual skills, knowledge, understanding and the handling of health (Hurrelmann, Klotz & Haisch 2007).

Workers' competences are actively enhanced for them to identify their health needs, recognise their strengths and influence surrounding conditions affecting their health and well-being (Kickbusch 2003). Such efforts result in an overall higher level of self-determination, strengthened resilience and personal coping strategies (Berkels, Henderson & Henke 2004; Kickbusch et al. 2013). This concept includes self-assessment and self-management of health, as well as maintaining a healthy lifestyle, and also includes enabling workers to perform primary self-care and first aid (Kickbusch & Maag 2008).

Empowerment is one way to increase the individual's overall health literacy and is closely intertwined with this concept. According to Kickbusch, Wait and Maag (2005, p. 8) health literacy is "the ability to make sound health decisions in the context of everyday life [...]. It is a critical empowerment strategy to increase people's control over their health, their ability to seek out information and their ability to take responsibility". Even though the workplace only constitutes one possible setting of improving the individual's overall health-literacy in a life-long process, utilising this setting can in itself produce valuable results. Strengthening health literacy, as part of a comprehensive health and well-being program, can improve workers' attendance, performance, engagement and retention as well as health care costs (Kickbusch et al. 2013). In contrast "weak health literacy competencies have been shown to result in less healthy choices, riskier behaviour, poorer health, less self-management and more hospitalization" (Kickbusch et al. 2013, p. 1).

2.6.3 Benefits of Workplace Health Promotion

Multiple sources and several meta-studies have shown that workplace health promotion is a cost-effective means of improving long-term health and decreasing health costs (Badura, Walter & Hehlmann 2010; Eberle 2006; Kreis & Bödeker 2004; Shain & Suurvali 2001; Singer & Neumann 2010). Furthermore, the potential to reduce rates of absenteeism, increase workforce motivation and morale and ultimately enhance productivity have been stated throughout previous research (European Agency for Safety and Health at Work 2012; O'Donnell 2002; World Health Organisation 2014). Next to

reduced costs, the benefits of increased job satisfaction of workers, and thereby improved staff retention, are of especial interest to employers. The mining industry systematically utilises campaigns and strategies to attract workers, such as promoting lifestyle initiatives and developments in occupational health and safety (Industries Development Committee Workforce Skills and Training Working Group 2009).

For the workers the benefits of workplace health promotion can be summarised as "changes in attitude, increased awareness and knowledge, lowered risk of certain health problems, better health status, and improved quality of life" (Modeste & Tamayose 2004, p. 69). Furthermore, several studies have found that the effects of workplace health promotion create changes on a larger scale. Newly gained knowledge and skills, as well as a raised awareness of healthy lifestyles, tend to lead workers to re-consider these issues in their recreational lives, which then has a ripple effect into the community (McMichael 1990; Terry & Nunn 2002).

2.7 Theoretical Foundations of Health Promotion

Using theory as the foundation for health promotion program planning is an indisputable asset and various theoretical models are broadly discussed throughout the health promotion literature (Davies & Macdowall 2006; DiClemente & Crosby 2009; Fertman & Allensworth 2010; Nutbeam & Harris 2004). Theoretical foundations provide a valuable tool for creating health promotion programs (Glanz & Rimer 2012) and guide the researcher in developing effective intervention strategies (Davies & Macdowall 2006). As no one theoretical model completely predicts or explains health behaviour and health promotion (Nutbeam & Harris 2004), researchers recommend selecting relevant constructs and combining a number of different theories (Fernandez, Bartholomew & Alterman 2009).

For this reason the following sections depict two theoretical models that can inform intervention development. Even though most health promotion foundations are behavioural theories, following the definition of workplace health promotion underlying this research, both elements of behaviour and ecological approaches need to be considered when creating a pragmatic framework for workplace health promotion. Therefore the Social Cognitive Theory and the Social-Ecological Model were chosen as theoretical foundations as they emphasise the influence of factors surrounding individuals, such as environmental conditions and social relationships, on personal behavioural changes. Both these theoretical foundations therefore support the integration of behavioural and ecological approaches and are valuable within a workplace setting.

2.7.1 Social Cognitive Theory

The Social Cognitive Theory (SCT) is seen as a supportive theoretical model upon which to base comprehensive workplace health promotion models as it combines both behavioural and social-ecological components. The Social Cognitive Theory was developed by Bandura (1986) and depicts the ways in which individuals learn through psychosocial interaction.

The model constitutes a "three-way, dynamic, reciprocal" process (Glanz & Rimer 2012, p. 12) in which personal factors, environmental influences, and behaviour continually interact with each other (McAlister, Perry & Parcel 2008), as figure 2.13 depicts.

Figure 2.13: Model of Social Cognitive Theory (according to Bandura 1986)
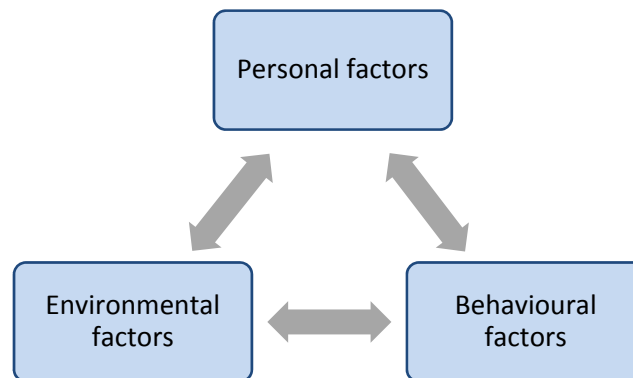
Two basic premises of the Social Cognitive Theory are that an environment conducive to change supports the adoption of healthy behaviours (Office of Behavioral and Social Sciences Research 2012) and that people learn by observing the actions of others (McAlister, Perry & Parcel 2008). Within the workplace setting, changes to the workplace environment as well as the use of role models can therefore be utilised to successfully influence healthy behaviour (Glanz & Kristal 2002).

This model is deemed a valuable theoretical foundation as it shows a direct correlation between an individual's perceived self-efficacy and behavioural change (Prochaska, Young-Wolff & Alles 2014). Self-efficacy is a widely recognised construct and is often used within models of health behaviour as it largely influences behavioural changes. According to Glanz and Kristal (2002, p. 281) this self-efficacy is defined as follows: "A person's self-confidence about the ability to successfully carry out behaviour, even when faced with challenges." Improving self-efficacy among workers can be achieved if workers experience successes, gain rewards and receive constructive feedback.

2.7.2 Social-Ecological Models

To foster environmental support within workplace health promotion programs, healthy workplace surroundings and encouragement of social support among workmates and by management is suggested. A multi-level approach, targeting not only the individual, but various organisational levels, is therefore suggested. The social-ecological model, developed from the work of several researchers, including Bronfenbrenner's Ecological Systems Theory (Bronfenbrenner 1979), recognises these multiple levels of influence. An individual, interpersonal, organisational, community and public policy level is defined as impacting on the behaviour of an individual (McLeroy et al. 1988; Sallis, Owen & Fisher 2008).

Figure 2.14 applies this model to the commercial fishing industry of Port Lincoln. It shows the worker in the centre of the model. The different levels of players influencing the worker comprise the following: the first level contains workmates and peers, as well as skippers and supervisors that stand in close proximity to the worker. The second level holds the workplace or company within which a worker is employed as well as the manager running the enterprise. On the third level the industry sector in which a worker is employed as well as industrial associations are found. The outside level comprises the surrounding community, including further stakeholders, local health providers as well as the larger regional setting.

Figure 2.14: Socio-ecological model of the fishing industry (adapted from Bronfenbrenner 1977; Office of Behavioural and Social Sciences Research 2012)
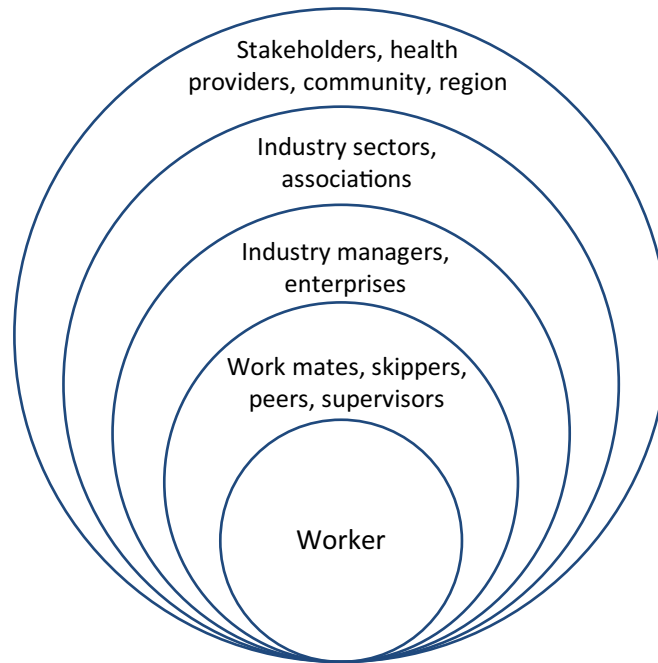
Consistent with the Social Cognitive Theory, this model illustrates that the social environment incorporates a set of factors that are influential in initiating and maintaining lifestyle behaviours (Quintiliani, Sattelmair & Sorensen 2008). The social-ecological model emphasises that each level takes influence over factors which affect individuals' health (Sallis, Owen & Fisher 2008) and highlights the dynamic relationships between people and their environment (Stokols 1996). Social relationships and social support can be identified through this model and utilised for a health promotion program. Within a workplace health promotion program a number of players can then be incorporated, such as government agencies, unions or employee associations, employers, managers, as well as workers and their families.

2.8 The WHO Healthy Workplace Framework

An early model that has largely influenced the development of later workplace health promotion models is the Comprehensive Workplace Health Promotion (CWHP) model which was developed by The Health Communication Unit (THCU) in Canada. This model integrates both concepts of occupational health and safety and workplace health promotion and also combines both behavioural as well as ecological approaches in promoting workers' health (The Health Communication Unit 2009). For this reason it is named 'comprehensive' as it constitutes "an approach to protecting and enhancing the health of employees that relies and builds upon the efforts of employers to create a supportive management culture and upon the efforts of employees to care for their own well-being" (Shain & Suurvali 2001, p. 5). It therefore matches the definition of the Luxembourg Declaration on workplace health promotion and the stated principles of health promotion approaches.

Over time the CWHP model has been revised several times and was adapted by the World Health Organisation for the Healthy Workplace Framework. This framework shows that "to create a workplace that protects, promotes and supports the complete physical, mental and social well-being of workers, an enterprise/organization should consider addressing content in four avenues of influence" (Burton 2010, p. 83). These avenues comprise the physical work environment, the psychosocial work environment, personal health resources and community involvement.

2.8.1 Avenues of Influence

The avenue of the physical work environment refers to health and safety issues and includes approaches of hazard management as well as work organisation. The psychosocial work environment avenue incorporates social support strategies as well as the broader organisational culture and underlying workplace values. Thirdly, the avenue of personal health resources includes not only approaches of health education, but strategies of empowerment. As organisations exist in communities which they affect and

workers' health is in turn affected by the physical and social environment of the community, a fourth component of community involvement was added (World Health Organisation 2010). All four 'avenues' are described in detail in the following sections.

Physical Work Environment

The avenue of physical work environment addresses conditions or circumstances in which one works, such as outdoor surroundings, weather and sun exposure, quality of machinery or equipment as well as ergonomic factors (Burton 2010). These factors may have an impact on workers' physical safety, as well as mental health and well-being, and are commonly addressed by occupational health and safety laws and codes (Burton 2010). This avenue incorporates elements of hazard management, as well as work organisation practices to buffer the impact of risks. Formal processes such as policies and procedures relating to working hours and staffing schedules need to be considered by employers within this avenue.

Psychosocial Work Environment

The avenue of psychosocial work environment includes factors of psychosocial support systems, as well as the organisational culture that comprises attitudes, values, beliefs and daily practices (World Health Organisation 2010). Factors to be addressed within this avenue are therefore the value of work by management, support by supervisors, job training and management style, awareness of issues and competence of dealing with psychological issues (Burton 2010). Previous research shows that especially emotional support and instrumental support from co-workers and supervisors are associated with beneficial health outcomes, including increased job satisfaction, decreased depression and anxiety, and improved general health status (Baker, Israel & Schurman 1994).

More recent is the extension of this component to include factors of organisational culture that have only lately been stated as essential factors in ensuring the success of workplace health programs (Dickson-Swift et al. 2011; The Health Communication Unit 2009). The Health Communication Unit (THCU) (2009) even states culture to be the

overarching foundation or basis of workplace health. The culture of an organisation can be defined as "the whole character and experience of organizational life" (Scott et al. 2003, p. 112) which includes beliefs and values that are held and shared by individuals within an organisation (Schein 2004). According to this understanding, organisations are "construed as cultures existing in, and reproduced through, the social interaction of participants" (Scott et al. 2003, p. 112). In order to enhance workers' health, a culture founded on the principles of trust, respect and commitment has been recommended (New York State Office of Alcoholism & Substance Abuse n.d.). As previous research demonstrates, workers who feel valued show a higher job satisfaction work more productively and are more likely to stay with the industry (Human Capital Alliance 2006).

Such a cultural shift within the workplace is only possible if it is proactively enforced by employers as part of the workplace health promotion strategy. Chu and Dwyer (2002, p. 175) therefore paint a picture of employers as "agents and visionary leaders who adopt a proactive, interdisciplinary and integrative system approach to formulate and develop company policies and workplace culture that facilitates employee participation, professional growth and team work". Such efforts in creating supportive workplace cultures are increasingly found in the international literature, with researchers recommending extensive approaches of providing well-designed and meaningful jobs, offering a supportive social environment, rewarding achievement, ensuring effective communication and providing accessible and equitable opportunities for career and work-life enhancement (Mittelmark et al. 2008; Wilson et al. 2004).

Personal Health Resources

The avenue of personal health resources includes health services, information, resources, opportunities, flexibility and an otherwise supportive environment that an enterprise provides to workers to support or motivate their efforts to improve or maintain healthy personal lifestyles, as well as to monitor and support their physical and mental health (World Health Organisation 2010). As previously mentioned in the definition of workplace health promotion, the approach of enabling or empowering workers is an essential feature of a workplace health promotion program (Rootman et al. 2001). By actively

enhancing the competence of workers and increasing their skills, coping strategies to overcome work-related demands can be achieved. A higher level of self-determination and strengthened resilience are thereby aimed for within this avenue.

Enterprise Community Involvement

The avenue of enterprise community involvement comprises "activities, expertise, and other resources an enterprise engages in or provides to the community in which it operates" (Burton 2010, p. 103). Several points commend the necessity of the avenue of community involvement: Not only does this factor recognise the value of life beyond the workplace (Dickson-Swift et al. 2011), it also highlights that whatever happens within organisations, spills out into the community and produces a regional effect (Terry & Nunn 2002). While the physical and mental health of the workers and their families is affected by the communities in which they live and work, simultaneously workers' health affects the health of the surrounding community and society (Burton 2010). This approach of incorporating the broader community is especially valuable for workplace health promotion programs implemented within small businesses. As previously stated, small enterprises require special attention because "their knowledge, competence and financial resources to carry out interventions are limited" (Lindstrom 2004; Nishikido et al. 2007). By joining together within the community, small businesses can share responsibility and resources (Canadian Mental Health Association 2014).

2.8.2 Further Key Principles

According to Burton (2010) several key principles, which increase the success of workplace health promotion initiatives, revolve around two factors: leadership engagement and worker involvement. For the first of these factors, commitment from major stakeholders needs to be gained, as well as resources and support from owners, senior managers, union leaders or other informal leaders won (Burton 2010). Moreover, it is recommended integrating the workplace health promotion program into the enterprise's business goals and values (Burton 2010). For the second factor of worker

involvement, workers should not simply be consulted or informed, but actively involved in every step and their ideas sought. Following the definition by Burton (2010, p. 26) "it is critical that workers have some collective means of expression, stronger than that of individual workers".

The WHO states that the Healthy Workplace Framework can be implemented by any workplace, if underpinned by these key factors and adapted to the specific workplace culture and setting (Burton 2010). To be able to match the needs and target the individual setting effectively, a situational assessment and a tailoring of the workplace health promotion program is suggested. The benefits of such a moving away from the one-size-fits-all approach to tailored interventions are highlighted in previous research (Quintiliani, Sattelmair & Sorensen 2008). By incorporating demographic, psychosocial, behavioural, and community-specific information, the health promotion strategy can be specifically designed for the targeted population, thereby increasing its effectiveness (Campbell et al. 2002). Programs that are relevant to specific workplace needs are more likely to have higher levels of participation and success (Australian Government Department of Health and Ageing 2011). A workplace health promotion program should therefore address the diversity of each workplace, be based on the specific characteristics of the targeted workforce, and consider individual needs, aims and priorities as well as the availability of resources (Mitchell et al. 2011).

There is a need of workplace health promotion strategies to increase targeting and including culture and values (Arneson & Ekberg 2005; Brooks, B 2005). According to Kirsten and Karch (2012) culturally adapted messages and programs are still lacking and cultural adaptation has not kept track with the growth in global health promotion strategies. The commercial fishing industry is therefore explored in depth to be able to tailor the suggested approach of workplace health promotion accordingly.

2.9 Need of WHP for Commercial Fishing Industries

As the commercial fishing industry is a valuable primary industry with a substantial impact on the country's economy and as it is an important regional employment sector, its impact on regional towns such as Port Lincoln has been stated. An industry of such substantial importance implicitly plays a role in creating healthy or unhealthy working and living conditions, making a healthy workforce an essential element for "sustainable development and prosperity of a country, [as] health and well-being at workplaces are basic prerequisites for increased innovative potential of enterprises, contributing to growth and employment" (Karadzinska-Bislimovska et al. 2007, p. 292). It is therefore of great importance that this industry considers the health of its employees, providing them with a safe and health-supportive workplace regarding safety, injury management as well as an environment of well-being.

The continuing increase in WorkCover claims has raised concern and it can be assumed that efforts to reduce workplace injuries and improve workers' health are currently not being put into practice on a regular basis. An industry report states that fishing industry enterprises "appear to share a common lack of awareness or concern about OH&S issues or personal safety" (Brooks 2011, p. 14). Additionally, the lack of a systematic approach in identifying common risks based upon standardised statistics regarding fishing-related injuries and illnesses is criticised (Fragar, Lower & Temperley 2011; Windle et al. 2008).

Current research has emphasised the need for "continued and intensified safety programs" within the fishing industries (Jensen et al. 2014, p. 47) and calls for international research and development of fishing industry workers' health conditions (Jensen et al. 2012). Comprehensive occupational health and workplace safety programs are suggested (Cole et al. 2009), and an acute need for preventive strategies highlighted (Kilpatrick et al. 2013).

It becomes apparent that a lack of research into fishing industry workers' health and well-being hinders the development and implementation of appropriate support strategies. Previous research has mainly been concerned with injuries or fatalities of

workers on fishing vessels. However, factors, such as high levels of stress, negatively influence workers' health and well-being and go well beyond a risk of physical injury. Current industrial reports therefore identify a need to focus on the overall health and well-being of fishing industry workers (King, Kilpatrick & Willis 2014). Fragar, Lower and Temperley (2011) point out that future programs need to promote change to improve health, mental health and safety of workers.

The concept of workplace health promotion matches the identified needs of the fishing industry well and is seen to be a valuable strategy to apply to commercial fishing industry workforces. Previous research has shown that various environmental, social, economic, cultural, and regulatory factors influence the health risks within the fishing industry (Windle et al. 2008). Therefore a broad approach of including various workplace surroundings as well as behavioural elements within a workplace health promotion program is suggested. An approach going beyond preventative measures to support workers' well-being and mental health is further suggested for the fishing industry.

Such workplace health promotion interventions have been found valuable and tested in similar rural workforces, such as seafarers and farmers. Actions to promote healthy lifestyles and the implementation of a multi-component health promotion program have been recommended for seafarers (Hjarnoe & Leppin 2013). Moreover successful health promotion programs targeting agricultural workers. The Sustainable Farm Families program addresses health, well-being and safety issues of agricultural workers through a sustainable and evidence-based health promotion program (Brumby, Willder & Martin 2009; Farmer Health 2014). Additionally, the New South Wales (NSW) Farmers Mental Health Network specifically aims at improving the mental health and well-being of farming people and has developed a blueprint with actions to address mental health issues and prevent suicide among workers (Australian Centre for Agricultural Health and Safety 2006; Fragar et al. 2008).

Utilising a similar approach to target commercial fishing workforces with comprehensive workplace health promotion programs is therefore recommended and further investigated in this research. Due to the current loss of skilled workers within the

commercial fishing industry, the approach of using workplace health promotion strategies to retain a healthy, qualified and motivated workforce is of special value to the industry.

The outlined theoretical foundations, which combine both behavioural as well as ecological approaches within a broad intervention of workplace health promotion and which comprise social support systems and enhance workers' self-efficacy, will further inform the creation of a framework for workplace health promotion for commercial fishing industries. By bringing together these theoretical foundations with evidence gained from a detailed investigation of the Port Lincoln fishing industry, a tailored and pragmatic framework for the commercial fishing industry is developed.

Chapter 3:

Methodological Overview

3.1 Introduction

Workplace health promotion programs constitute complex interventions that are implemented in existing social systems with various players and competing interests (Poland, Frohlich & Cargo 2008). For this research the viewpoints of various players within the commercial fishing industry are therefore captured, as well as interpersonal relations and structural elements of the setting investigated. It is explored how workplace health promotion strategies may work within the specific setting of commercial fishing industries and how best to target the fishing industry workforce with such interventions.

To gain an in-depth understanding of the phenomena under investigation, the mixing of both qualitative and quantitative methods is undertaken and three strands of data collection and analysis incorporated within this research. An integrative literature review, face-to-face interviews and a cross-sectional survey are conducted in a convergent parallel approach. These various sources of evidence enhance the validity of this research and allow the expansion of depth and breadth of inquiry (Creswell 2014; Greene 2007).

These methods are framed by an exploratory case study design that enables collecting, analysing, and interpreting various types of quantitative and qualitative data in a structured approach (Yin 2014). Additionally, the case study allows a detailed description of structures, contextual conditions and the setting. A case study of the Port Lincoln fishing industry with multiple embedded units is undertaken and both qualitative and quantitative methods applied within.

The paradigm of realism guiding the researcher, as well as the reasons for choosing a mixed methods approach and framing this by a case study design are outlined in this chapter. The research objectives, addressed by the various methods of data collection, as well as considerations of rigorous research conduct are outlined.

3.2 Paradigm of Realism

The choice of research methods, carrying out empirical studies, the interpretation of findings and claims about reality are influenced by the researcher's underlying paradigm (Maxwell & Mittapalli 2010; Yeung 1997). A paradigm can be defined as "a loose collection of logically held-together assumptions, concepts, and propositions that orientate thinking and research" (Bogdan & Biklen 2006, p. 22). Other researchers have defined a paradigm as an overall conceptual framework, a basic belief system or a world view that guides the investigation (Guba & Lincoln 1994; Healy & Perry 2000).

This research is based upon the paradigm of realism. The foundation for this philosophy originated with Roy Bhaskar, who introduced a transcendental realist philosophy for the natural sciences and extended it to the social sciences. Bhaskar (1978) states the existence of real structures that frame a setting and exist independently of the observer. Simultaneously subjective knowledge and intangible social actions are acknowledged (Wynn & Williams 2012). Therefore, even though realism is often subsumed under the interpretive paradigm, it also includes some aspects from a positivist position (Gray 2009; Sobh & Perry 2006). For this reason Wynn and Williams (2012, p. 787) describe realism as being "positioned as an alternative to the positivist and interpretivist paradigms [which] leverages elements of both to provide new approaches to developing knowledge."

The central assumption of realism is that there is a reality that exists independently of our awareness of it (Robson 2002) and detached from our perceptions (Maxwell 2012). The underlying ontology states that real structures exist independently of human consciousness and that it is possible to make causal statements. This assumption relates to a positivist worldview. As depicted by Chia (2002), realism assumes that science paints a true and accurate picture of the world. Therefore objects of research such as organisations are seen as existing and acting independently from the observer (Cohen, Manion & Morrison 2011; Gray 2009).

Concurrently, however, the realist believes that not all social phenomena and the relationships between individuals are directly observable. Reality is therefore "real but

only imperfectly and probabilistically apprehensible" (Sobh & Perry 2006, p. 1195). Realism therefore argues that "the knowledge people have of their social world affects their behaviour and [...] the social world does not simply exist independently of this knowledge" (May 2001, p. 12). This is contrary to the positivist view and states that some observable facts may be illusions (Gray 2009). A form of epistemological constructivism or relativism is therefore accepted, stating that the understanding of the world is inevitably a construction from personal perspectives and standpoints (Maxwell 2012), that is shaped from social, political, cultural, ethnic and cultural factors.

As the paradigm of realism acknowledges "both the role of subjective knowledge of social actors in a given situation, as well as the existence of independent structures that constrain and enable these actors to pursue certain actions" (Wynn & Williams 2012, p. 787), it is especially valuable for research on interventions. As Wynn and Williams (2012, p. 788) describe, complex social situations and intervention strategies may be investigated in a holistic manner, by allowing for "more detailed causal explanations of a given set of phenomena or events in terms of both the actors' interpretations and the structures and mechanisms that interact to produce the outcomes in question." Workplace health promotion programs, as complex interventions that are placed within existing social systems with multiple players, can be successfully addressed and researched using an underlying paradigm of realism (Poland, Frohlich & Cargo 2008).

The paradigm of realism therefore matches the phenomena under investigation justifiably and allows for a comprehensive exploration of workplace health promotion strategies within a specific industrial setting. Various viewpoints of players within the commercial fishing industry can be captured and interpersonal relations and structural elements included in this research. According to the paradigm of realism the structures of the commercial fishing industry within this setting are seen as independent of our knowledge and 'real'.

The perceptions of the players within the fishing industry, however, are seen to be fallible, as according to the paradigm of realism, humans are usually unable to fully understand or observe reality (Wynn & Williams 2012). As knowledge is personal,

subjective and unique, it is necessary to examine individuals' interpretations of the world, as seen through the eyes of the participants (Cohen, Manion & Morrison 2011). For realist researchers, alternative valid accounts of phenomena are accepted (Maxwell 2012) with a participant's perception being a 'window on to reality' through which a picture of reality is seen (Healy & Perry 2000). For this reason various perspectives need to be included and triangulated to gain insight into the possibility of utilising strategies of health promotion.

Therefore several perceptions of this reality need to be combined and triangulated to gain an understanding (Blackburn et al. 2009). This research includes industry managers, as well as various key stakeholders, such as industrial associations and regulatory bodies, and health providers. Additionally, the perceptions of the workforce and other researchers are incorporated and offer further viewpoints. By reflecting, forming and revising meanings and structures, the phenomenon of workplace health promotion is thoroughly investigated and explored from these perspectives. Tensions arising from these various perspectives, interests and motivations of the groups of players are not counterproductive, but under the paradigm of realism seen as "constitutive and fundamentally generative" (Greene 2005, p. 208). A 'family of answers', depicting a picture of a single complex reality is created (Pawson & Tilley 1997).

Realism therefore accounts for an ongoing process of description and interpretation (Best 2012; Sayer 2000) and understands interventions as non-static and influenced by people with individual views, assumptions and ideas (Best 2012; Sayer 2000). Instead of assuming a one-size-fits-all approach, research under the paradigm of realism explores why programs work in particular ways in particular contexts (Pawson & Tilley 1997). A realist researcher therefore asks what works best for whom and under what circumstances and why (Pawson et al. 2005; Robson 2002). The findings of realist research then give recommendations on how best to target certain groups involved in an intervention. This supports answering this research's aim of investigating how strategies of workplace health promotion may work under particular circumstances and in particular ways, with the findings giving suggestions on how best to target the fishing industry workforce with health promotion programs and which circumstances to take into account when planning such programs.

3.3 Case Study Design

Since the context shapes how interventions are taken up, resisted or modified, the system into which the interventions are incorporated needs to be investigated, and intervention activities aligned with the realities of the setting (Poland, Frohlich & Cargo 2008). Following from the paradigm of realism, a detailed description of structures and actions, including contextual conditions and the setting are necessary (Wynn & Williams 2012). Case studies have been referred to by various authors as the best approach for a realism paradigm (Ackroyd 2011; Miles & Huberman 1994; Wynn & Williams 2012).

In this research, a case study is defined according to Robson (2002, p. 178), who states it is an "empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence". The case study enables the researcher to gain a holistic view of a certain phenomenon by incorporating multiple perspectives (Ackroyd 2011; Easton 2010; Robson 2002; Wynn & Williams 2012). Padgett (2012, p. 33) underlines the usefulness of this design for research on health interventions as it "draws on multiple perspectives and data sources to produce contextually rich and meaningful interpretation." Within the case study the collecting, analysing, and interpreting of multiple types of quantitative and qualitative data can be undertaken in a comprehensive and structured manner (Yin 2014).

Additionally, the unique character of a situation is taken into account (Kœnig 2009) and "holistic and meaningful characteristics of real-life events" retained (Yin 1989, p. 14). Research takes place within a natural setting that is defined by temporal, geographical, organisational, institutional or other boundaries (Hitchcock & Hughes 1995). An exploratory approach to collecting a wealth of data to gain familiarity with the situation and understand different viewpoints within the setting is supported. The collected data is interpreted within the context of the case to provide an account of a particular instance, setting, person or event (Maxwell & Chmiel 2014).

Case studies are therefore especially useful for exploring complex and highly contextualised phenomena (Stake 2005; Yin 2014) and are used widely in organisational research (Healy & Perry 2000; Wynn & Williams 2012). One or more organisations or groups within organisations may be incorporated within a case study. By analysing the context and processes involved, as well as the relationships between the various players within the given setting (Christie et al. 2000; Meyer 2001), broad insight into the phenomena under investigation is gained.

To explore the possibilities of utilising workplace health promotion programs within the complex setting of commercial fishing industries and to incorporate the various perspectives of different players within this setting, a case study approach is especially valuable. For this reason the case study of Port Lincoln was purposefully chosen and research undertaken within this defined geographical location. A further benefit of utilising a case study design for this research is that it is manageable for a researcher working alone and with limited resources, while at the same time supporting inductively building a rich understanding of new phenomena (Best 2012).

The case was defined by the boundaries of the local government area of Port Lincoln, South Australia (postcode 5606) and allowed the researcher to concentrate on a single location and manageable units of analysis. The case study site was selected due to its geographical location, representative population characteristics, large scale commercial fisheries and mix of local health services within a defined geographical location. No bias in the selection of the case is apparent, as the researcher had no previous knowledge or contact with the Port Lincoln context. The study setting and characteristics of Port Lincoln have been described in Chapter 2 and the value of this particular setting demonstrated: The Port Lincoln fishing industry creates a representative example of a rural industry setting, while presenting a large scale commercial fishing industry that comprises a substantial workforce.

For an in-depth understanding of the possibilities of utilising workplace health promotion within the commercial fishing industry, the structure and context surrounding the Port Lincoln industry, including political and environmental influences, seasonality of various

industry sectors, hierarchical businesses structures, work arrangements and occupational requirements were explored from scratch during this research. Over extensive time and through numerous contacts throughout the study setting, the researcher thoroughly investigated the case, as well as its context and setting, and gained access to the various players.

According to the definition of Yin (2014) this research presents a single-case study with multiple embedded units. To account for the diversity of the commercial fishing industry and fulfil the propositions of the paradigm of realism a broad array of units were included within the case study. The units of analysis incorporate the various industry sectors, as well as different players of the fishing industry. Figure 3.1 gives an overview of the units of analysis. Detailed inclusion and exclusion criteria of participants are outlined individually for each method in the following chapters. As figure 3.1 shows, this research aimed at including workers and industry managers from across all industry sectors. The stakeholders only in part stemmed directly from the fishing industry sectors, with other stakeholders representing regulatory bodies, organisations of regional development and experts in workplace health.

Figure 3.1: Units of analysis within the case study

	Workers	Industry managers	Key stakeholders	Local health providers
Rock lobster sector	• Working in processing factories, on boats / vessels, on fish farms or in aquaculture businesses, in offices or in shops, at the wharf or at maintenance sheds	• Employed by a company of commercial fishing, aquaculture or processing in Port Lincoln	• Individuals who have an interest in the health and well-being of Port Lincoln fishing industry	• Providing health services in or to Port Lincoln that are relevant to the core group of employees of commercial fishing enterprises.
Prawn sector				
Abalone sector		• Assigned a responsibility for a group of workers or the entire staff (supervisors, operation managers, industry managers)	• Individuals who represent the fishing industry workers, enterprises or sectors	
Sardine sector	• Currently hired, seasonally contracted or permanently employed, as well as family members and people working for owner-operated businesses			• Working in a practice, clinic or health service centre. Or working as a health advisor / service provider with a company of the fishing industry.
Mussel sector			• Individuals who have an interest in the development and sustainability of the industry	
Tuna sector				

3.4 Mixed Methods Approach

To achieve a comprehensive picture of reality, the realist researchers suggest incorporating several data sources. In-depth or interactive interviews to gain insight into individuals' understanding of a situation are combined with quantitative methods that attempt generalisation to a population (Healy & Perry 2000; Pawson & Tilley 1997). For this reason the case study methodology utilised for this research incorporates and frames a mixed methods approach of data collection and analysis.

This research follows the definition of Creswell (2014) and refers to the mixing of methods as collecting and analysing quantitative and qualitative data within a single study. Elements of both research approaches, such as viewpoints, data collection and data analysis are combined for purposes of breadth and depth of understanding (Johnson, Onwuegbuzie & Turner 2007). As previous research states, by combining various methods, limitations of each method are counterbalanced and weaknesses cancelled out and a greater and enriched insight into the phenomena under investigation gained (Best 2012; Creswell 2014; Creswell & Plano Clark 2011; Greene 2007). Teddlie and Tashakkori (2012, p. 286) extend this understanding and state that 'methodological eclecticism' allows choosing the best possible approach, by "selecting and then synergistically integrating the most appropriate techniques" to answer stated research questions.

The mixed methods approach has been cited as especially useful for research on complex phenomena such as public health research and research on health interventions (Cottrell & McKenzie 2011; Forthofer 2003; Padgett 2012). A large-scale picture of a system can be gained, while information about the players within this system is captured (Plano Clark 2010). Tones and Tilford (2001) have even called the combination of methods a 'mantra' in health promotion research. This approach matches this research well and allows for the investigation of the phenomena of workplace health promotion within the commercial fishing industry. Three strands of data collection and analysis, an integrative literature review, face-to-face interviews and a cross-sectional survey are incorporated within this research. These allow a large-scale perspective on the fishing industry to be

gained, while capturing in-depth views of the various players within the industry. An initial literature review and the analysis of the WorkCoverSA data, as outlined in Chapter 2, give background information and inform the development of the research questions and the choice of the utilised methods. Ethics approval was obtained from the University of Adelaide Human Research Ethics Committee (HREC) for the entire study before the data collection commenced (Appendix II).

An integrative literature review gives a broad perspective on the fishing industry (Chapter 4) and identifies suggestions of how to tailor workplace health promotion approaches to this specific setting. The qualitative strand of this research comprises semi-structured interviews that are analysed through thematic analysis and give an in-depth perspective on the views of industry managers, key stakeholders and local health providers concerning workplace health promotion (Chapter 5). The quantitative strand of this research consists of a survey undertaken among workers of the fishing industry. This is analysed with descriptive statistical procedures and creates a broad overview of the perspective of the workforce (Chapter 6). A detailed description of the methods of data collection utilised, the process of data analysis, as well as specific measures to ensure ethical conduct of the research are outlined for both the interviews and the survey in the following chapters.

Even though, in practice, the interviews were undertaken first and approval for the survey gained during this study phase, the mixing of methods constituted a convergent parallel approach, according to the definition by Creswell (2014), since each strand of data collection and analysis was conducted individually and autonomously from one another. Following this approach "there is limited interaction between the two sources of data during the data collection stage, but the findings complement one another at the data interpretation stage" (Johnson, Onwuegbuzie & Turner 2007, p. 115). Since the collection procedures are weighted equally and occur concurrently, the typology can be stated as QUAL+QUAN, with the point of 'interface' and the mixing of data undertaken at the interpretive level (Best 2012).

The investigated phenomena are thereby viewed through different lenses that are positioned side by side. Key findings arising from the various strands of data collection are compared and contrasted as well as combined with theoretical foundations and evidence from the literature (Greene 2005; Maxwell & Mittapalli 2010). By treating each method independently, a rich description of each data collection and analysis process is given and an enhanced validity of the research achieved, as each method in itself follows a rigorous process (Best 2012). The chronological order of the various strands of data collection and the mixing of methods is depicted in figure 3.2.

Figure 3.2: Time sequence of mixing methods
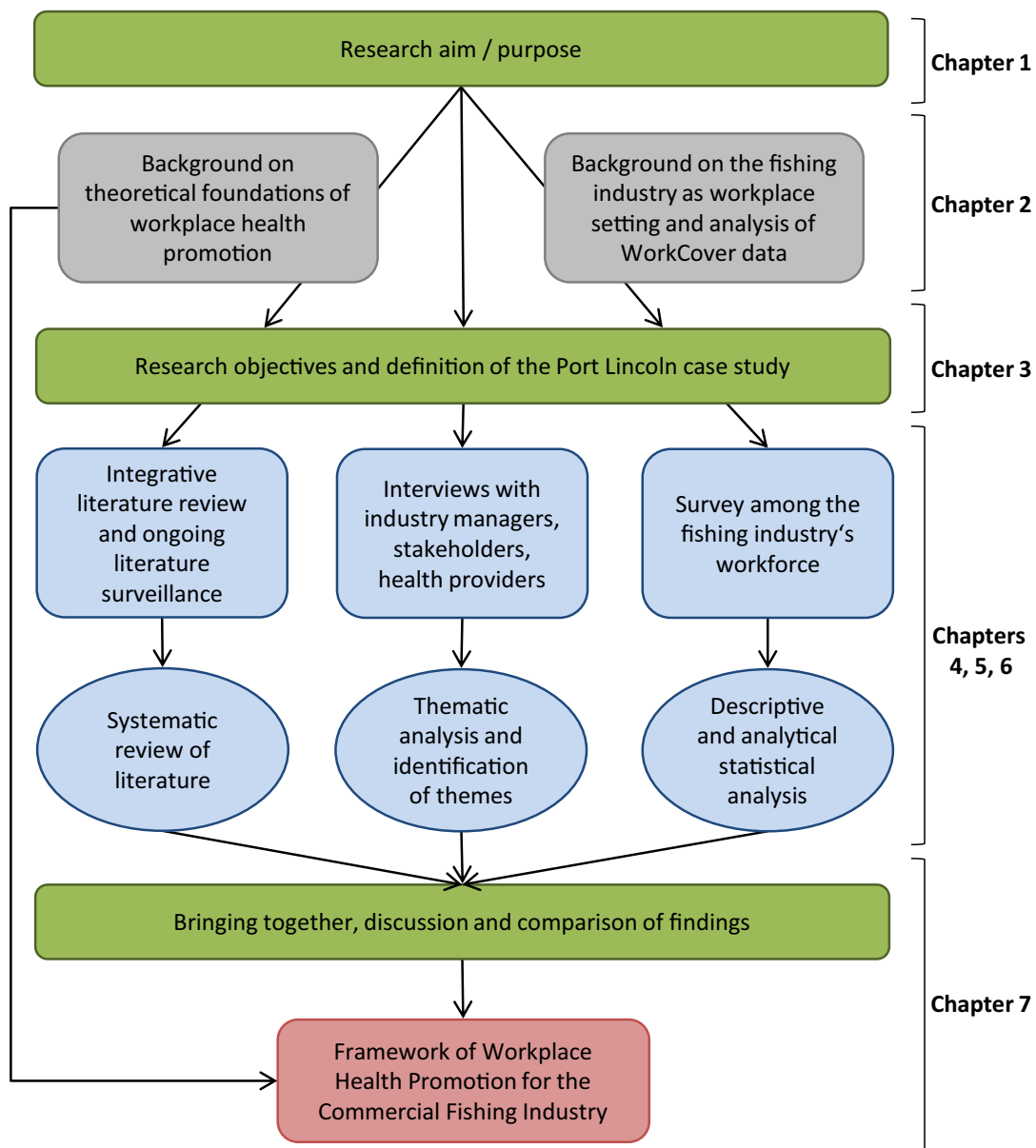
3.5 Application of Method to Research Objectives

3.5.1 Research Objectives

As outlined in Chapter 2, previous research suggests that the awareness of occupational health and safety issues is limited within commercial fishing industries. A need for preventative measures and health promoting strategies was found. However, the views and beliefs of players within the fishing industry about implementing such health interventions at the workplace remained unanswered. A lack of knowledge on how best to target the commercial fishing industry with workplace health promotion strategies was stated. By utilising Port Lincoln as a case study, as outlined in the previous sections, the overall research aim can be tackled:

To understand and describe the commercial fishing industry of Port Lincoln from multiple perspectives and propose a pragmatic framework for effective workplace health promotion for commercial fishing industries.

To achieve this aim, six research objectives were proposed, as given in Chapter 1, and were addressed with a mixed methods approach of triangulating several strands of data collection. These research objectives create an understanding of the commercial fishing industry and examine the possibility of utilising workplace health promotion strategies from multiple perspectives. Strategies for creating a pragmatic framework are identified, such as the possibilities and restrictions of utilising health promotion strategies within commercial fishing industries. Suggestions are derived on how best to target the fishing industry workforce with health promotion programs and match such a program to the specific context. Table 3.1 gives an overview of which research objectives each strand of data collection addresses and which perspectives are included.

Table 3.1: Methods utilised to answer research objectives

	Integrative literature review and ongoing literature surveillance	Interviews with industry managers, stakeholders and health providers	Survey among the fishing industry's workforce
Objective A: To identify the key health issues and health promotion needs of the industry's workforce, as perceived by workers, industry managers and key stakeholders of the Port Lincoln fishing industry, as well as local health providers.	✓	✓	✓
Objective B: To identify successful workplace health promotion frameworks used by international commercial fishing enterprises.	✓		
Objective C: To identify the current workplace health promotion strategies and measures of health support adopted by commercial fishing enterprises of Port Lincoln.		✓	✓
Objective D: To assess perceptions and understanding of workplace health promotion, as well as to explore the perceived roles and responsibilities of industry managers, key stakeholders and local health providers when implementing workplace health promotion strategies within the industry.		✓	
Objective E: To explore barriers and facilitators to implementing workplace health promotion strategies within the industry as perceived by industry managers and key stakeholders.		✓	
Objective F: To investigate workers' preferences in regard to obtaining information and identify drivers and barriers to using workplace health promotion offers.			✓

3.5.2 Strategies Employed to Establish Methodological Rigour

"Without rigor, research is worthless, becomes fiction, and loses its utility" (Morse, Barrett & Mayan 2002, p. 14). It is therefore relevant to discuss the rigour, with which the research was conducted to allow for meaningful, valid and reliable findings. The widely recognised construct of trustworthiness by Lincoln and Guba (1985) was used to ensure systematically addressing issues of research rigour. Additionally, recommendations for enhancing the validity and reliability that focus on research under the paradigm of realism were taken into account and addressed (Christie et al. 2000; Porter 2007). By additionally following the recommendations by Yin (2014), a theoretically verified and procedurally robust case study research could be produced. The trustworthiness of the research was further enhanced by including the mixing of several data sources in a convergent parallel approach and by collecting evidence from various perspectives. All provisions that were made to ensure the rigour of this research are presented in the following paragraphs.

Construct Validity / Credibility

Construct validity refers to identifying and choosing adequate operation measures for the concepts being studied (Yin 2014). The researcher's assumptions and world view, forming the underlying paradigm of this research, has been clearly stated, adding to the construct validity of this research. Moreover, the reasons for utilising a case study design have been outlined in the preceding sections. A clear rationale for the selection of the methods and their strengths is given for each method in the respective results chapter. The subjectivity of the case study is reduced by intentional selection of interviewees and an inclusion of a broad range of units of analysis. Additionally, the utilisation of multiple sources of evidence and a prolonged engagement with the case enhanced the construct validity. Contradicting views and perceptions are included and discussed and feedback by external informants such as industry inspectors gained to support the overall construct validity of this research. Theoretical constructs are validated by referring back to widely recognised models of the health promotion interventions.

External Validity / Transferability

The transferability of a study defines whether the findings can be generalised to a broader context. The case study design sets out to facilitate theoretical, rather than statistical, generalisation (Yin 2014), meaning that particular findings are generalised into a broader theory. The use of a mixed methods approach and the triangulation of findings increase the transferability of these. Even though this research focuses on a single case, it includes a broad array of industry sectors and occupational groups and therefore produces findings that are assumed to be transferable and may be applicable to other fishing industry settings. By basing this research on a question that asks 'how' workplace health promotion strategies can be utilised in a particular industry and in a certain context, the possibilities and boundaries of transferability are clearly stated and made explicit throughout the research.

Reliability / Dependability

Reliability addresses whether the operations of a study can be repeated with the same results (Yin 2014). In this research, the reliability is enhanced through a clear record of the operational steps undertaken. An audit trail of procedures, as well as a clear depiction of all the steps of data collection and analysis, were maintained and are stated individually for each method in the respective results chapters. Disclosure of the data collection tools, as well as a rich description of the data analysis processes, with direct quotes from participants, added to the reliability of this research. Despite the fact that the paradigm of realism points to the limitations of researchers obtaining the same findings from the same real life situations, emphasis was placed on ensuring that the best possible reliability was achieved.

Taking these considerations into account, a methodologically sound conduct of the three strands of data collection and analysis, as depicted in Figure 3.2, is ensured. The following chapters present the methods of integrative literature review, face-to-face interviews and the cross-sectional survey in detail.

Chapter 4:

Perspectives on the Industry –
An Integrative Literature Review

4.1 Introduction

This chapter reports on an integrative literature review that aimed to identify successful workplace health promotion frameworks utilised by commercial fishing industries worldwide. It thereby addresses the proposed objective B of this research:

B. To identify successful workplace health promotion frameworks used by international commercial fishing enterprises.

The previous chapters have identified the significant health risks that workers of commercial fishing industries face, and the possibility of mitigating these with workplace health promotion strategies. The value of such health supporting strategies to the worker, as well as to the individual enterprise and the overall industry, has been outlined. However, when scanning the international literature, the question remains unanswered whether a workplace health promotion approach has been trialled for a commercial fishing industry somewhere in the world.

Therefore, this integrative review aimed to identify whether any measures of proactive support of the general health and well-being of fishing workforces exist in international fishing industries. The purpose of this integrative review is to present, analyse and synthesise the international literature of the past 20 years and give a holistic picture of the current situation.

4.2 The Review

4.2.1 Design

An integrative review methodology was selected to review the literature. This method is especially appropriate for this research, as integrative reviews address a broader research area than systematic reviews that target a specific clinical question (Oermann & Hays 2010). While systematic reviews provide a comprehensive framework for conducting an integrative review (Webb & Roe 2008), integrative reviews differ in their intent and allow a broader investigation of a topic, aiming at uncovering all available evidence. The integrative review includes diverse methodologies, encompassing both empirical and theoretical literature (Whittemore & Knafl 2005). All available literature can thereby be used for an integrative review and is not dismissed for its methodology or lack of qualitative rigour.

Integrative reviews therefore have the potential to build knowledge and present various perspectives on a phenomenon of interest (Whittemore & Knafl 2005), thus providing the most comprehensive methodological approach of reviews. Information from different sources are summarised and synthesised (Cooper 1982) to allow for a comprehensive understanding of the phenomenon under investigation (Souza, Silva & Carvalho 2010; Webb & Roe 2008). As Whittemore and Knafl (2005, p. 552) state, "integrative reviews include diverse data sources which enhance a holistic understanding of the topic of interest". The results from a number of different studies are reviewed, critiqued and then integrated to come to an overall conclusion, thereby generating new perspectives on the topic under investigation (Torraco 2005; Webb & Roe 2008).

Because the integrative review encompasses multiple methodological perspectives, the process is complex and no widely accepted standard for conducting this kind of review currently exists (Webb & Roe 2008). To be able to follow a rigorous and valid process, the methodological strategies of systematic reviews are utilised. Whittemore and Knafl (2005) modify Cooper's (1998) guidelines of conducting systematic reviews accordingly, and suggest a process of several stages, including literature search, data evaluation, data analysis and result presentation, that are outlined in the following sections.

4.2.2 Search Methods

A comprehensive and systematic literature search was conducted in August 2012 and revised in May 2013 and August 2014. An ongoing survey of electronic databases allowed for the inclusion of newly emerging papers.

The following electronic databases were utilised for the search:

- PubMed (Public Medline, maintained by the United States National Institutes of Health);

- Scopus on the SciVerse platform;

- Excerpta Medica Database (EMBASE) on the Elton Bryson Stephens Company (EBSCO) host platform;

- Trove - National Library of Australia (including both international and Australian theses).

An initial search of PubMed and Scopus was undertaken to establish the index terms used to describe the papers that were concerned with the research topic of interest. Following the initial search a search strategy was developed and refined to match the specifications of the online search engines. Table 4.1 shows the search strategy for the search within the PubMed database. The search strategies adapted for use within the Scopus and EMBASE databases are depicted in Appendix III.

Table 4.1: Search strategy for database PubMed[7]

Fishing Industry	Workplace Health Promotion	NOT	Limits
Fisheries[mh] Fisher*[tiab] Fishing[tiab] Aquaculture[mh] Aquacultur*[tiab] Maricultur*[tiab] Piscicultur*[tiab] Fish farm*[tiab] Aquafarm*[tiab] Fish process*[tiab] Tuna industr*[tiab] Tuna fisher*[tiab] Seafood industr*[tiab] Seafood process*[tiab]	Health promotion[mh] Health promot*[tw] Promotion of health[tiab] Educational intervention Disease prevent*[tiab] Prevention of disease*[tiab] Injury prevent*[tiab] Health risk*[tiab] Health behavi*[tiab] Health education*[tiab] Health program*[tiab] Health literacy[tiab] Primary prevention[tiab] Occupational health[mh] Occupational health[tiab] Occupational health services[mh] Organisation* health[tiab] Organization* health[tiab] Workers health[tiab] Workplace health[tiab] Worksite health[tiab] Work-related health[tiab] Employee health[tiab] Employer health[tiab] Job health[tiab] Staff health[tiab] Worksite wellness[tiab] Wellness program*[tiab] Worksite intervention*[tiab] Workplace intervention*[tiab] Work-related intervention*[tiab] Occupational intervention*[tiab]	Animal health Seafood safety Food safety Fisher's test* Fisher test* Fisher's P value* Fisher's exact Fisher exact Fish consumption	("1993/01/01"[PDat] : "2014/12/31"[PDat] (English[lang])

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[7] PubMed specific abbreviations:
   lang - Language of publication
   mh - Medical Subject Headings (MeSH) term
   PDat - Year of publication
   tiab - Word found in title or abstract
   tw - Text word

In addition to the search strategy, the references of potential papers retrieved were examined to identify any additional papers. Furthermore functions provided by the electronic literature databases of 'related articles' or 'articles citing this article' were utilised to identify further articles through this type of snowballing (Greenhalgh & Peacock 2005). To investigate broadly the proposed topic and to fulfil the criterion of an integrative review to uncover all available evidence, further searches were undertaken in occupational health and safety databases and on the websites of international organisations deemed relevant to this topic. A list of these websites and databases is shown in Appendix III.

All searches were limited to papers in the English language published from 1993 onwards, including research reports, reviews of literature and dissertations. Choosing this specific time period allowed exploring the development of health promotion strategies throughout the fishing industry, while excluding early reports that referred to out-dated techniques such as polling of tuna, without the machinery used today. As previously stated the initial search of 2012 was continuously revised to include any newly published papers.

Table 4.2 summarises the inclusion and exclusion criteria for this integrative review, using the PICo (Population, Phenomenon of Interest, Context) scheme of developing valid and sustainable search strategies for systematic reviews (The Joanna Briggs Institute 2011) as a guideline for a comprehensive search strategy. The exclusions ensured that the remaining papers addressed the research question and identified existing approaches of workplace health promotion and health support strategies aimed at workers of fishing industries.

Table 4.2: Inclusion and exclusion criteria of the papers identified

	Inclusion Criteria	**Exclusion Criteria**
Population	• Workers of commercial fishing industries	• Recreational fishermen • Unemployed or retired fishermen • Only addressing seafarers
Phenomenon of Interest	• Suggestion or utilisation of workplace health promotion, prevention of ill health, measures of health support, strategies to enhance workers' health and well-being or to empower workers.	• Call for health promotion (without suggestions being made) • Provision of safety equipment • Vessel safety training
Context	• Developed regions according to the UN classification. These include North America and Canada, Europe, Japan, Australia and New Zealand (United Nations 2014).	• Less-developed regions according to the UN classification[8].

Articles not concerned with the health support of fishermen or workers in the fishing industry were manually excluded. Such articles dealt with the health of children, students, recreational fishermen, seafarers and unemployed fishermen. Furthermore, epidemiological or health surveillance studies, economic evaluations or health assessments were also excluded if they only determined health problems and risk factors, and did not give suggestions on addressing these issues.

During the analysis of the full texts, it became evident that an exclusion of studies based in a less-developed country was advisable, as the targeted health problems were entirely different from those in a developed nation, such as where this research project is based.

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[8] A less-developed region shows a lower living standard, underdeveloped industrial base and low Human Development Index relative to other countries. The UN notes that the designations 'developed' and 'developing' are intended for statistical convenience and do not necessarily express judgment about the state reached by a particular country or area in the development process (United Nations 2014).

Even though there is no established convention for the designation of 'developed' or 'developing' countries or areas, in common practice, Japan in Asia, Canada and the United States in Northern America, Australia and New Zealand in Oceania, and Europe are considered 'developed' regions or areas according to the UN (United Nations 2014). Therefore only papers from these countries were included into the review.

As this integrative review aimed to include all the published papers dealing with approaches and strategies in health support and health promotion of workers within commercial fishing industries, the search strategy on health promotion was broadened to include search terms such as 'educational intervention' and 'occupational health' to identify interventions not explicitly defined as 'workplace health promotion'.

For a paper to be included into the review, there had to be a statement regarding an approach to health promotion in the sense of preventing ill health at work, strengthening the worker's health and well-being, supporting the enhancement of workers' health or enabling workers to improve their health status and gain more control over their health (Hurrelmann, Klotz & Haisch 2007; Mikhailovich, Morrison & Arabena 2007). The provision of safety equipment alone, such as gloves or cranes, without further training and empowerment, did not match the definition of health promotion as stated in Chapter 2, and so was not included in the review. Also, procedures of vessel safety training that did not take into account the overall health of workers were not included.

4.2.3 Search Outcome

The papers identified from the search strategy were imported into Endnote (Version X7) bibliographic software and the duplicate references were removed, identifying a total of 665 papers. Of these, the titles and abstracts were reviewed to determine their relevance to the aim of the integrative review. In a further step the full texts were scanned and papers excluded which did not meet the inclusion criteria. Through this process 46 papers were found to be related to the topic under investigation and were examined in detail.

This detailed analysis of the full texts led to the exclusion of further papers if these did not meet the stated inclusion criteria and did not comply with the aim of the integrative review of identifying workplace health promotion approaches within commercial fishing industries. Thereby, 15 papers, which met the inclusion criteria, were identified. Added to these were six further papers that the hand search and search in OH&S databases produced, giving a total of 21 articles for inclusion in the integrative review. Two of these articles were reports on the same intervention by the same authors and were therefore grouped together within the data analysis. The flow chart of exclusion is depicted in Figure 4.1.

Figure 4.1: Flow chart of integrative literature review

Exclusion due to set limitations
Language other than English, published before 1993.

Exclusion of duplicates

Exclusion due to lack of relevance to study
Articles not reporting on occupational health and / or the fishing industry and therefore not relevant to the study.

Exclusion due to population
Interventions targeted at seafarers, unemployed fishermen and recreational fishermen.

Exclusion due to study type
Epidemiological / surveillance studies , economical evaluations or health assessments determining health problems and risk factors.

Exclusion of developing countries
Countries not classified as 'developed' according to the UN classification.

Exclusion of safety measures
Provision of safety equipment (gloves, anti-slip boots, engineering controls, etc.) or discussions on equipment design and no further health supportive approach stated.

PubMed

Scopus

Embase

1552 results

1077 results

665 results

Scanning of titles

172 results

Scanning of abstracts

Scanning of full texts

46 results

Text analysis

15 results

Occupational Health & Safety databases

Hand search: websites of int. organisations

Snowballing / Pearl search

6 results

Integrative Review
(21 papers)

4.2.4 Data Extraction and Evaluation

The 21 papers included were analysed and data extracted on the author, year, place of the intervention, the targeted disease or health risk, the utilised or suggested health promotion approach, the details of this approach and the most relevant findings. According to the criteria for an integrative review, the papers were not assessed for methodological quality.

A categorisation of the papers was undertaken, showing whether they identified a health promotion strategy, offered ideas for health promotion or utilised a comprehensive approach of safety promotion that could be translated into a health promotion approach. It became evident that only one of the papers identified an approach to health promotion that had been put into practice. This approach was, however, implemented within a community setting and not at a worksite setting. Therefore it can be stated that no implemented approach of workplace health promotion, exclusively targeting workers of the fishing industry, was found within the commercial fishing industry in any developed country. The entire results of the review are depicted in Table 4.3, presenting the included 21 papers in alphabetical order.

Table 4.3: Overview of results from the integrative literature review

No	Author, Year, Journal	Country	Targeted disease / health risk	Utilised / suggested WHP approach	WHP strategy	Identified WHP suggestions
1	Carruth et al. 2010 Journal of Agromedicine	USA	General health of Vietnamese fishermen	Education and training	Suggested	• Importance of considering cultural factors in the design of workplace interventions. • Training should occur in a variety of formats (hands-on) and should be periodic, current, practical, convenient, and taught in the primary language of the audience.
2	Carruthers, Boots & Midford 2002 Drug and Alcohol Review	Australia	Drug / alcohol	Not specified	Suggested	• Possible protective factors (accepted industry norms) should form the basis of prevention programs. • The use of alcohol and cannabis while workers were at sea (even when not working) should be challenged by future prevention programs.
3	Eklöf & Törner 2005 Work and Stress	Sweden	Health and safety behaviour	Group discussion	No, but transferable safety approach	• Test of an intervention to increase safety measures, utilising group discussions. • Participative interventions are feasible and may be effective. • Suggests including organisational measures and practical strategies
4	Fragar, Lower & Temperley 2011 RIRDC report	Australia	Drug / alcohol Obesity Mental health	Education Empowerment	Suggested	• Programs should focus on chronic disease prevention, target obesity, tobacco and excessive consumption of alcohol. • Prevention of mental health issues through education, pressure management and improved access to mental health services. • Transfer principles for achieving safety change on farms to the fishing industry.

No	Author, Year, Journal	Country	Targeted disease / health risk	Utilised / suggested WHP approach	WHP strategy	Identified WHP suggestions
5	Frantzeskou et al. 2012 International Maritime Health	Greece	General health	Not specified	Suggested	• Prevention programs need to consider working conditions and culture in small-scale fishing industries. • Risk factors related to community level, boat, and personal level need to be taken into consideration. • Adaptation to fleet characteristics, fishing methods, tools, and people's culture.
6	Frantzeskou, Jensen & Linos 2014 Occupational Medicine & Health Affairs	(International Review)	General health	Education Awareness raising	Suggested	• Education initiatives to raise awareness for chronic diseases. Encouragement in smoking cessation and healthy diet. • Monitor conditions and match interventions with reality conditions.
7	Grimsmo-Powney et al. 2010 Occupational Medicine	UK	Wounds Dental care	Not specified Offering of health services	Suggested	• Prevention of hand lacerations should be a high priority. • Commercial fishermen would benefit from better access to dental services at short notice, and from health service arrangements at major fishing ports.
8	Hansen, Hjarnoe & Jepsen 2011 International Maritime Health	Denmark	Obesity	Not specified	Suggested	• Obesity should be taken into account when preventive measures are initiated. • Interventions need to be broad and longstanding to have any significant impact.
9	Hawkes et al. 2004 Journal of Agromedicine	USA	General health	Medical screenings Education Empowerment	Suggested	• Recommendation of providing hearing and skin cancer screenings at industry gatherings. • Increasing knowledge in the fishing community about existing services • Encourage fishermen to take responsibility for their own health.

No	Author, Year, Journal	Country	Targeted disease / health risk	Utilised / suggested WHP approach	WHP strategy	Identified WHP suggestions
10	Hayman, Anderson & Lamm 2010 Conference paper	New Zealand	Not specified	Not specified	No, but transferable safety approach	• No specific approach of health support is depicted. But reveals unique features to account for when implementing OHS interventions in the fishing industry (i.e. geographical isolation, diverse workforce, social issues such as substance abuse, time pressures). • Command and control structure of managing staff can influence individual and group perception and acceptance of risks.
11	Jaremin 2005 International Maritime Health	Poland	General health	Health examinations Medical training Other not specified	Suggested	• Promotion of a healthy lifestyle, including diet, physical activity, smoking cessation, addictions, obesity. • Medical training and improved prophylactic medical examinations. • Main focus suggested for early recognition of suicide risk and elimination of alcohol abuse.
12	Jaremin 2009 International Maritime Health	Poland	General health	Motivation and empowerment Information / education Training	Suggested	• Suggestion of passing the responsibility of workers' health to the workers and empowering them. • Motivation of workers towards a healthy lifestyle through education, information and training.
13	Kilpatrick et al. 2013 RIRDC report	Australia	General health and mental health	Not specified	Suggested	• Acute need for preventive strategies stated. Especially mental health first aid training should be promoted. • Suggestions for WHP approaches include: soft entry points, brokered access to information and support by industry organisations, as well as a community health approach.

No	Author, Year, Journal	Country	Targeted disease / health risk	Utilised / suggested WHP approach	WHP strategy	Identified WHP suggestions
14	King, Kilpatrick & Willis 2014 FRDC Report	Australia	Overall health and well-being	Not specified	Suggested	• Exploration of fishing industry's support of fishermen's health and mental well-being. • Suggestion of structured approaches initiated by fishing and community organisations. • Provision of soft entry points to services such as fishing publications and industry events or local health checks directed at fishermen.
15	Lawrie et al. 2004 Health Education Research	UK	Drug / Alcohol Diet	Education Not specified	Suggested	• Promotion and education initiatives should be conducted in the areas of smoking, diet and alcohol consumption.
16/ 17	Lupton et al. 2002 Scandinavian Journal of Primary Health Care Lupton et al. 2005 European Journal of Public Health	Norway	Cardiovascular risk factors (smoking, diet, physical activity)	Community intervention Empowerment Counselling Media campaign Change of environment	Yes	• Community based intervention in a fishing community, 'Finnmark Intervention Study', creating a specific approach for settings of small close-knit communities. • Encouragement of interaction between health services, voluntary organisations and the public to establish safety-at-work programs and occupational health services. • Involvement of local stakeholders (clubs, organisations, schools), health services and the media. • Utilisation of different formats based on the principle of learning by doing and local empowerment to create a broad intervention, including a 'Health and Well-Being Day'.
18	Matheson et al. 2001 Occupational Medicine	UK	Drug / alcohol Diet	Not specified	Suggested	• Health promotion targeting alcohol and drug consumption, as well as dietary issues is suggested.

No	Author, Year, Journal	Country	Targeted disease / health risk	Utilised / suggested WHP approach	WHP strategy	Identified WHP suggestions
19	Murray & Tilley 2006 Safety Science	Canada	General health and safety	Awareness raising Workshops and recreational activities	No, but transferable safety approach	• Community approach, using arts for health and safety promotion. • Aim of raising awareness and engage the community in discussion. • Suggestion of offering a broad range of workshops and also recreational activities (i.e. concerts, art classes). • Involvement of the local media, as well as involvement of the broad community (teachers, families, students, volunteers).
20	Van Noy 1995 Journal of Safety Research	USA	General health and safety	Model	No, but transferable safety approach	• Adaptation of an approach to health promotion using the PRECEDE-PROCEED model to target injury prevention. • Recommendation to use this model of injury prevention for the fishing industry.
21	Žuškin et al. 2012 Archives of Industrial Hygiene and Toxicology	Croatia	Respiratory diseases	Medical examinations Anti-smoking program Environmental improvements	Suggested	• Call for medical and technical preventive measures in fish processing. • Pre-employment and periodic medical examination of workers. • Inclusion of anti-smoking programs.

4.3 Results

4.3.1 Characteristics of Included Studies

With one exception the papers included in the integrative review all stem from the years 2001 to 2014, with new articles emerging during the conduct of this research, thereby underlining the timeliness of this topic. The articles come from a broad range of developed countries, including Scandinavia, Greece, the UK, the US, Canada and Australia, showing that the issue of workplace health promotion among commercial fishing industries is of international relevance. In addition to the journal articles identified, several industrial reports, as well as a conference presentation, were included. This confirms the choice of the integrative review that allowed the identification of a broad spectrum of literature types. The industrial reports make up a quarter of all identified literature and all were published within the past three years. Again, this attests to the fact that the topic of workplace health promotion is currently being actively discussed within commercial fishing industries.

4.3.2 Findings of Included Studies

The literature review revealed a large need for workplace health promotion within commercial fishing industries worldwide. Despite many papers giving suggestions about workplace health promotion utilisation, only a few of these give practical guidelines or suggestions for implementation. Of the 21 papers identified, 16 indicated areas where health promotion would provide a valuable strategy in addressing specific health and well-being issues among fishermen. The benefit of utilising such workplace health promotion strategies within the specific industry sector was explicitly stated.

Only a single paper highlighted a prevention program that had been put into practice to date. The so called 'Finnmark Intervention Study' was referred to in two different papers by the same group of authors (Lupton et al. 2002; 2005). This community based intervention was conducted from 1988 to 1991 in two fishing communities in the Norwegian Arctic. The stated aim was to "influence the whole population to be more

health conscious, to mobilise the inhabitants to participate in health promoting activities and to make people aware of the structural factors that influence health" (Lupton et al. 2005, p. 93). Even though the intervention was not implemented at worksites, it stated that "fishermen and workers in the fishing industry were the main intervention group" (Lupton et al. 2002, p. 20). This paper was therefore included in this review. The two papers presenting this intervention, however, did not highlight its benefits, but instead demonstrated that such an intervention program had no negative side-effects. It can therefore be seen as an approach to 'set the scene' or as a forerunner of health promotion approaches for fishing communities.

In the following sections the 21 papers identified are reviewed in detail and their findings presented in order to answer research objective B. Several themes that arose from the papers are discussed. These include specific industry characteristics, relevant health promotion topics and intervention formats, as well as possible theoretical frameworks.

Specific Industry Characteristics

The papers included in the integrative review give insight into the specific characteristics of the commercial fishing industry and its workers, and describe the need to take these into account when planning and implementing an intervention within this setting. Apart from the hazardous working conditions, the challenging environment and the risks inherent in working on fishing vessels need to be considered. Finding suitable time and space for an intervention program may therefore be difficult. According to the papers reviewed, the largest challenge is reaching the targeted population of fishermen. Lawrie et al. (2004, p. 376) characterise the fishing industry workers as a "mobile, self-employed group that spend long periods away from home". This notion arises in several papers, showing that workers in the fishing industry are often self-employed, work at unpredictable times with irregular hours and are out at sea over extended periods of time (Grimsmo-Powney et al. 2010; Matheson et al. 2001). The difficulty in integrating fishing industry workers into health programs becomes evident. The literature reviewed therefore suggests closely examining the working environment in order to be

able to tailor workplace health promotion programs accordingly (Carruth et al. 2008; Frantzeskou, Jensen & Linos 2014).

The papers reviewed further indicate the necessity of examining the underlying health beliefs of the targeted population in order to provide them with the relevant health support. Fishermen are less likely to draw on support for health and well-being than workers of other rural industries and their ability, as well as willingness, to access an appropriate range of health and well-being supports is diminished (Kilpatrick et al. 2013). A similar statement is made by Eklöf and Törner (2005, p. 368) who suggest a barrier among fishermen in admitting health issues: "the emotional experience of incidents seemed to linger and express itself in terms of frustration and embarrassment". In addition to this personal barrier, further barriers of time and space restrictions are present that hinder fishermen in utilising health services. Irregular and long working hours prevent workers in the industry seeking health support. Fishermen therefore "tend to be 'invisible' to local health-care providers and […] present to health services only when their work-schedules allow" (King, Kilpatrick & Willis 2014, p. xi). As the literature delineates, workers of the fishing industry have therefore learnt to be self-reliant and 'get by' (Kilpatrick et al. 2013).

Several studies depict a distrust of workers towards outsiders to the industry that further impedes them seeking advice from health providers (Hayman, Anderson & Lamm 2010; King, Kilpatrick & Willis 2014). Regulations imposed from outside are generally viewed sceptically by the fishing industry with one study stating that government bureaucracy is viewed as 'the enemy'.

Identified Health Topics of Interest

The papers identified an array of topics that health promotion interventions for the commercial fishing industry should target. These mainly group around improving overall health and well-being and promoting a healthy lifestyle (Jaremin 2005). Irregular working hours, as well as the lack of healthy food on board vessels, are the cause of a poor diet and suggestions of targeting obesity, nutrition and physical activity are made (Fragar,

Lower & Temperley 2011; Hansen, Hjarnoe & Jepsen 2011; Lawrie et al. 2004). Periodic medical examinations are also called for (Žuškin et al. 2012), as well as anti-smoking programs and health education initiatives to raise fishermen's awareness of the dangers of passive smoking (Lawrie et al. 2004; Matheson et al. 2001; Žuškin et al. 2012).

Targeting drug misuse and excessive alcohol consumption is suggested in four different papers, underlining the importance of these issues (Matheson et al. 2001). It is suggested that fishermen should be made aware of safe drinking levels and the dangers of binge drinking (Lawrie et al. 2004). A notion of tolerance and a culture of accepting alcohol consumption within the workplace are depicted within the reviewed papers (Kilpatrick et al. 2013). Carruthers, Boots and Midford (2002) state that the acceptance of using alcohol and cannabis while at sea is of great concern in terms of occupational health and safety, and should be challenged by any future prevention program.

The link between drug use, excessive alcohol consumption and mental health issues is referred to in several papers. According to Jaremin (2005, 2009) special attention should be given to the early recognition of suicide risk and to the elimination of alcohol abuse. Interventions explicitly focussing on mental health issues, including anxiety and depression, are suggested in several papers, and these are rated as the main health risk among workers of the fishing industry (King, Kilpatrick & Willis 2014).

The constant changes of working environment, tight profit margins, as well as fatigue through long working hours, are identified as stress factors impacting on the mental health of workers (Hayman, Anderson & Lamm 2010). It becomes evident that, next to behavioural factors, the work environment largely influences the health and well-being of fishing industry workers and should therefore be given special attention. Hansen, Hjarnoe and Jepsen (2011) state that work environment factors, such as sleep deprivation and disturbed sleep patterns, have a yet unknown impact on the health of fishing industry workers. Apart from the long and irregular working hours, working within confined spaces and being out at sea further influence workers' health and well-being (Matheson et al. 2001). Kilpatrick et al. (2013) show that the uncertainties of work and income, through restricted days of operation, increase the risk of mental stress due to financial pressures.

According to King, Kilpatrick and Willis (2014) anxiety problems relate specifically to the particular working conditions and culture in small-scale fishing.

To tackle the arising threat of mental health issues generated through these pressures, the papers suggest supporting effective ways of managing these pressures, prioritising measures of suicide prevention, as well as improving mental health literacy and access to mental health services (Fragar, Lower & Temperley 2011). Due to the often remote status of fishermen, Fragar, Lower and Temperley (2011) further propose the provision of mental health first aid training as an "immediate assistance to a person in crisis until professional assistance is received" (Fragar, Lower & Temperley 2011, p. viii).

Format of Health Promotion Delivery

Due to the workforce of the fishing industry being hard to reach, it is essential to tailor measures of health support to the preferred help-seeking strategies of this population (Kilpatrick et al. 2013). For that reason emphasis is given to the need to approach workers with health messages at the place where they work and live, thus reducing any access barriers. Two papers suggest special arrangements in major fishing ports and better tailoring of health services to increase the access of fishermen (Grimsmo-Powney et al. 2010; King, Kilpatrick & Willis 2014).

Kilpatrick et al. (2013) refer to this approach as utilising 'soft entry points' and 'brokered access' and suggest events such as farmer field days for the placement of health education messages. An intervention by Hawkes et al. (2004) also used this principle and provided hearing and skin cancer screenings at industrial gatherings. Fragar, Lower and Temperley (2011) suggest addressing single health issues by campaign type programs, such as a health and well-being day. Such an event was also included in the Finnmark intervention (Lupton et al. 2005). Additionally, health checks and easily accessible 'tool-kits' for fishermen are suggested (King, Kilpatrick & Willis 2014).

The diversity of health promotion types, the suggestions of various methods of delivery, different tactics in reaching the workers in a fishing industry, and various strategies aiming at behavioural change or environmental support, become evident in the integrative literature review. The overall strategies of workplace health promotion depicted in the reviewed articles can be categorised into approaches of education and raising awareness, empowerment strategies, and organisational development or environmental approaches.

Strategies of education and raising awareness are found in several papers and aim at informing workers about the dangers of smoking, binge drinking and safety issues (Frantzeskou, Jensen & Linos 2014; Lawrie et al. 2004; Murray & Tilley 2006). Kilpatrick et al. (2013) tend towards group information sessions and education programs, and state that these were preferred by many fishermen. Other papers suggest different formats, such as participatory interventions (Eklöf & Törner 2005; Lupton et al. 2005). Murray and Tilley (2006) discuss an innovative approach, using community arts and recreational activities to raise the awareness of health and safety. These approaches are often combined with elements of encouragement and motivation to take up healthier or safer behaviours (Jaremin 2009; Murray & Tilley 2006).

Strategies of empowering workers go a step further and aim at enabling workers to increase control over their health. Several reviewed papers suggest encouraging fishermen to take responsibility for their own health and motivating them towards a healthy lifestyle (Hawkes et al. 2004; Jaremin 2009). The Finnmark Intervention Study is also based on empowerment and uses the principle of learning by doing for its successful intervention strategy (Lupton et al. 2002; 2005). One of the recent industrial reports suggests increasing the health literacy of workers to enable fishermen to identify the services, facilities, information sources and social infrastructure they require to maintain good health (Kilpatrick et al. 2013). Fragar, Lower and Temperley (2011) underline this finding, stating empowerment as an effective approach, but at the same time emphasise the necessity of workers being active participants within any intervention program.

Other papers reviewed highlight the need to improve the workplace surroundings and environmental structures. According to the identified articles, the working environment and conditions are not only a setting within which to implement an intervention, but need to be modified to provide safe and healthy surroundings (Hayman, Anderson & Lamm 2010; Matheson et al. 2001). Murray and Tilley (2006) even call for a cultural change and state that the central factor in improving the health of workers in the fishing industry is the building of a culture of safety.

Integration of Interventions into a Broader Context

Another feature of implementing workplace health promotion, which the reviewed papers reveal, is the need to integrate these strategies into the structures of the given community setting. Especially for the usually rural setting of fishing industries, an embedding into the given structures of the surrounding community is emphasised. While Carruth et al. (2010) point out the importance of securing stakeholder support; Hawkes et al. (2004) suggest fostering collaboration with health care professionals and agencies providing health services. Other authors suggest even broader collaboration, including voluntary organisations, local public administration, health personnel, the media and the public at large (Lupton et al. 2002). The necessity of such cooperation is summed up by Kilpatrick et al. (2013, p. xiv), who state that "fisher health and wellbeing is dependent on a collaborative approach involving all levels of government, industry, health services and the community".

Such a community approach is found in five of the reviewed articles, thereby highlighting the importance of this strategy. The method of involving the local community varies throughout the literature. Hawkes et al. (2004) suggest involving the fishing community in the development and distribution of health and safety material. Murray and Tilley (2006) utilise the local fishing communities' cultural events and traditions as platforms for distributing health messages and implementing health and safety promotion programs. Other authors incorporate the community into the intervention and include the family and friends of workers in the target population. This approach was used by the Finnmark Intervention Study and proved profitable, especially for rural and close-knit communities

(Lupton et al. 2002; 2005). Kilpatrick et al. (2013, p. xiv) summarise: "A community health development approach, applied to rural communities of place and to industry communities of common purpose, will build capacity and facilitate working with [...] fishers to provides access to services and other resources for maintaining health and wellbeing".

Possible Theoretical Frameworks

Throughout the international literature the Finnmark Intervention Study is the only strategy of health promotion that had been designed entirely and put into practice. Its theoretical framework was based on community empowerment and diffusion of innovation (Lupton et al. 2005). The other theoretical frameworks identified in the review are designed for safety oriented approaches. However, these strategies could be translated into a program focussing more on a general health and well-being approach and were therefore included in the review.

In two independent studies, from Australia and from the US, the framework by Gielen (1992; Gielen & Sleet 2003) was chosen as the base for the safety promotion program described. The authors of both papers highlight the relevance of this framework for the commercial fishing industry as it "appears to offer an approach that can bring previously disparate perspectives together to work toward the goal of planning intervention that can improve the commercial fishing industry's safety performance" (Van Noy 1995, p. 28). The Gielen framework, to which the articles refer, originates from the PRECEDE-PROCEED model (Green & Kreuter 1999; Green et al. 1980), which is commonly used for designing, implementing and evaluating health promotion and other public health programs (Gielen et al. 2008). It incorporates and facilitates both behavioural and environmental change and has therefore been successfully used in planning health promotion programs (Gielen & Sleet 2003). The applicability of this model to the fishing industry setting is discussed in the following section.

4.4 Discussion

4.4.1 Key Findings

The integrative literature review shows that the hazardous working conditions of commercial fishing industries and the high risks that workers face are known worldwide. Multiple studies point to the necessity of supporting workers' health and well-being. Current research into preventive strategies is being undertaken in several countries, such as Australia, New Zealand, Denmark and Greece. It appears that, among developed countries, there is a similar intention to plan intervention strategies to meet recognised health needs. A "widespread acceptance of the need [for] fishing industries to participate in effective health promotion and prevention programs" is stated (Fragar, Lower & Temperley 2011, p. 30). Another industry report claims: "the need for preventive strategies is particularly acute in the fishing sector" (Kilpatrick et al. 2013, p. 62).

The findings of this review show that workers in fishing industries are a difficult population to approach with interventions, as they do not have regular working hours and are hard to trace (Grimsmo-Powney et al. 2010; Lawrie et al. 2004; Matheson et al. 2001). Most enterprises are of small size or owner operated businesses and do not show organisational structures (Frantzeskou, Jensen & Linos 2014; King, Kilpatrick & Willis 2014). Nevertheless, a series of health and well-being topics that need targeting through a health promotion approach are present within the industry. The literature revealed that high workloads, work at uncertain times, as well as other pressures arising from uncertainties, and unstable working conditions impact on the health and well-being of the fishing industry's workers (Frantzeskou, Jensen & Linos 2014; Kilpatrick et al. 2013). Mental health issues, as well as problematic alcohol consumption and the use of illicit drugs, pose a large risk among the workforce (King, Kilpatrick & Willis 2014; Matheson et al. 2001). Interventions focussing on mental health issues were suggested in several papers (Fragar, Lower & Temperley 2011; Jaremin 2005).

Ways of approaching and targeting fishing industry workforces are outlined, suggesting 'soft entry points' and 'brokered access' (Kilpatrick et al. 2013) and offering easily accessible services at locations where fishermen are present, thereby overcoming

barriers of access. In addition multi-level approaches, targeting various topics and offering hands-on experience, are called for. Further suggestions point towards a workplace health promotion program that increases the health literacy of the fishing industry workers by empowering them to take on more responsibility for their own health (Hawkes et al. 2004; Lupton et al. 2002). Also, the integrative review clearly states that stakeholders and the surrounding community of the workforce should be included as essential components of a workplace health promotion program. In addition, collaboration with all levels of government, as well as with the health services and the existing community structures, are encouraged (Carruth et al. 2010; Hawkes et al. 2004; Kilpatrick et al. 2013; Lupton et al. 2002; Murray & Tilley 2006). The role of the employers and the health services in providing adequate support strategies are, however, not stated in the reviewed papers.

The theoretical models, which three papers identified, give further suggestions on designing a workplace health promotion program, but do not present a stand-alone framework that can be utilised within an industrial setting. The diffusion of innovation, suggested by Lupton et al. (2005), is a process of disseminating intervention measures and spreading knowledge about these through various communication channels (Rogers 2003). It provides a helpful measure of revising the communication processes and enhances communication across various levels and among participants in the industrial setting. This theoretical approach, however, does not inform the design or implementation of a specific health promotion program.

The PRECEDE-PROCEED model that was used as base for the development of a safety intervention (Fragar, Lower & Temperley 2011; Van Noy 1995) constitutes a useful and widely recognised planning tool (Crosby & Noar 2010). However, it lacks practical application and is only useful for gaining an overview and setting priorities, rather than designing a framework for practical implementation. Moreover, it has been criticised as "demanding, complex, highly structured and linear 'effect' model" (Whitehead 2001, p. 315). It is therefore not seen as a model to be utilised within the highly complex fishing industry setting, where a simple and flexible model is required.

4.4.2 Strengths and Limitations of the Integrative Literature Review

Rationale and Importance

The integrative review presented gives a broad overview of the available literature since 1993 on health supportive interventions for workers in the commercial fishing industries of developed countries. A comprehensive search strategy was created and used for different online databases. In addition, hand searches were undertaken. The integrative literature review method utilised proved beneficial, as a broad array of literature could be included and organisational reports, as well as non-scientific papers, added. For this reason it can be suggested that a broader perspective on the phenomena under investigation was gained than a systematic review could have produced. It is assumed that the search strategy was able to identify any existing health promotion approaches and that the results reflect the reality of current health initiatives appropriately.

This integrative review constitutes a unique contribution towards the currently ongoing research in the area of workplace health promotion within commercial fishing and other rural industries. The review brings together international recommendations towards comprehensive health supporting strategies and provides a solid basis of information to guide the creation and implementation of health promotion programs within this specific industry setting. Previous reports have systematically reviewed existing occupational health and safety measures that constitute important approaches in countering the hazardous conditions and dangerous work that fishermen face (Brooks 2011; Jeżewska et al. 2012). In addition, reports have surveyed the effectiveness of programs targeting farmers' health and these were reviewed for their effectiveness and suggestions for targeting fishermen were derived (Fragar, Lower & Temperley 2011). Only during the course of this research in 2014 did an industry report set out to identify how the fishing industry supports fishermen in their physical health and mental well-being (King, Kilpatrick & Willis 2014). The report, however, does not describe the possibilities of structured and comprehensive health promotion measures.

Limitations

Next to the strengths of the integrative review study some limitations should be stated. Despite the broad search strategy some relevant papers might have been missed. Papers not listed within the searched databases, such as conference proceedings, as well as papers not identifiable with the given search terms, could possibly not have been picked up. One might suspect that health promoting strategies, which were conducted within commercial fishing industries, may not have been reported upon in the journals and papers listed in the databases searched. Even though a broad hand search on the relevant websites of fishery boards was conducted, industrial reports may still have been missed. Further, as only papers in the English language were included in the review, local reviews on health interventions were not identified.

Following the strategy of an integrative review the quality of the studies identified has not been assessed. Therefore, any biased account given in the studies is reflected in the integrative review. In addition, the combination of diverse data sources holds further challenges, as the reported results within the identified studies have not been judged and weighed according to their methodological rigour.

The review could only identify a single health promotion strategy targeting workers of a commercial fishing industry that had been implemented and put into practice. Most papers reviewed described the setting of the fishing industry and gave suggestions towards possible workplace health promotion approaches. These findings inform the creation of a framework for workplace health promotion, but give little evidence regarding successful approaches. Also, with most papers focussing on workers' health issues, only a single study (Hayman, Anderson & Lamm 2010) investigated the views of employers. This indicates a need for further research on the perspectives of industry managers, stakeholders and health providers regarding health supportive measures.

4.5 Conclusion

Despite the current call for preventive and health promoting strategies to date, no approach has been systematically developed and implemented within a fishing industry workplace. Due to the limited evidence the international literature provides strategies of health promotion interventions for commercial fishing industries, no conclusion can be made as to which strategies would constitute an effective intervention. However, a range of suggestions were made that inform the creation of a framework for workplace health promotion for the commercial fishing industry.

The identified suggestions of workplace health promotion strategies were similar throughout the international literature and emphasised the need of implementing such strategies. However, it can be questioned whether the existing suggestions for health promoting strategies would sufficiently meet the needs of the workforce and are able to tackle the identified health and well-being issues. Therefore, the findings of the integrative literature review should be supplemented with further research of workers' needs and managers' perspectives in order to be able to create a comprehensive framework for workplace health promotion tailored to the commercial fishing industry.

Chapter 5:

Perspectives of Industry Managers, Stakeholders and Health Providers – Face-to-face Interviews

5.1 Introduction

Interviews with industry managers, stakeholders and local health providers allowed an in-depth exploration of workplace health promotion strategies within the Port Lincoln commercial fishing industry. The findings from the literature were tested and views and beliefs of the participants on the concept of workplace health promotion illuminated. By incorporating three different participant groups a comprehensive picture of the phenomena under investigation was created. This qualitative method strand aimed at answering the following research objectives, as stated in Chapter 3:

A. To identify the key health issues and health promotion needs of the industry's workforce, as perceived by workers, industry managers and key stakeholders of the Port Lincoln fishing industry, as well as local health providers.

C. To identify the current workplace health promotion strategies and measures of health support adopted by commercial fishing enterprises of Port Lincoln.

D. To assess perceptions and understanding of workplace health promotion, as well as to explore the perceived roles and responsibilities of industry managers, key stakeholders and local health providers when implementing workplace health promotion strategies within the industry.

E. To explore barriers and facilitators to implementing workplace health promotion strategies within the industry as perceived by industry managers and key stakeholders.

Based on these research objectives, the qualitative study explored the perceptions of participants on the following aspects:

- Key health issues that workers of the industry experience;
- The roles and responsibilities of managers, stakeholders and health providers in addressing these issues and supporting workers' health and well-being;
- The possibility of utilising strategies of workplace health promotion within the commercial fishing industry to address health and well-being issues;

- The benefits of implementing a structured approach of workplace health promotion;

- Facilitators supporting utilisation of workplace health promotion strategies;

- Barriers impeding the successful implementation of workplace health promotion strategies.

In total, 27 semi-structured interviews were conducted. By using a comprehensive process of thematic analysis, themes were identified that gave insight into the phenomena under investigation and allowed the research objectives to be met. This chapter first presents a detailed account of the research design and the method used in the data analysis process. Next, the identified themes are presented and illustrated with quotes from the participants. The chapter concludes with a discussion of these results, and points out implications arising from these findings.

5.2 Methods

5.2.1 Population

To be able to examine the case of workplace health promotion within the Port Lincoln fishing industry in depth and to include different perspectives, as outlined in Chapter 3, three groups of participants were included in this study: health providers, industry managers and stakeholders. The group of stakeholders comprised individuals with an interest in the health and well-being of fishing industry workers, representatives and experts of the commercial fishing industry, as well as individuals of regulatory bodies or from organisations of regional development. The detailed inclusion and exclusion criteria shown in Table 5.1 were defined for each participant group prior to commencement of the recruitment process. These criteria ensured that the recruited participants were currently involved in the topic under investigation and could provide meaningful insight.

Table 5.1: Inclusion and exclusion criteria of study participants

	Inclusion Criteria	**Exclusion Criteria**
Industry Managers	• Employed by a company of commercial fishing or aquaculture in Port Lincoln. • Assigned responsibility for a group of workers or the entire staff (supervisors, operation managers, industry managers).	• Employed by companies of sport / leisure fishing or companies offering supply or maintenance to the fishing enterprises (i.e. boat builders, net or tool constructors). • Employed by a company located in the surrounding towns of the Eyre Peninsula (i.e. Louth Bay, Coffin Bay). • Not consigned to any management / supervision tasks nor with responsibility over other workers.

	Inclusion Criteria	**Exclusion Criteria**
Stakeholders	• Individuals who have an interest in the health and safety of Port Lincoln fishing industry workers (i.e. health policymakers, regulatory bodies). • Individuals working within or guiding the Port Lincoln fishing industry (i.e. fishermen's associations, employer associations). • Individuals working with the Port Lincoln fishing industry and showing an interest in the development and sustainability of the industry (i.e. regional developers, government organisations or industry experts).	• Individuals, organisations or networks with no interest in either workplace health promotion strategies or the Port Lincoln fishing industry.
Health Providers	• Providing health services in or to Port Lincoln. Currently working or having worked in the past 12 months. • Working in a practice, clinic or health service centre. Alternatively working as a health advisor or a health service provider with a company of the fishing industry. • Offering health services relevant to the core group of employees of commercial fishing enterprises.	• Working in or offering services to Port Lincoln for less than 3 months. • Retired or unemployed for longer than 12 months. • Specialists offering health services not relevant to the core group of employees of commercial fishing enterprises (i.e. paediatricians, geriatricians, obstetricians and gynaecologists).

5.2.2 Recruitment Strategy

A purposive sampling strategy was used to recruit participants in order to achieve a cross-sectional variation of the different participant groups and a broad understanding of the phenomena under investigation. This technique is the dominant sampling strategy in qualitative research (Hoepfl 1997) and allows for defining a non-probability sample that can be logically assumed to be representative of the population (Battaglia 2008). The main goal of purposive sampling is to focus on the particular characteristics of a population that best match the research questions (Lund Research 2010). By purposefully selecting knowledgeable participants, rich data to gain insight into the phenomena is achieved (Sandelowski 2000).

Recruitment Process

Companies of the Port Lincoln fishing industry as well as local health providers and stakeholders were identified using local directories, local intelligence and internet searches. Unfortunately, no comprehensive list of all Port Lincoln's fishing industry enterprises could be obtained. To be able to identify the complex structures of existing companies and their affiliations, a list of licence holders was provided by Primary Industries and Regions SA (PIRSA) Fisheries.

After having obtained ethics approval from the University of Adelaide Human Research Ethics Committee (HREC) in June 2012, potential participants were contacted via telephone and personally on-site. The purpose and nature of the research were explained and a leaflet with further information and contact details left with them. The information pamphlet distributed to potential participants is attached in Appendix IV. A follow-up contact later clarified whether the participant was willing to participate and a mutually agreed time and place arranged for the conduct of the interview.

During this process of recruitment it became evident that, for the group of industry managers, this strategy of systematically contacting lists of potential participants was not viable. Due to issues of distrust the request of an unknown, external person wanting to undertake research was often quickly refused. For these reasons the contacting of

stakeholders was prioritised to be able to gain easier access to the industry managers. A network of multiple contacts was built and the research project explained to the various protagonists throughout the Port Lincoln case study setting. With the support of industrial associations, industrial experts and key-players in the Port Lincoln community, the researcher could thereby slowly work her way through to potential participants relevant to the study. After several months of preparation in the field and after making over 80 direct contacts, sufficient contacts with industry managers were finally achieved and the trust and confidence of the participants was established.

The recruited participants were met individually at a date, time and place convenient for both the participant and the researcher. Of importance was an environment that permitted participants to openly share their views. Usually the office of the respective participant was the most convenient choice, but other participants preferred to meet on 'neutral ground', for instance at a local restaurant. The researcher personally conducted all the interviews face-to-face with the participants.

Participant Sampling

In qualitative studies the sample size generally follows the concept of saturation in guiding the researcher to ascertain the appropriate number of participants. Data saturation is reached when the collection of new data does not shed any further light on the issue under investigation (Mason 2010) and no new information is obtained (Morse 1995). The factors influencing the point of saturation are the aims of the study, the topic under investigation, the amount of useful information obtained from each participant and the study design (Kerr, Nixon & Wild 2010). Therefore the number of participants required to reach this saturation could not be accurately estimated in advance (Morse 1995). Previous research, however, suggested that a range between five and 25 interviews is required (Creswell 2013). Other researchers found that saturation occurred within the first 12 interviews (Guest, Bunce & Johnson 2006).

A purposive sample of 20 to 25 participants was aimed at for this study, comprising approximately five health providers, ten industry managers, and five to ten stakeholders. It was assumed that these numbers gave a good representation of the total population under investigation and were also seen as feasible for this study. Following the concept of data saturation, the suggested participant numbers could be extended if necessary, in order to include further participants until no new information was forthcoming.

Study Participants

In total 27 interviews were conducted over a time period of nine months, until the emerging data of each study group was saturated and began repeating itself. These 27 interviews go beyond the originally anticipated number of interview participants. In all three participant groups both male and female participants, of different age groups and different educational and training backgrounds, were included. An array of industry sizes and most industry sectors were covered and the general structure of the industry was well represented. The participants comprised the following:

- Eleven industry managers (IM) entrusted with the management of certain operations, crews or the entire staff. These stemmed from eleven different enterprises of various fishing sectors, including mussel, tuna, rock lobster and abalone sectors, and from varying company sizes, including five small-sized and three large-sized companies with more than 30 workers.

- Eight stakeholders (SH), from various backgrounds, with four affiliated to various industry associations. The remaining four stakeholders comprised participants from regulatory bodies working with the fishing industry and from regional development, as well as an industry expert.

- Eight health providers (HP) from various professions, all actively involved in the Port Lincoln health care system: a General Practitioner, a specialist, a mental health worker, a social worker, a physiotherapist, a chiropractor, a rehabilitation consultant and a private health service provider.

5.2.3 Data Collection

Choice of Interview Method

Semi-structured in-depth interviews are seen to be the most suitable method of data collection for this study, as they allow for detailed investigation of each person's perspective and for detailed subject coverage (Snape & Spencer 2003). Kvale (1983, p. 174) defines a qualitative research interview as "an interview whose purpose is to gather descriptions of the life-world of the interviewee with respect to interpretation of the meaning of the described phenomena". Interviews are therefore commonly used within the paradigm of realism as they provide a means of accessing the individual experience of participants and not only reveal knowledge on the subject under investigation (Smith & Elger 2012). As Smith and Elger (2012, p. 14) state, "for the realists interviews provide one important basis for gaining access not only to the attitudes and emotions of informants, but crucially to richly textured accounts of events, experiences and underlying conditions or processes, which represent different facets of a complex and multi-layered social reality." Interacting with the participants (Pawson & Tilley 1997), asking open-ended questions and utilising probes match the paradigm of realism well and encourage participants to share rich descriptions of the phenomenon of interest and the underlying reasons, opinions and beliefs (Dicicco-Bloom & Crabtree 2006; Legard, Keegan & Ward 2003).

Instrument of Data Collection

As not much is known about workplace health promotion for fishing industries, an explorative approach was utilised to gain insight into the motivation and the decisions of the participants with regard to the implementation of such strategies. For this reason the interview guideline comprised mainly open-ended questions, as well as prompts and further material for discussion (Dicicco-Bloom & Crabtree 2006). The questions could be used flexibly and modified or complemented with further questions arising during the interview. Probes and discussion material allowed investigating certain aspects in detail and also proved helpful since the concept of workplace health promotion was widely unknown with the participants.

For each of the three study groups (industry managers, stakeholders and health providers) an individual interview guideline was developed. The interview guidelines varied slightly among the three participant groups, but were all concerned with similar questions. The interview guideline used for interviews with industry managers is given in Appendix V. The questions in all the interview guidelines were discussed with industry experts, pre-tested and modified several times. Throughout the data collection process the interview guidelines were further adjusted to incorporate the findings of previous interviews in order to validate first impressions. This follows the concept by Green et al. (2007) who describe an initial data analysis occurring alongside the interviews, allowing for reflection of early findings into the sunsequent interviews.

Simple introductory questions on the role and job tasks of the participant started the interview and helped to make the participant feel comfortable. These were also needed to gain insight into workplace procedures and illuminate participants' understanding of their work with regard to workers' health. The subsequent open-ended questions allowed in-depth investigation without restricting the responses of the participants. These questions were concerned with how the health of workers was being supported and in what way responsibility to promote workers' health was perceived. Further questions aimed at possible hazards and health issues resulting from work within the industry, as well as perceived possibilities of workplace health promotion strategies to alleviate these. Moreover, the participants were asked about perceived benefits of workplace health promotion strategies and barriers towards implementation.

5.2.4 Ethical Considerations

As previously stated, ethics approval for this research was obtained from the University of Adelaide Human Research Ethics Committee (HREC). In order to ensure that participant rights, confidentiality, dignity, and privacy were protected, the following ethical principles were exercised throughout the duration of this study:

- Participants were informed of their rights, the level of participation required and the possibility of withdrawing from the study at any point without consequences or penalty;

- Informed consent was obtained prior to the commencement of the interviews;

- Privacy and anonymity were strictly maintained.

During the recruitment phase potential participants were provided with a participant information sheet which explained in simple language what the study entailed. It stated what was expected from the participants and assured that their identity would not be disseminated (see Appendix VI). This information sheet remained with the participants. The names and contact details of the researcher, the supervisors and the Ethics Committee were provided in case they required further information or wished to make a complaint.

Once the participant had read the information sheet, the researcher enquired if there were any concerns, questions of clarifications needed with respect to the study and the participants' level of involvement. Prior to the commencement of the interviews, the participants were then asked to sign a consent form that indicated their willingness and commitment to participate in the study. The consent form detailed the following aspects: the nature and the purpose of the study, participants' benefit from participating in the research, assurance of anonymity and confidentiality, freedom to withdraw from the study without consequence, willingness to participate for no monetary return and permission for audio recording of the interviews (see Appendix VII).

Data generated in the form of transcripts, consent forms and other paperwork were kept in a securely locked filing cabinet in the researcher's office, ensuring no one had access other than the researcher to the confidential data. All electronic data generated was stored on the researcher's password protected computer. Additionally, all electronic data including transcripts, audio recordings, demographic data and the contact details of participants, were password protected to ensure that access to files was not possible.

To maintain anonymity and privacy, names and other identifying information were removed from the transcripts and all the documents to which people other than the researcher had access. In this way the researcher was the only person able to link the interviews with the names of participants. No identifying information or the identity of the participants was or will be released.

5.2.5 Data Analysis

Data Management

Of all 27 interviews 21 produced usable audio recordings. The others were either not recorded because the participants did not agree to the recording or the interview environment did not allow for an adequate recording quality. The recorded interviews were transcribed verbatim, in large parts with the services of a professional research transcription agency. The received transcription was checked thoroughly for errors by listening to the original audio recording. To protect confidentiality, names and other identifying information were removed from the transcripts. Before the analysis commenced transcripts were read and reviewed several times and then imported, together with notes from other interviews, into the QSR International's NVivo 9 software.

Thematic Analysis

The analysis of the interviews was undertaken using the method of thematic analysis. As Braun and Clarke (2006) argue, thematic analysis provides a rich, detailed and complex account of the data and therefore constitutes a method of its own right. It allows describing both implicit and explicit ideas within the data (Guest, MacQueen & Namey 2011) by identifying, analysing and reporting patterns (themes) (Braun & Clarke 2006) and referring these back to the research objectives.

As Joffe (2011, p. 212) states, it is "best suited to elucidating the specific nature of a given group's conceptualisations of the phenomenon under study". It allows reporting on experiences, meanings and the reality of participants, and works to "unpick or unravel the

surface of 'reality'" (Braun & Clarke 2006, p. 81). The thematic analysis is therefore often framed as a realist method (Roulston 2001) and fits well with the realist paradigm of this research study. Through strategies of coding, categorisation and analytic reflection, themes are identified that reflect both the content and the meaning of the data (Saldaña 2009). A realist approach theorises meaning in a straightforward way, assuming a largely unidirectional relationship between meaning, experience and language (Potter & Wetherall 1994). Themes were therefore identified using a semantic approach, focussing on the explicit or surface meanings of the data (Braun & Clarke 2006).

The data was initially coded without trying to fit it into a pre-existing frame and the identification of themes therefore occurred mainly inductively. The further analysis was driven by the predetermined research objectives which provided a guideline to group information (Fereday & Muir-Cochrane 2006). The interview transcripts from all three participant groups were analysed concurrently and findings across participant groups merged. Disparities among groups were noted and are highlighted in the results section of this chapter.

Green et al. (2007), as well as Braun and Clarke (2006), demonstrate several key steps of thematic analysis, including immersion in the data, coding, creating categories, and identification of themes. The six-phase procedure followed in this study is presented in figure 5.1. It creates an iterative and reflexive process with movement back and forth through the phases, until final themes are identified.

Figure 5.1: Phases of thematic analysis (Braun & Clarke 2006; Green et al. 2007)
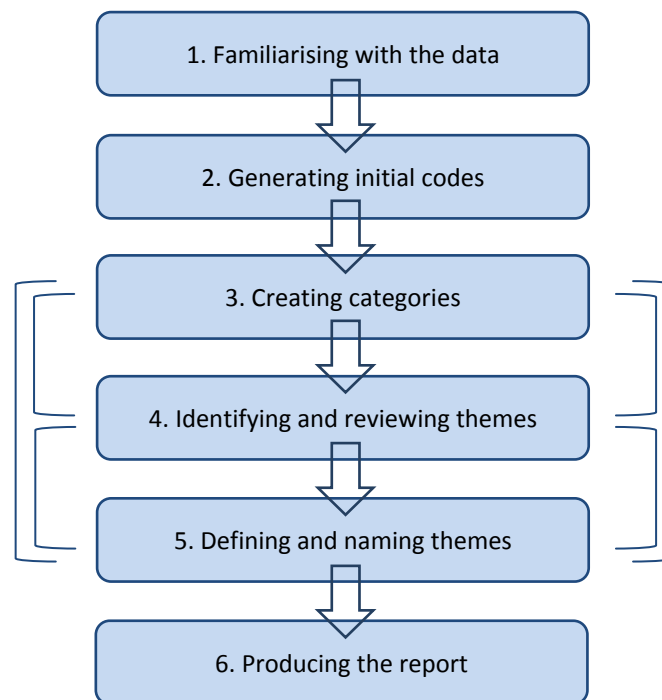
Phase 1: Familiarising with the Data

The interview transcripts and field notes imported into the NVivo software formed the raw data for analysis. These were read and re-read for familiarisation or immersion in the data while noting down initial ideas.

Phase 2: Generating Initial Codes

Initial codes were generated by manually coding line-by-line. Interesting features of the data were thereby labelled in a systematic fashion across the entire data set. Across the data set 90 relevant codes were thereby inductively created.

Phase 3: Creating Categories

By exploring similarities and differences between the codes, patterns were identified and codes connected according to these. All relevant data was gathered and collated, forming 31 different categories.

Phase 4: Identifying and Reviewing Themes

The categories identified were further revised and grouped into themes. During this phase the categories were compared and contrasted, merged, relabelled or split to illuminate the phenomena under investigation. An iterative analysis process was performed, revising phases three to five several times.

Phase 5: Defining and Naming Themes

An ongoing analysis was performed to further refine the specifics of each theme. As Green et al. (2007) describe, themes require moving beyond the description of categories to allow for interpretation of the issue under investigation. This process resulted in the creation of 17 (sub)themes.

Phase 6: Producing the Report

The analysis was finalised by relating the identified themes back to the research objectives to allow linking back to the concepts underlying this study. This resulted in the creation of four overarching themes. These are presented in the results section of this chapter and compelling extract examples are selected to illustrate these findings.

5.3 Results

By using the process of thematic analysis and producing codes and themes as described above, a total of four overarching themes were created from the interview statements:

Theme 1: Perceived pressures and risks impacting on workers' health and well-being

This theme includes risks of injury and disease that workers of the fishing industry face, as well as pressures affecting the workers' well-being.

Theme 2: Understanding of workplace health promotion

This theme highlights the varying perceptions of the participants of the concept of workplace health promotion. It points to perceived responsibilities and the various roles of employers and industry managers when utilising WHP strategies.

Theme 3: Factors impeding implementation of workplace health promotion

This theme draws together all the barriers perceived by participants that impede the implementation and utilisation of health promotion strategies within the fishing industry.

Theme 4: Possibilities of utilising workplace health promotion

This theme incorporates all drivers and factors facilitating the implementation of workplace health promotion within the fishing industry as perceived by the participants.

Using Theme 1 'Perceived Pressures and Risks' as an example, table 5.2 shows the process of theme development, highlighting the procedure of initial coding to combining these to form categories which later built (sub)themes which were then merged into overarching themes. The process of developing the other three themes is shown in Appendix VIII.

Table 5.2: Emergence of the theme 'Perceived Pressures and Risks'

Code	Category	Subtheme	Theme
Lifting	Back issues	Risk of injury / disease	Perceived Pressures and Risks
Cuts and bruises	Other physical injuries		
Repetitive work			
Skin cancer	Skin cancer		
Shift work	Long hours	Workplace pressures	
Work at irregular times			
Long hours			
Fatigue			
Tight staffing	Work organisation		
Work with a live product	External demands		
Working towards market demands			
Challenging work environment	Work environment		
Confined space			
Financial issues	Socio-economic draw-back	Psychosocial pressures	
Unskilled / illiterate			
Worthless worker			
Away from home	Isolation		
Unstable relationships			
Stress	Stress		
Mental health	Mental health issues	Mental health issues	
Drug and alcohol abuse	Drug and alcohol use		

Credible research additionally needs to describe the research findings authentically and represent the meanings as described by the participants (Lietz, Langer & Furman 2006). To confirm that the categories and themes cover the data and give a true picture of reality (Graneheim & Lundman 2004), Appendix VIII supplements this table with direct quotes from the interviews, so further disclosing the principles of coding from the original transcripts.

Figure 5.2 gives an overview of these four themes and their subthemes. This graphical scheme shows how they interrelate and influence one another. The perceived risks have an effect on the way health support is understood and interpreted by the participants. These risks also shape the barriers to and drivers for implementing strategies to address these risks. The subthemes of the barriers and drivers in part contradict each other and are again influenced by the understanding and type of workplace health promotion to which the participants refer.

Figure 5.2: Relationships of identified themes and subthemes
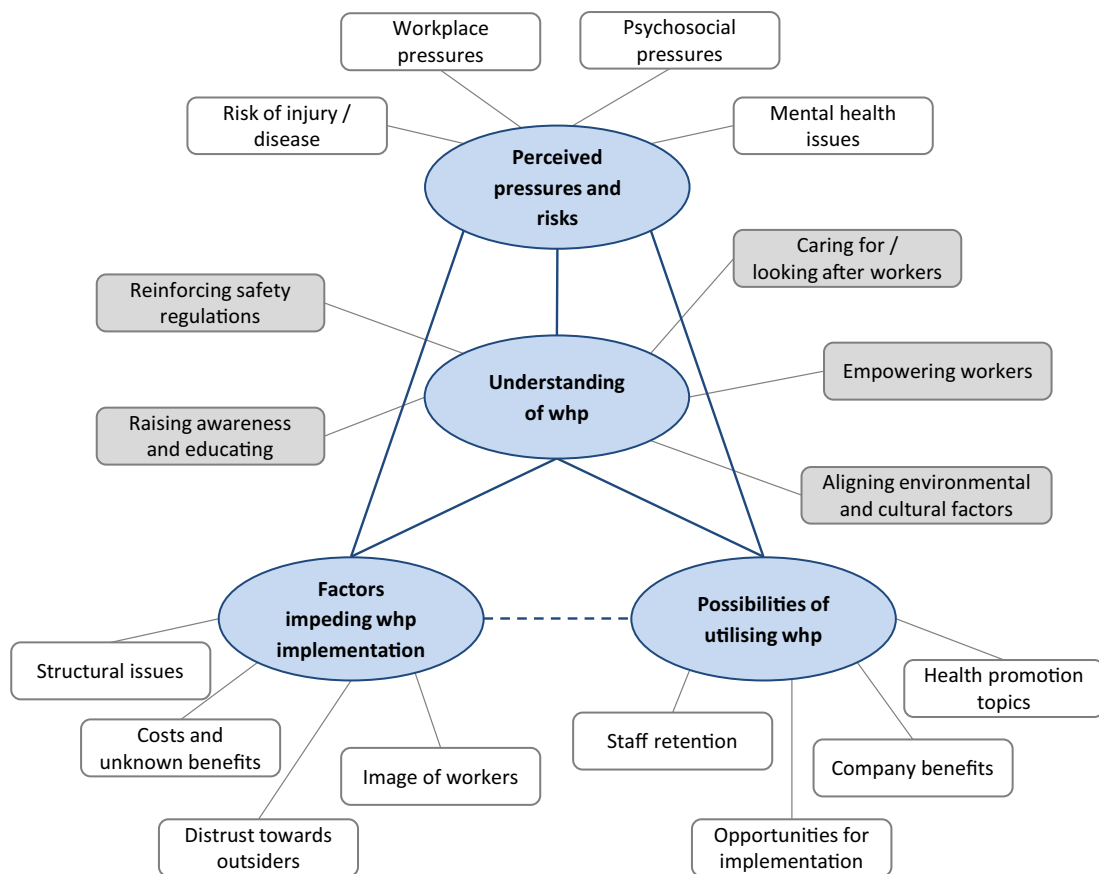
In the following sections the four themes are described in detail and illustrated with quotes from the participants. The findings stem from all three participant groups, as they showed broadly similar views and perspectives on the phenomena under investigation. Differentiations in perspectives or contradicting statements are specifically indicated.

5.3.1 Theme 1: Perceived Pressures and Risks

The risk of work-related injuries or diseases was developed into a theme that included various threats to health, including psychological and social factors. This theme laid the foundation of the participants' understanding of workplace health and pointed to areas where such strategies might prove valuable to the participants. The subthemes of injury risk, workplace pressures, psychosocial pressures and issues of mental health are illustrated in detail in the following section and quotes from the participants given to underline the findings.

Risk of Injury / Disease

The interviews revealed that there was a commonly acknowledged high level of physical work prevailing throughout the industry that was seen as the main impact on worker's health. The risk to health most mentioned by the participants was heavy lifting, with participants pointing to issues of back pain as a result. Further hazards that participants mentioned were those arising from environmental conditions such as working on a boat and being out at sea in rough weather. Heavy machinery, moving objects, as well as being 'exposed to the elements' (IM7) and having to work against these elements, were stated by several participants:

> *A lot of the injuries, the classic ones, back injuries and heavy lifting and those sorts of things, but a lot of it is… it's cold and it's wet and it's miserable. In the middle of winter, it's no fun and people get knocked around on boats or bounced around, it gets cold. It really is a young man's industry; certainly doing the hands-on work is a young man's industry. (SH7, 01:27)*

A further health issue the participants showed concern over was skin cancer through high levels of exposure to the sun:

> *Absolutely, that's a really big one. Being out on the deck of the boat all day in the sun plus the reflection of the water surface and it's a really big concern of mine. I don't*

know how the rest of the industry feels, but I think that, that… We have so much skin
cancer in Australia as it is and then I don't have the data but I could only assume that
it would be even higher again on… in the fishing industry. (SH5, 13:49)

Even though the risks were clearly stated and not denied, a notion of acceptance could be detected in the interviews with the industry managers. They perceived the identified health risks as inevitable and part of the job:

Fishing just by its nature... working to the weather, Mother Nature and weather is
always going to pose a risk to your health and safety out on the water. That's one of
the risks that you accept when you work in the industry [...] It can be a lot more
taxing on your body. You've got moving platforms that you're working from, and it's
not like an office environment. You can take every measure. I mean, you can try to
make it as safely as possible, and everyone does. 'Cause no one likes to get injured or
hurt, die, or lose friends, but there are those jobs that, when you're exposed to the
elements, I would say do pose a higher risk to your health and safety.
(IM7, 09:22)

Workplace Pressures

Next to the risk of physical injury, the participants disclosed several pressures and demands that were out of the workers' control and impacted negatively on their health and well-being. As the participants depicted, these pressures arose from market demands within the fishing industry and the handling of a live product. Harvesting to meet the schedules of the customers (IM8) and therefore not being able to have set hours of work (IM4) were depicted. Moreover the participants pointed out that these long hours and stressful times of harvest needed to be accomplished with a limited number of staff. These workplace pressures were identified by almost all of the industry managers and described as creating high levels of stress:

Because there's a lot of pressure to harvest, it's very important. The weather can be rough, but they really want the fish, so stress levels are quite high. And they're big days, harvest days for me, I'll start at 5:30 in the morning and finish at 6 o'clock at night and you would do that every day for a couple of months. [...] That's very stressful. That's probably the most stressful week out of the whole year, I think. Because one little error can cost you millions of dollars. (IM6, 07:03)

Additionally, long working hours and work at unreasonable times were stated as a main concern impacting on workers' health and well-being. With 14-hour shifts for seven days a week at peak season, the participants raised concerns of fatigue adding to the risk of injuries and mental health issues:

I would say the number one is fatigue, sleep deprivation. Yeah. Without sticking your neck out because the last thing's we want to do is have to have two shifts on the boat... And potentially there's sleep deprivation is the big … is the real number one. It used to knock the crap out of me. And I think that alone leads to potential you know, risks in other areas, but I don't know how you fix it. Economically, you can't run these boats with duplex crews. You know, duplicate crews. It's just not viable. (SH4, 01:31)

Psychosocial Pressures

Another negative impact on workers' well-being, which the participants pointed to, was the long time out at sea and being away from home for extended periods of time. Even though the numbers of days out at sea have reduced over the past years, some interviewees stated that workers could be 'out there' (IM6) for three months. According to the participants, 'being away from your family' (IM7) made it difficult for workers to build stable relationships and receive support from family and friends:

Being away from land so much can have some negative effects on family, and friendships, and maintaining friendships, and having the relationships that you want with your wife or your children, may be difficult. (SH5, 03:10)

The interviews revealed that workers in the fishing industry were often operating outside a regular employment frame. Due to their low socio-economic background and lack of social security many of them were on the fringe of society, as stated by the participants. The participants pointed out that some workers did not have adequate insurance and presented a poor educational background with high rates of illiteracy. 'Family, life and financial stress' (HP2) impacted on the workers' well-being. Especially the group of health providers made it clear that workers in the fishing industry were one of the 'most vulnerable groups' and 'on the fringe of society' (HP7).

Adding to this vulnerability were barriers of access of the fishing industry workers to health providers that were identified by the interviewees. The health providers emphasised that doctors were only visited for severe injuries and that workers had learned 'skills to come by or suppress it' (HP8). According to the participants the non-utilisation of health care services was due to both the workers' male attitude in not admitting to injuries and lack of insurance cover (HP1; HP8). The health providers suggested that the status of being self-employed or paid by share in catch further prohibited workers in taking sick leave. Overall only little information could be obtained on the accessibility of health services and hardly any cooperation between fishing industry enterprises and local health providers could be identified.

Additionally, a lack of continuity of work and phases without income were stated as further challenges the workers faced. According to the perception of health providers workers struggled with financial issues, 'living week to week' and experiencing 'feast and famine' (HP6). The participants concluded that such pressures had an effect on the psychosocial health of the workers and influenced their overall well-being.

Because there's a lot of wealth in the fishing industry, but also a lot of debts. So particularly for some of the younger guys who take on big mortgages and debt or whatever, they're not going to worry about a gym membership. They just need to catch the quota, and get… run the business to pay their debts, and to stop the bank putting them out of business. And that's where there's the well-being from a mental point of view, the psychological part of it. But it is not like [...] people don't really talk about that. (SH2, 21:24)

Mental Health Issues

In the course of the interviews, all participant groups repeatedly pointed out mental health issues that arose from the workplace and from psychosocial pressures. It becomes evident that workers have to counter several factors which are out of their control. The industry managers showed an awareness of the necessity to employ workers with 'stable personalities' (IM2; IM4) that could handle oncoming psychological pressures:

We always try and find stable people especially the guys that have to go to sea because they're at sea for quite a while. Depending on which boat they go on, like the same boat will go out and spend three months at sea pretty well for the whole of the catching season and only maybe come in for a couple of days here and there just to put fuel on the boat and more stores and then they're back out again. So yeah, trying to find the right people to live in that environment, you know, the confined space, is also a bit of a challenge. (IM4, 06:01)

I think that the psychological health of fishermen is really important because when they're at sea for long periods of time, you have to… I always say, you have to have a special soul for it. Like there's often quite a lot of loneliness involved. You have to be allowed to able to get along with others…in almost a big brother kind of environment, where you're in each other's face all the time [...] And so many times you hear stories about people being quite fine and then going on a boat and after 10 days or 2 weeks or 3 weeks, like losing it. Yeah, kind of losing it a bit and suffering from some anxiety or psychological condition that maybe didn't know they had or it wasn't obvious to others until they were put in that particular environment. And depression and anger are probably the two most prevalent. (SH5, 19:16)

The interviewees pointed to the fact that issues of mental health were usually not talked about in a male-dominated, tough industry like the fishing industry and it was noticeable that some of the industry mangers mentioning mental health issues did this in a very careful, roundabout way, suggesting there 'maybe' were mental health issues (IM8), or in a casual way as the following quote shows:

It seems to work all right. Mental health, well, we're all a bit freakin' mental I suppose, but again it's getting the pressure off the day-to-day living stuff and it seems to work. (IM2, 04:51)

Despite this casual way of referring to mental health problems, the interview statements reveal participants' concern about such prevailing issues. In their opinion mental health problems often stem from a use of illicit drugs that were said to prevail throughout the commercial fishing industry.

While the managers showed no clear strategy in dealing with drug and alcohol use during or before work shifts, the health providers and stakeholders stated a clear need to and address these issues within the fishing industry. A whole 'drug culture' (IM2) within the town of Port Lincoln was pointed out, with health providers stating that, while some managers had a zero-tolerance to drugs during working hours, other managers accepted the use of drugs:

I think drugs is a huge problem. That's a huge problem with the fish industry as well, so especially chronic marijuana use seems to be incredibly easy access to it in Port Lincoln. [...] We have such a huge burden of mental health conditions just related to marijuana. In fact, I just saw some figures today from the hospital that figures have gone up despite having a very efficient mental health service here [...] I remember workers will have sick days and everything due to mental health issues. It's incredible and that seems to be related to the fish industry more than other industries. (HP5, 10:45)

The detailed description of the theme of perceived risks and pressures points to a large range of factors impacting on workers' health and well-being which also interrelate with one another. Figure 5.3 therefore depicts the various factors influencing and contributing to the risk of injury or of suffering a mental health problem.

Figure 5.3: Map of interrelations between the perceived pressures and risks
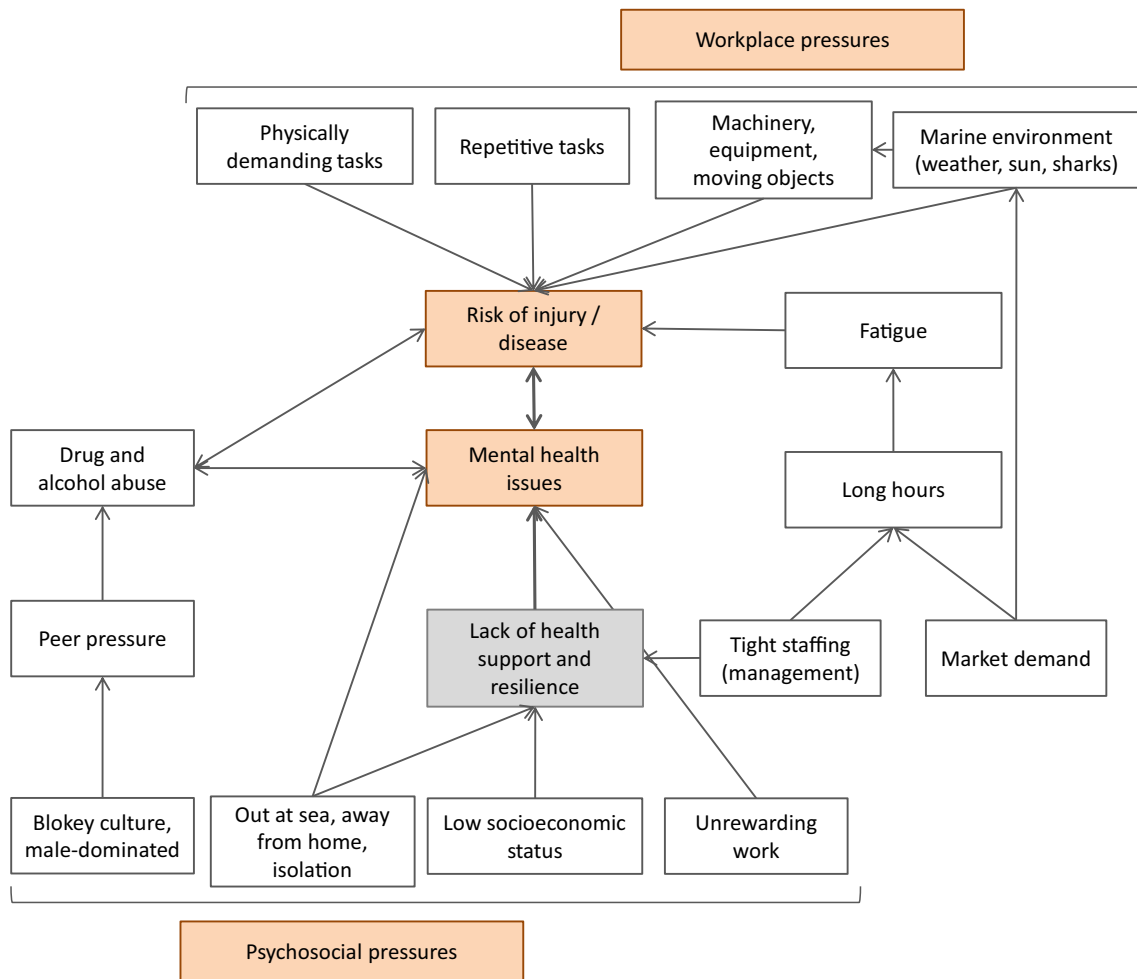
It becomes apparent that multiple pressures arising from the workplace, as well as additional psychosocial pressures, influence the workers' health and well-being. These various risk factors and pressures show interaction with one another, thereby increasing the risk of workers in the fishing industry having health issues. A lack of health support services and high levels of drug and alcohol use throughout the industry catalyse health risks and create an increased threat of workplace injuries or diseases.

5.3.2 Theme 2: Understanding of Workplace Health Promotion

This theme identifies the participants' understanding of possible workplace health promotion approaches and comprises five different subthemes of various ways of understanding the term. The interviews revealed that the concept of workplace health promotion is still in the very early stages within the commercial fishing industry and no structured approach of systematically promoting workers' health was identified:

> *I think at the moment we're kind of still trying to walk in this area. We're trying to hit the basic things at the moment. So it's really the, probably we've for a few years now been doing the vocational work health, WHS, Work Health and Safety thing. [...] But, you know, there are, we have a person who full time coordinates that, who deals with people as well, but it's more dealing with people that have had a workplace issue rather than a proactive deal. (IM8, 07:44)*

The subthemes point to varying roles that the employers could take up with regard to supporting workers' health and indicate different levels of responsibility. Figure 5.4 gives an overview of the different ways of understanding that were found in the interviews. These range from a passive understanding of health promotion as being something ruled by legislation to a more comprehensive understanding of health promotion as something that entails motivating and empowering staff and therefore needing active enforcement.

Figure 5.4: Varying levels of responsibility within different ways of understanding of WHP
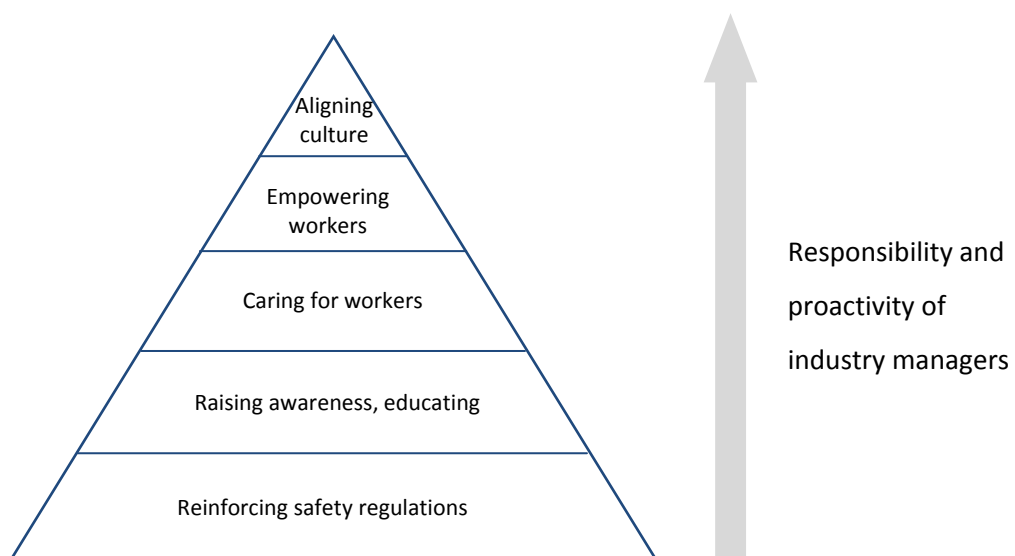
When referring to the number of participants mentioning each way of understanding, as depicted in figure 5.4, it becomes evident that concepts grouped around workplace health promotion as a form of occupational health and safety or educative measure are much more prominent than the other concepts. The more complex strategies of health promotion are not well-known, with only three interviewees referring to a need for workplace management to play an active role when implementing workplace health promotion approaches. In the following section the five different subthemes and ways of understanding of workplace health promotion are presented, using quotes and examples from the participants to illuminate findings.

Reinforcing Safety Regulations

When asked about health promotion approaches and the strategies of supporting workers' health, many of the industry managers referred to measures of safety and injury prevention. In a high risk industry such as the fishing industry this approach is of importance and a range of legislative requirements of occupational health and safety need to be followed. Even though health promotion strategies should go beyond an adherence to compulsory regulations, the approaches of occupational health and safety (OH&S) and workplace health promotion (WHP) are closely intertwined, as stated in Chapter 2. Therefore this understanding of health promotion as more safety-oriented approach is taken into account as one dimension of the industry's concept of workplace health promotion.

Several participants referred to their compliance with SafeWork legislation and pointed to the supply of equipment to ensure safe working practices. Even though the following quote entails the term 'well-being', the depicted approach does not really affect the personal well-being of workers. It rather refers to safe working practices and compliance with regulations:

> *Oh, I think it's just the well-being of all the employees. Making sure that everything's... occ. health and safety is in place here. They get an induction when they come in here to make sure they know where everything is, you know, the*

emergency station if something happens, where all the firefighting gear is and just the rules and regulations in our factory. You know, you're not allowed to run, it's slippery. It's always wet out there so there's a lot of things they've gotta just be mindful of. (IM5, 03:58)

Other participants referred to the legal requirements they adhered to and mentioned the provision of legal breaks (IM3), the positioning of signs, as well as the rotation of job tasks (IM5) as a health promotion approach:

I think that… [...] I know that there's signs on the deck saying, "Wear your hard hat" and all that sort of stuff. So I guess that's promotion, in a sense. What else would be a work health promotion? (IM5, 07:52)

It becomes evident that the role of the employers in this approach is rather passive or externally directed. Regulations are reinforced within the industry and imposed on the workers. Rather than assuming an own responsibility that goes beyond legislation, several industry managers and stakeholders referred to SafeWork SA during the interviews, suggesting that the support of workers' health should really be a task for this body.

The views on occupational health and safety legislation varied among the participants. On the one hand these regulations were perceived as helpful by outsiders to the industry in creating awareness of safety issues. On the other hand some industry managers feared they had to assume too much responsibility for workers' behaviour which they could not control. The managers stated being frustrated about the fact that, in their view, workers took 'almost no responsibility for their actions anymore' (IM7):

I do have a bit of an issue with the general focus of it, 'cause I think too much responsibility has been put on employers to take on responsibility for people's health. I think in the end you're really responsible for your own health. You need to look after your own health. But having said that, we can't absolve ourselves from some responsibility towards that, and we do need to make sure we are aware of people's safety and well-being. (IM8, 22:19)

It becomes apparent that the participants seemed uncertain of how they could take responsibility for someone else's health and were unsure of their role within health promotion. One of the stakeholders pointed to a shared responsibility, stating that the worker had to look after himself before the employer was able to assume responsibility and in turn look after the worker (SH2).

Raising Awareness and Educating

Another way of understanding of workplace health promotion that arose from the interviews was one encouraging behavioural change and raising awareness. Many participants referred to health promotion as a type of health education. They indicated a need to change workers' risky behaviour and train them in healthy behaviour. The interviews revealed that this concept was well-known and appreciated by most of the participants:

> *Awareness now and education now will save you a lot of time and heartache down the track. Because it does, it takes a lot of coordination and lot of assessing and lot of individual one-on-one stuff, if an employee does become injured, particularly for something that could've been easily avoided with a bit of awareness. (HP1, 28:35)*

The participants mentioned a whole range of possibilities of using health education strategies next to existing safety training. They referred to this approach of health promotion in several different contexts, for instance for skin cancer prevention, diabetes, workplace bullying and mental health issues:

> *It's quite a good idea. If you can… because you get people talking about their health. If it's epidemics in things like type 2 diabetes and other things associated. I know myself I've developed type 2 diabetes and when you think back about it, if you'd been more aware, more conscious of it earlier on, it was probably preventable. You don't really know, but just maybe, if you can raise that awareness. (IM8, 27:16)*

I don't know what they do run, but I would think that… some educational stuff might be good. I hear along the grapevine that there's a lot of drug and alcohol use in that industry in particular. Lots of men stuck out on a boat out at sea together and so… It'd probably be good to do some education on the effects of that sort of stuff. Or giving them information about if you'd like to seek help in these areas where would you go. (HP1, 23:34)

As previously stated and depicted in figure 5.4, the responsibility of managers is rather passive within this approach of workplace health promotion, with the workers being the ones who need to show a change in behaviour. The role of the industry managers was not clearly defined by the participants and some suggested the provision of education be provided by local health services:

This could be something that could be done by health alliance workers and not generally by the medical doctors. So someone like a drug and alcohol counsellor could teach people about the dangers of chronic marijuana use, physiotherapists like a health service, public physiotherapist could teach people or an occupational therapist could teach people the right work and lifting techniques and all this. (HP5, 12:03)

Caring for and Looking after Workers

When describing their understanding of health promotion, the industry mangers revealed an unconventional approach of personal involvement with the workforce to support their health. A notion of 'looking out for each other' (IM4; SH1) and 'mateship' (HP6) was identified within the commercial fishing industry. Several industry managers and stakeholders mentioned proactively building relationships and socialising with their workers. They illustrated how they personally took an interest and looked after their workers:

Look, we make sure they've got long-term security. We've got after-hours insurance, all sorts of bloody stuff, and the guys should never miss out on... any week to miss out on a dollar so they're not missing out on mortgage payments and all that sort of jazz. So, the pressure is right off 'em as far as that goes, but I'm saying that you don't want to get into a bloody welfare company and we're certainly not that. So, you've just got to... it's just a matter of looking after guys and hopefully they appreciate it. (IM2, 03:05)

As perceived by the industry managers, this involvement and looking after workers was mainly achieved through a personal bond with the workers. For this reason the industry managers promoted socialising with the workers by hosting barbeques after work. According to the industry managers and supervisors this kept up work motivation and was therefore perceived as a type of health and well-being support:

I mean we try to. We try to create a friendly environment. We have barbecues, we have beers on Fridays and little functions, little things like that. We supply food for the guys on a day-to-day basis. [...] That's about all we can do, it's just little perks. Then maybe buy some uniforms, take the skippers out for lunch or tea every now and then. [...] No, you've always got to think, if there's a little thing that might make the workers feel that we care more and, you know, if there's something... It's very easy that they think you're just a guy, but that's what we do, we get together and have beers, and we mingle, and have Christmas functions, and two or three parties a year [...]

I try to be friendly with the guys and know all the guys and motivate them after they've done a good job. I either take some beers down and say you know, 'At the end of the week, you've done a really good week, let's have a few beers.' And tell them they've done a good job. I know that goes a long way, a long way, little things like that. So I think that's very important to keep them motivated and... especially if it's a job that can get a bit monotonous for a long period of time. (IM6, 09:33)

Further interview statements showed that the idea of personal involvement aimed at supporting workers in their personal well-being. This included helping workers through financial problems, as well as supporting them in drug and alcohol issues. As the industry managers pointed out, workers needed special attention if they were turning to drugs and alcohol:

> *You got to recognise when people are overloaded, you know, running around like idiots and they can't manage what they're doing well, you got to make decisions to sort that out... Unless you sort out and try and do something about it and then get them back on track, it does become an issue, because they then end up with frigging money problems and all sorts of shit... They end up whingeing and in the end it's, 'Oh fuck this company and this and that, they're not doing nothing.' So, you've got to take a little bit of notice, but in saying that, that's a hard thing to do I suppose for those big guys, 'cause you're paid to run a company, not go and bloody mollycoddle these people that can't stop bloody drinking or smoking or whatever. [...] In the end, you've got to realise your workforce bloody… it runs your company. Without it you bloody... you can't do nothing so… you do have to look after them in the end. [...]*
>
> *Yeah, we've done that a few times with guys that are… obviously turn up at work half pissed and a couple of them... Well, one guy actually fell between the boat and the jetty and we all laughed our tits off at the time. But in the end you had to have a chat to him and say, 'Look you're going to kill yourself if you don't pull your head in.' And you've got to mollycoddle them over six months to get them back on track and that's what you do. But, the big guys haven't got time for that, so what do they do? They do a drug test, they turn up pissed, 'See you later.' (IM2, 11:16)*

Even though this approach might not be professional enough and could be dismissed as mere socialising, it seemed to be of importance to this industry sector. In comparison to the approaches previously identified, this way of understanding includes a more active role by the employers, who take on personal responsibility for their workers. One of the stakeholders suggested strategically utilising the notion of supporting one another within the fishing industry as a strategy for drug prevention:

Substance abuse, yes. Providing education or assistance with that or just a, you know... So workmates could help with workmates rather than even involving management. That would be a better way to go about it rather than someone having to ask someone above from them. (SH5, 18:49)

Empowering Workers

Another way of understanding of workplace health promotion, which was detected mainly in the stakeholders' responses, was that of enabling workers to take control over their own health. As one of the stakeholders explained, the workers in the fishing industry needed to be equipped with skills that ultimately empowered them to 'look after themselves' (SH2; IM8) and cope with their situation:

I think the best thing we can do is equip our people that we work with, with as much leadership skills as possible, so that they have the ability to say 'Look, I don't know' or 'No, I don't want to do that', or have strategies to look after themselves. I think that's the best way, and one of my roles is to empower them, the men that I work with, to do that... to really show a lot of leadership in their work and have the confidence and...It's all part of it, isn't it? [...] I think if you can develop leadership skills in people then you improve their whole well-being and their whole health generally, and managing stress isn't a day to day conflict. (SH2, 23:20)

It becomes evident that this approach of equipping workers with skills can ultimately result in an increased self-responsibility, empowering workers to be accountable for their own health. One industry manager, who was familiar with workplace health promotion strategies, stated the importance of empowering workers. This understanding of workplace health promotion points to a responsibility of the employers to encourage and empower their workers and calls for shared responsibility. This strategy was fairly unknown among the participants and referred to as a 'grey area' (SH5) by one of the interviewees:

So as far as employers go, I think that they fulfil their duties quite well. There's this grey area of encouragement or promotion that you're talking about that maybe could be improved upon. But I think that it's in our industry that safety and health are taken quite seriously, because it is a quite dangerous industry to work in. (SH5, 10:56)

Aligning Environmental and Cultural Factors

The most complex and proactive way of understanding of workplace health promotion that participants showed in the interviews focussed on management approaches and the work environment. Several participants referred to structural components and factors of work organisation as influential to workers' health. This approach includes putting workplace health promotion strategies on the employer's agenda. Employers are thereby required to take on the responsibility for incorporating the concept of workplace health promotion into management strategies and structuring the work environment accordingly.

The example of skin cancer prevention illuminates this understanding of workplace health promotion, pointing to the need of taking workplace structures into account when wanting workers to internalise healthy behaviour, such as applying sunscreen. As one of the stakeholders depicted, time and support is needed to enforce healthy behaviour among workers, stating that the mere supply of equipment would not be able to meet these goals:

And I know that these days they supply hats and they supply sunscreen on the boats, but that doesn't mean again that the worker applies it. But you can't make someone put sunscreen on, if they don't want to. I understand that, but is the company giving them enough time to apply it? Or are they smokers with only five minutes… and they're trying to go to the toilet and get the drink, have a smoke, and then go back to work. And if maybe… if the deck manager or the skipper said, now everyone put on sunscreen before we start our harvest. That would make them do it. (SH5, 09:27)

Especially the management style was perceived as an important factor in contributing towards a support of workers in their health and well-being. Several interviewees made statements on the need for a flattened hierarchy and pointed out that they tried to make themselves 'approachable' (IM8) for workers, instead of ruling over workers like a dictator:

> *So they feel happy and feel that they can come to you and say things as well. And you know, they won't be scared to let me know what they think. I think that's very important as well. Some bosses can be, 'It's my way or the highway.' Like a Hitler. That's not how I do things and sometimes it's good, sometimes it's not good, but I think that's the way to go. (IM6, 20:15)*

Even though the industry managers emphasised the need to create a 'good atmosphere' in terms of organisation management and some showed to personally care for their workers, other participants doubted whether the employers valued their workers accordingly. Especially the health providers and stakeholders pointed to workers being treated as 'tools' that were 'used' and at whom employers 'cracked the whip':

> *Now, my perception of it is that the people that work for them and help catch the product are just basically tools that they use to assist them to get the product. (SH3, 23:57)*

> *They should change their work practices, but they're just working to deadlines and they're cutting costs. They just flog them. [...] Yes, one employer called their workers fodder, so you know, if he breaks down you get someone else. (HP3, 03:48)*

It becomes evident that in order to support workers' health a cultural change is needed, as one of the participants pointed out. Support from the management level, as well as a culture of worker appreciation were stated as key points.

> *Probably, the thing that I've noticed is that they don't listen to the worker to see how the job could be done better. They have this attitude that, 'I pay you to work. I don't*

pay you to think. Just do the job.' And they're not prepared to take on changes that are gonna cost them more time. As more time mean more money, less profit. So, I think that attitude is probably going, because a lot of the original bosses were European and bully boys and all hard fishermen and that's just the way they did it. (HP3, 09:35)

I think they need to change their whole culture at the executive level or corporate level within that business. And that is, not all of them even employ an occ. health and safety manager, or if they do, they just employ someone with no skills or qualifications and it's like a token gesture. [...] I think, it's gotta start at the corporate level or the executive level. If it doesn't, if they're not interested there, well it's not going to flow on. But how you change that, I don't know, not an easy task. (SH3, 26:48)

The prevailing culture within the fishing industry was portrayed as 'cut-throat' (SH2) and one of the stakeholders pointed to a need for social support structures for workers. According to the view of this stakeholder, a culture of support would be able to counter the workplace burden and the psychosocial pressures that the workers face:

I think you've got to look at the culture within the industry, and the culture is not about weakness. So I think opportunities for friendships and relationships, and to actually talk about stuff is probably more important, because it's a very competitive industry, pretty cut-throat. And yeah, I don't think the employers are going to worry about their well-being, but it's about how do you build the relationships in the industry to support one another more psychologically and mentally. (SH2, 19:38)

5.3.3 Theme 3: Factors Impeding Implementation

A whole range of barriers were identified that impede the implementation of health promotion strategies within the commercial fishing industry. All these factors impeding implementation that the participants referred to in the interviews were grouped into four subthemes: those linked to structural issues; cost and unknown benefits; distrust towards outsiders; the prevailing image of fishing industry workers. In the following section these are outlined in detail. A later discussion will explore which barriers could possibly be overcome and in what way in the participants' opinion concepts of health promotion are viable for this industry.

Structural Issues

The interviews disclosed that the commercial fishing industry grapples with an array of structural issues that hinder the implementation of health promotion programs. All participant groups pointed to unreliable working conditions, demanding working environments, itinerant workers and small-sized owner-operated businesses as specific barriers. Especially for enterprises with small numbers of workers, the approach of workplace health promotion did not appear feasible to some of the participants:

> *So what is a financial incentive for a small boat? We're talking about, let's say, a prawn boat, has three people on the boat normally, a skipper and two crew. He's a one-man operator. He wants to go out and catch prawns and he's not interested really in wearing a hardhat when they're pulling in the booms. (SH7, 24:31)*

Several participants highlighted that the commercial fishing industry was highly dependent on external factors and needed to adapt to environmental and political issues such as predetermined quotas. As the participants described, the companies would hire more or less workers depending on the present situation. Thereby the fishing industry was increasingly becoming a 'backpackers' industry' (SH8). An investment in casual staff was, however, not seen as worthwhile by the participants. Within the interviews a lack of responsibility for these casually employed workers was found:

Because if we had a core, full time employment, with no casuals, we would probably do it. Because we have the amount of casuals that we have, all the time... and you can't implement a process... For full timers, but not for casuals. (IM9, 11:01)

Another barrier the participants referred to was that of unconventional and unpredictable working hours and varying working environments in which the workers operate. They questioned whether an intervention would be able to reach the fishing industry's workforce:

And you know the demographics of where I work is work as well. You know, they're on the boats at 5 o'clock or 6 in the morning and they sometimes get back late at night [...] People are in different times and different areas, all the time, so it's really difficult to bring them all together, in that sort of environment. (IM9, 12:29)

The participants revealed there was no common ground in dealing with issues of health and safety and industry managers would go with whatever might work, 'horses for courses' (IM6), instead of following a clear strategy of health support:

You've got different skippers and different owners, who run their boats differently. And they have different concerns and they have different emphasis on each of those items as far as running their business. [...] So some skippers are very much at the end of the spectrum where they want to look after their crew, because they put high value on maintaining crew with experience and everything else. So I'd suggest those guys would definitely be focused on that. Then you have the whole spectrum all the way through the fleet. (SH1, 02:20)

Costs and Unknown Benefits

Almost half of the participants mentioned cost as another major barrier that hindered the implementation of workplace health promotion. Especially due to unstable working conditions and varying market demand, costs were viewed critically. According to the

participants the commercial fishing industry was hesitant to invest money for health promotion programs, with some industry managers stating such initiatives 'would be nice, but not possible' (IM5):

Hard to say 'cause I don't ... Everything in this industry is cost. It's a very tight. It's not a highly lucrative business all the time. It can be. You can lose money some years. Cost is always… seems to be… I mean, health and safety is number one, but then cost is number two. And then value for money. So it's […] the next decision about, 'Will people use it?' And sort of 'What benefit will the company get out of it?' (IM6, 17:39)

The notion of cutting costs within the commercial fishing industry and working under the pressure of limited resources became evident in the interview statements. The health providers questioned whether the health and safety of workers were compromised in favour of saving costs:

Like I said, you can tell them all this stuff. It's like wearing safety boots, and they'll still turn up in track shoes even though the rule says safety boots and they can't say, 'You haven't got your boots, go home get 'em', 'Oh, can't find them' , 'Are we gonna to work one short? Oh, don't worry, hop on the boat.' There's just not enough people who want to do the work that they can afford to get too stringent with all that other stuff, but ideally, they should. (HP3, 17:50)

It becomes evident that the main concern of the participants was an uncertainty of what benefits workplace health promotion would bring about relative to the investment made. Even though such programs had been discussed within several enterprises, there was too much uncertainty to put these into practice, and a notion of not wanting to 'open a can of worms' (IM9):

It's potentially something that we would look at. We have considered health monitoring, as in auditory, like hearing. And we've... looked at it. And we've gone: 'Hmm, should we do it or shouldn't we'. You know […] half of the issue is... when you consider this thing is: what's the can of worms that you're going to open by doing it.

So, it's something that we definitely consider every now and again. We've not implemented it though. [...] We did consider doing, you know, muscular-skeletal sort of testing... And looked at it and... We have a lot of casual workers. So to test every single person versus what you get out of it... We're not sure that the cost benefit would be... if it's... are there. And even though it's something that we've considered, we've decided that, you know, for it's about 180 to 200 dollars per person. So if you're employing forty people a year plus your full-timers, you know, that's a fairly... cost prohibitive type of exercise. That's like a third... we don't know what the gain is. (IM9, 08:19)

One of the stakeholders referred to a skin cancer screening program that had been offered to the industry managers a few years ago and was turned down for financial reasons before implementation:

I thought it was a great idea [skin cancer screening] and I forwarded the information up, but at the end of the day it was going to cost like 5,000 dollars or something to do, so that the company decided against it, even though it got put to them. But yeah, that was one that I thought would be a really good one. (SH5, 15:25)

Distrust towards Outsiders

Throughout the interviews a strong notion of distrust of regulatory bodies and outsiders to the fishing industry became apparent. The stakeholders described the commercial fishing industry as very critical towards 'red tape' (IM10) regulations and pointed to a strong 'anti-government sentiment' (SH4) within the industry. The industry managers said that they felt they were victims of government regulations and did not trust systems imposed on them from outside. Negative reports on safety issues on vessels, as well as penalties for offending occupational health and safety regulations, were perceived as unfair and arbitrary. Some of the industry managers pointed out that they were forced to assume responsibility for things they could not influence:

We went through the whole OH&S gamble and got audited five or six years ago. We got all the processes in places but it's just bloody... So it's okay, but for a small company we've actually got hands on. You work with the guys. It's a bit of overkill as far as I'm concerned, but in the end I suppose you've got to show a process is in place otherwise the bureaucrats come and scream on you when something bloody happens. So, we try and... I was going to say manoeuvre around the stuff, but we comply in our own way. That's all I'm saying. (IM2, 01:12)

You have to fill out a heap of paper work and I think the way those WorkSafe organisations work it just... they need someone to blame, someone to sue. So they'll find a hole in the whole process and that will be: 'Alright, it's your fault'. Which is, yeah, I don't think it's the right way to go about it, but anyway. (IM7, 08:42)

The stakeholders highlighted that the industry's perceptions of outsiders hindered cooperation with support services. They pointed out the difficulty of approaching the fishing industry and illustrated how the provision of information was often perceived as a threat and not trusted:

They're very independent, and they don't seem to get… they don't seem to be able… you know, when I was going around offering [...] they were too proud to take the advice [...]. Very independent bunch. And I found, when I was doing that job that you would go around and visit a fisherman and offer them the service and you just became the punching bag. You were the government guy that you know 'Ah bloody, another well-paid bloody government worker, bloody coming around here'. (SH4, 13:16)

Image of Workers

The participants made a point of describing the workers of the fishing industry as different from other workforces, pointing to some unique characteristics that in their perception could impede the utilisation of workplace health promotion offers. The stakeholders and health providers depicted the workers as 'very independent' (SH4) and

as 'cowboys' (HP3; HP4) that have to manage to survive on their own. They stated that workers would try to avoid going to the doctor and rather 'patch themselves up' (SH8). According to the interview participants, workers suppressed injuries and were reluctant to admit to weakness or illness. Several of the health providers referred to a tough, masculine role the workers were taking on, describing the workers as 'blokey' (HP3) and 'macho' (HP1):

> *I think it's probably an industry where it's fairly heavily male dominated and probably a lot gets not reported on, because they don't want to seem weak within the profession or anything. [...] It's still in these areas usually males have quite a, like a masculine role still, and yeah, all the work lately on being able to speak out about depression and those sorts of initiatives has helped that, but they're still quite a lot of the stoic sort of male representatives in town. (HP1, 09:35)*

For this reason the participants doubted whether workers would take up and utilise offers of workplace health promotion, describing the workers as rather narrow-minded and uninterested in health issues:

> *You can lead a horse to water, but you can't make them drink. I think a lot of them do as much as they can. But they're just, they're dumb. They're dumb and they're bully boys and they're tough. (HP3, 17:09)*

5.3.4 Theme 4: Possibilities of Utilising Workplace Health Promotion

A range of drivers and facilitators to implementing workplace health promotion initiatives within the commercial fishing industry arose from the interviews. In the course of the interviews the concept of workplace health promotion was further explained to the participants. With this further awareness of what health promotion could entail, the participants strongly picked up on the idea and showed a high level of interest towards such an approach. They stated that the fishing industry was good target group and pointed to the potential of workplace health promotion by offering examples of deployment for this industry. Four subthemes of drivers and possibilities of utilising WHP were identified that entailed topics of interest, opportunities for implementation, company benefits and the possibilities of staff retention.

Health Promotion Topics

Several areas of health needs and possibilities for health promotion approaches were identified throughout the interviews, with the participants pointing to a range of issues for which health promotion programs could offer support. Especially skin cancer prevention seemed to be of interest to the participants, as high levels of sun exposure were mentioned as a concern in several interviews. The industry managers questioned whether the supply of equipment was sufficient to protect workers and showed themselves unsure how to make workers aware of the risk of skin cancer:

> *Certainly sun, probably a good one because they all work outside all the time. We have policies on wearing hats and shirts and sunscreen, but it only goes so far, so… But we don't have anything like that in place. But I think it's quite a good idea. And certainly something worth considering. (IM8, 14:45)*

Despite the previously stated disinterest that some workers were seen to have, other participants pointed out that other workers were health-conscious and would show an interest in utilising health promotion programs:

But look, I think...I think particularly the young ones are very health conscious. [...] I think free health checks… So to make that free, you'd make it easier, and it would be fantastic. And the younger guys are likely to go to the gym. So I think it would be of interest to our sector. Definitely. (SH2, 15:40)

Additionally the interviews revealed an uncertainty in the industry managers of how to offer health support and how to approach workers regarding health issues. The industry managers pointed out that they tried to support their workers in such matters, but it became evident that they were lacking the knowledge of how to do so. Especially for issues of mental health, a clear need for a strategy on how to address such issues was identified by the participants:

And certainly if there's information available on sort of mental health and general health programs that are available to the workplace, we would certainly like to see that. I'm not aware of anything in that area. (IM8, 26:11)

Opportunities for Implementation

Despite the identified structural issues that make an implementation of workplace health promotion difficult within the fishing industry, some participants identified possibilities of integrating health promotion strategies. According to the participants the close interaction among workers and supervisors in small businesses made health support easier than within large companies. Moreover, the participants emphasised the possibility of incorporating health promotion measures into less work-intensive times:

We certainly have opportunities where we could do that with minimal cost to us. So I think it's possible. [...] We're quite a seasonal business, this one, so we have a really busy period from when they start fishing which is about now. The guys will go to sea in the next week or two, and then they'll be really busy until we finish harvesting in August. [...] But then we have a downtime where we do all that maintenance and we are consciously targeting training, trying to develop people that show potential with lower levels. Get them engineer's training, skipper's training, other vocational

training. I don't see any reason why we couldn't consider that. It'd probably be quite a good idea. (IM8, 14:19)

They only travel at one knot so it can take three weeks to bring a cage of tuna back. And in that three weeks, the fish just need to be checked and the nets need to be checked and they may need to be fed. But other than that, there's not a lot else to do. And I think that it's a real… the workers are getting paid really good money to go out and do this and I've always thought that it would be a real opportunity to… if you've got the boys there and you've got… they've got time on their hands to up skill to train to get something constructive out of them. (SH5, 04:45)

Even though several participants had mentioned the large group of casual workers and the difficulties of working with transient staff, other participants pointed to a group of workers that saw their work as an integral part of their life. According to the perception of the stakeholders, many workers within the fishing industry had a strong passion for their work and said that their lives revolved around the industry. This dedication was referred to as a 'strong motivator for change' (HP7) by the participants:

I think the work itself, I think people love. That's why they do it, so there's no doubt about that. I think the relationship's more the morale and success of fishing as opposed to the actual work itself. That would be my estimation. (SH2, 01:45)

Company Benefits

Several benefits arising from the utilisation of workplace health promotion were recognised by the participants during the course of the interviews. As stated earlier, the managers themselves were looking for ways of supporting workers that were experiencing mental health or stress-related issues. Moreover the industry stakeholders stated that they were frustrated with the way the fishing industry was portrayed in public and with the policy decisions that were being made. For this reason the utilisation of workplace health promotion strategies to enhance the industry's image was picked up upon by the participants.

Generally, a clear statement of interest by the participants was made towards the utilisation of workplace health promotion approaches. The interviews revealed that several industry managers had started taking measures of health support into consideration. Other participants, such as the health providers, pointed to increased motivation of staff and improved productivity as the ultimate goal of workplace health promotion:

> *And I think like a lot of companies we're getting better and better at that all the time. I think for the most part, there are two things that are well aligned, because they're in the same interest to your own company as well. If people are healthy and well, and like coming to work, they're more productive. That helps you as a company. It's not a very hard sell that. (IM8, 22:45)*

The following quote not only shows the perceived company benefits, but again points to the need for a cultural change within the industry and shows that valuing of workers as 'people' would prove beneficial to the industry.

> *Well the cost and the time and things like that to the employer when there is a workplace injury would definitely be probably the main selling point. [...] So it would be time and resources and money down the track that you would be putting your money up front for. And also, I mean I am sure the productivity of the employees is better when they feel they are getting, yeah, well looked after… like looked at as people, not just employees. So providing those assistive services often goes a long way to workplace morale, which goes a long way to workplace productivity and things. So yeah, in a roundabout way to get to there. (HP1, 29:09)*

Staff Retention

The interviews revealed that the main selling point for workplace health promotion in the commercial fishing industry was that of staff retention. Due to the emphasis that the participants put on the necessity of retaining staff, this was examined in detail and fleshed out as a separate subtheme. In almost every interview, the retention of good

workers, tying them to the company, was stated as a large problem. The participants explained that other rural industries recruited workers, paying higher wages and in their perception draining qualified staff from the fishing industry. The participants showed concern over the high turnover of staff and were therefore looking for new and innovative strategies to retain workers. They stated that the industry has to be competitive and plan ahead to be able to sustain itself as rural industry:

It's gonna have to change dramatically. There's an exodus for the mining and as the mining becomes more prominent around here, why would you go out and risk your life bouncing around on a ring for 19 or 20 bucks an hour when you can go up there and earn 60, but work long hours? They're gonna have to come out with something that's gonna give people the incentive to stay. And I think that's not only improve wages, but improve conditions. [...] Some have recruited the good ones and try to hang onto them. And they're doing alright, but they have to offer that incentive, that financial incentive to do it. And they've gotta get a reputation as a company that looks after people and not many of them have got that. (HP3, 10:49)

So I would think that many businesses would be looking at new innovative and proactive ways in which they could offer benefits to their employees outside of just purely earning a living from fishing. So, I would think that they would probably be a bit foolish and short sighted if they didn't. (SH6, 10:25)

Even though the participants recognised a need for change, the approaches to date do not show a clear strategy and are more concerned with reasonable working hours and 'being nice' (IM6) to the workers:

The industry is confronted with changes in competitiveness, so more and more people are looking for jobs in the mining industry. It's something we can't compete in terms of cost. You know, we can't, we couldn't go to that level of paying people to hold people. So we have to have a look at other ways we do it. So a part of it's been about making jobs easier. So going away more from labour to operator and looking more at what reasonable hours are. (IM8, 05:18)

5.4 Discussion

5.4.1 Key Findings

The interviews revealed that the concept of workplace health promotion is not high on the agenda within the commercial fishing industry, thereby confirming the findings of the integrative literature review (Chapter 4). Many participants were not aware of the idea of health promotion and the term needed further explanation during the course of the interviews. However, the industry managers were eager to learn about the concept of workplace health promotion programs and revealed several areas where the implementation of such strategies would be beneficial to the industry. The participants discussed various industrial characteristics to take into account. The key findings, informing the creation of a workplace health promotion framework and answering the overall research objectives, are presented in the following sections.

Targeting Perceived Health Needs

The interviews showed that the participants were well aware of the health risks that workers of the fishing industry faced. Even though injuries were often accepted as in the 'nature of the game' (IM4) by the industry managers, most participants showed concern over workers' health and well-being. The participants suggested using approaches of raising awareness and education for the issues of skin cancer, diabetes and workplace bullying. Combined with further elements of health promotion, this approach could be a valuable asset towards a framework for workplace health promotion for the commercial fishing industry.

A strategy of how to be more proactive and offer a more comprehensive support approach, beyond that of education, was only marginally apparent. The fear of penalty through the regulative bodies of occupational health and safety hindered the industry from assuming responsibility over workers' health and openly communicating health risks. However, awareness among the participants that the offering of equipment, adherence to safety regulations and educational measures alone were not meeting the identified needs of supporting workers well-being was detected. For this reason the

participants showed a great interest in the idea of workplace health promotion, stating that they would like to learn more about this concept.

Targeting Pressures and Mental Health Risks

Of significant concern to the participants were the high levels of stress and manifold pressures workers were facing. They described the workforce as a vulnerable group of people that were uneducated, had no social security and were at risk of falling through the cracks of society. Pressures arising through unreliable work and income, as well as dislocation from support structures impacted on the workers' well-being. As most of these factors were out of the workers' control they created a large burden, negatively influencing workers' health and often resulting in problems of mental health, as the participants revealed.

Even though mental health issues were mentioned during the interviews, they were often masked or not openly communicated. During the interviews it became apparent that the industry managers were not confident in dealing with these issues and stated a need for support. Some industry supervisors felt they personally had to care for their staff and parentally guide and support them. A notion of 'looking out for each other' and 'mateship' (SH6) was identified within the industry. The idea of utilising the notion of mateship is hardly found among traditional health promotion approaches, but could be useful for the development of a support program for this specific industry.

The interview participants often attributed the mental health issues workers were experiencing to their abuse of illicit drugs. According to the perception of the participants, this drug use itself again stemmed from workers' low socio-economic background, unstable working conditions and psychosocial pressures. This study therefore suggests that the workers themselves need to build resilience to be able to cope with the imminent pressures they encounter. A workplace health promotion program should therefore aim at increasing the self-responsibility of workers and enable them to manage imminent stressors. The necessity of workers learning to 'look after themselves' (SH2; IM8) was stated by two participants.

The importance of increasing workers' ability to manage their own health was further underlined through participants stating that workers faced a lack of adequate access to health care services. Doctors were often not consulted due to a lack of insurance or due to workers not wanting to lose out on a day's income. A framework for workplace health promotion should take the different levels of risk and pressures the workforce faces into account and include psychosocial aspects as well as stress management strategies to alleviate workplace demands. It is suggested that by empowering the workers to cope with imminent pressures and supporting them in building resilience towards the high levels of workplace demands, the identified burden of mental health issues can be tackled.

Targeting Staff Retention

As previously stated, the interviews revealed that the concept of workplace health promotion was widely unknown within the fishing industry of Port Lincoln and that no structured program of health promotion had been put into practice throughout the industry. Varying levels of responsibility could be detected among the different employers, but overall little proaction in supporting workers' health was identified. However, a large need to support workers and retain healthy and qualified staff within the fishing industry was raised during the interviews.

The interviews identified a large need to motivate workers to stay with the industry. According to the perception of the participants, the fishing industry was currently losing qualified staff to other rural industries, such as the mining industry, which was paying higher wages. During the interviews regional development experts stated that workers were being recruited by existing and newly emerging mining industries. Even though the industry managers were concerned about this current development, no strategies for improving worker retention were identified. The stakeholders underlined the need for the industry to create 'new innovative and proactive ways' (SH6) of offering benefits to their employees since monetary benefits within the industry were limited. According to one of the stakeholders it would be 'foolish and short sighted' (SH6) if such efforts were not made. As approaches of workplace health promotion can support staff retention as

outlined in Chapter 2, implementing such strategies at this point in time seems promising and would meet the industry's current need.

Targeting Environmental and Cultural Factors

It becomes evident that organisational factors, such as management strategies, need to support a program of workplace health promotion to reduce workplace pressures and support the worker in taking on responsibility for his health. Most participants were not aware of their role in implementing health promotion initiatives and the importance of taking environmental factors into account to support workers' health. One of the stakeholders stated the need to incorporate health promotion initiatives at the executive level in order for them to 'flow on' (SH3) and be accepted throughout an enterprise.

More awareness was found among the interview participants for the need to create a 'good atmosphere' (IM5) and a 'friendly' (IM6) social climate. Throughout the interviews the participants pointed out the necessity of a flat hierarchical structure and interaction with superiors on a level playing field. At the same time, however, equal level of communication and the valuing of workers were questioned during the course of the interviews. The industry's culture was described by one of the stakeholders as 'pretty cut-throat' (SH2). Several participants mentioned not wanting to invest in casual workers or transient staff. Also, injured workers often seemed to leave the industry quickly and were not reintegrated. As some health providers suggested workers were 'paid to work, not think' (HP3) and treated as 'tools' (SH3) and only kept as long as they were functioning accordingly. In several interviews a notion of workers being perceived as 'dumb' (HP3) by their employers and disregarded as 'unskilled duts' (HP3) was found.

It becomes evident that a cultural shift within the fishing industry is essential in recognising the workforce as a valuable and indispensable asset. Only if a culture of mutual respect prevails can a workplace health promotion program effectively support the workers' overall health and well-being. This may require a shift in thinking of interventions not being short-term programs but a part of the culture of the workplace.

Targeting Specific Industry Characteristics

A whole range of factors impeding the implementation of structured health promotion programs were identified during the interviews. When developing a health promotion framework for the fishing industry these structural issues have to be taken into account to be able to offer an approach that is of practical use to the industry and considers the industry's specific nature. For instance, to be able to implement structured programs of workplace health promotion, the factor of cost needs to be considered for small and owner-operated businesses with unreliable profits and unstable working conditions.

The interviewees pointed to a range of varying occupations and different environments in which workers operate. According to the participants, unreliable working conditions, work at unpredictable times and a high number of casual workers made the realisation of health support approaches difficult. It becomes evident that a workplace health promotion strategy will need to address these various settings and offer multiple approaches to cover the needs of the diverse workforce. Additionally, health messages appealing to the male dominated workforce, which was described as 'blokey' (HP3) by various participants, need to be utilised.

Throughout the interviews it became apparent that any health promotion program for the fishing industry must be closely intertwined with existing structures of occupational health and safety programs. At the same time notions of legislative constraints and punitive approaches that the participants perceive with traditional OH&S regulations need to be avoided. As the interviewees described, they felt 'blamed' (IM7) and 'screamed at' (IM2) by authorities and exhibited great distrust towards industry outsiders and government regulations. It becomes evident that it is essential not to impose a system onto the industry, but rather to work according to the setting and to collaborate with the various industrial bodies.

Despite the barriers identified, the industrial characteristics that support the implementation of health supportive measures should be utilised when creating a framework for workplace health promotion. Managers of small-sized businesses for instance perceived themselves in a better position and said that they had lower injury

rates than the large-sized businesses. The possibility of close communication and direct interaction between workers and supervisors or managers was stated as beneficial by the interviewees. The identified notion of 'mateship' and caring for workers underlines the personal involvement throughout various management levels and assists the implementation and utilisation of health promotion programs.

5.4.2 Strengths and Limitations of the Study

Rationale and Importance of Interviews

This study gives insight into the perspectives of managers and stakeholders and creates new knowledge about the possibilities of utilising workplace health promotion strategies in the commercial fishing industry. By including three different participant groups an in-depth investigation of the phenomena under investigation could be undertaken and a realistic account given. The semi-structured interviews allowed an interaction with the participants and therefore made it possible to explain and discuss the possibilities of the widely unknown concept of workplace health promotion. Rich accounts of workplace risks and occupational tasks were provided and the pressures that workers of the industry face illuminated. Moreover, underlying doubts and perceived barriers were uncovered and a complex and multi-layered reality presented.

Choice, Development and Implementation of Interview Method

Since there were no previously published interview guidelines matching the topic under investigation, these were developed from first principles with the advice of industry experts and tested through a pilot study. By developing interview guidelines specifically for this research and tailoring them to the participant groups, the collection of rich and meaningful data was achieved.

Most Port Lincoln industry sectors were covered in the interviews and a diverse sample of participants achieved. Despite prior notions of distrust towards industry outsiders, the interview results point to participants answering questions openly and addressing

perceived problems within the industry. Findings on health risks match the findings of previous literature and a genuine picture of reality was created through the interviews.

Measures to enhance the validity of this study were undertaken and are presented in table 5.3. By choosing participants from various backgrounds and with different perspectives, a rich variation of the phenomena under study was created and the credibility of findings enhanced. Further strategies, which were used to increase the trustworthiness, included the triangulation of data sources, the maintenance of an audit trail, the discussion of negative cases, an extensive examination of the interview transcriptions, and the use of extracts from the participants' narratives to support findings.

Table 5.3: Provisions made to address criteria for trustworthiness
(adapted from Cohen & Crabtree 2006; Lincoln & Guba 1985; Shenton 2004)

Criteria	Description	Provisions Made
Credibility	Providing evidence that points to the 'truth' of the findings	• Peer scrutiny of the research project and development of familiarity with participating industry sectors • Adoption of an appropriate, well-recognised research method and triangulation of different informant groups • Protracted examination of the interview transcriptions
Transferability	Showing that the findings have applicability in other contexts	• Provision of background data to establish a context of study to allow comparisons to be made
Dependability	Showing that the findings are consistent and could be repeated	• In-depth methodological description to allow the study to be repeated and the maintaining of an audit trail
Confirmability	Pointing to a degree of neutrality and showing that the findings of a study are shaped by the respondents and not researcher bias, motivation, or interest	• Use of extracts from the participants' narratives to support findings • Admission of the researcher's beliefs and underlying paradigm • Recognition of limitations • In-depth methodological description of integrity of research results

Limitations

Following the paradigm of realism, any representation of a phenomenon has to be critically challenged. The validity of knowledge gained cannot be taken for granted (Smith & Elger 2012), as the interviewees only depict a certain perspective and might not give an accurate picture of reality. Despite all attempts to make the data analysis as credible and confirmable as possible, it should be noted that an element of interpretative bias might remain. According to the realist paradigm "multiple valid descriptions and explanations of the same phenomenon are always available" (Hammersley 2004, p. 243), stating that all statements made are to be viewed as credible under the proposition of a realist stance. Therefore the preoccupations and standpoints of the participants need to be taken into account (Smith & Elger 2012). It must be considered that the industry managers and industry stakeholders interviewed might have answered according to their work-related positions and painted a positive picture of their support of workers. Participants stating that identified risks were under control and not of concern could be viewed as an answer tainted by social desirability.

The role of the researcher in the interview process also needs consideration in order to give a trustworthy account of the study results. In the setting of the rural fishing industry the contact with a university researcher did not seem common for many of the industry supervisors and low-level managers and they showed uncertainty about the interview process. The issue of distrust of outsiders to the rural community became evident throughout the recruitment process and it took a long time and personal involvement to win the trust of the participants. The topic of health promotion appeared to be unknown to many interviewees, leading to certain scepticism about the research intention. This could be removed by clarifying the interview's aims and purpose and the role of the researcher.

5.5 Conclusion

The qualitative study presented in this chapter explored the possibility of implementing workplace health promotion within the commercial fishing industry, identified drivers and barriers, as well as topics of interest for health promoting programs. By including three groups of participants and triangulating their perspectives, a broad insight into the phenomena under investigation could be gained. Even though a range of structural issues impede the implementation of health promotion programs, a clear need for a strategic approach to health support was stated. Due to workers migrating to other rural industries, health supportive structures at work may contribute in retaining good, healthy and qualified staff and is therefore of large value to the industry.

The culture of the industry was described as very competitive, with many psychosocial pressures resting on the workers, relating to low socio-economic background, isolation, the difficulty in maintaining stable relationships while out at sea and economic pressures. High rates of drug and alcohol use as well as mental health issues were described as central problems in the interviews, revealing a struggle of industry managers to deal with these. An active approach of educating and empowering workers, integrating social and emotional support and modifying organisational structures to enable workers to adopt healthy behaviour is suggested as the basis of a workplace health promotion strategy. A cultural shift within the fishing industry that values a healthy, qualified and motivated workforce is called for to allow such a program to be effective.

Further implications arising from this study will be consolidated in Chapter 7 and merged with the findings from the survey (Chapter 6) to give recommendations for a framework of workplace health promotion for the fishing industry.

Chapter 6:

Perspectives of the Workforce – A Cross-sectional Survey

6.1 Introduction

Conducting a detailed needs assessment has been described as an invaluable foundation upon which to base a sustainable workplace health program (East Midlands Public Health Observatory 2011; Health Education Authority 1999). Only by taking the perceptions of the workers of the fishing industry into account can a tailored health promotion intervention be created. For this reason a survey was conducted among workers of the Port Lincoln fishing industry to answer the following research objectives, as stated in Chapter 3:

A. To identify the key health issues and health promotion needs of the industry's workforce, as perceived by workers, industry managers and key stakeholders of the Port Lincoln fishing industry, as well as local health providers.

C. To identify the current workplace health promotion strategies and measures of health support adopted by commercial fishing enterprises of Port Lincoln.

F. To investigate workers' preferences in regard to obtaining information and identify drivers and barriers to using workplace health promotion offers.

Based on these research objectives, this quantitative study explored the perceptions of workers on the following aspects:

- Key health issues and threats to health arising from the work within the fishing industry;

- Current health support within their company and support from industry management;

- Measures undertaken to maintain healthy;

- Offers of workplace health promotion and support that would be of interest;

- Barriers of using such offers of workplace health promotion at the workplace.

Another aspect of interest was added to the list, following the face-to-face interviews (Chapter 5). Since the interviews revealed that a large number of workers were migrating to other rural industries, the possibility of retaining workers through measures of workplace health promotion required further exploration. It was therefore questioned whether workplace health promotion strategies could increase the job satisfaction of workers. This aspect of investigation was of interest, as the intention to leave one's job and measures of job satisfaction have been stated as good indicators for an overall work-related well-being in previous research (Nielsen, Bergheim & Eid 2013).

A cross-sectional survey was conducted among 179 workers of the Port Lincoln fishing, aquaculture and seafood processing enterprises. It achieved broad representation of different industry sectors, industry sizes and various occupations. This chapter describes the method of data collection used, presents the results of descriptive statistics calculated and shows analytical statistics of specific outcome variables. The findings are discussed and implications for a framework for health promotion for the fishing industry outlined.

6.2 Method

6.2.1 Population

The participants of this survey were workers employed within the Port Lincoln commercial fishing industry at the time of this study (in April / May 2013). As defined in the glossary, the term 'worker' comprises anyone working for a Port Lincoln fishing industry enterprise, regardless of their legal employment status. A broad array of different industry sectors (prawn, tuna, sardine, abalone, rock lobster and mussel), as well as differently sized industries, were targeted to give a representative picture of the entire industry. At the same time a wide variety of different occupational groups were incorporated, including workers on boats as well as land-based workers, such as those working at the wharf, in fish farms, in processing factories or in offices. Table 6.1 gives an overview of the participant inclusion and exclusion criteria that were defined prior to the recruitment process.

Table 6.1: Inclusion and exclusion criteria of the survey participants

Inclusion criteria	Exclusion criteria
• Person working with a company of commercial fishing within Port Lincoln. • Working in sectors of prawn, tuna, sardine, abalone, rock lobster or mussel. • Working in a processing plant or factory, an office environment, at maintenance sheds, on a boat, or at a wharf. • Currently hired, seasonally contracted or permanently employed with a company as defined above.	• Person working with companies of sport / leisure fishing or companies offering supply or maintenance to the fishing enterprises (e.g. boat builders, net or tool constructors). • Working with a company located in surrounding towns of the Eyre Peninsula (e.g. Louth Bay, Coffin Bay). • Currently unemployed or retired.

6.2.2 Recruitment Methods

Sampling

The reported numbers of workers in the fishing enterprises of Port Lincoln vary largely, which is probably due to seasonal fluctuation and the hiring of casual staff. These varying numbers of the total population employed in fishing enterprises made it difficult to calculate a sample size. As stated in Chapter 2, it is assumed that about 10% of the working population of Port Lincoln is employed in the fishing or aquaculture industry (Newton et al. 2007), with the 2011 Census data of the Australian Bureau of Statistics (2012a) identifying 493 employees in commercial fishing enterprises.

Sample size calculations for prevalence estimates were based on a worst case scenario, which assumed that a prevalence of 50% is to be estimated with a precision of 6.5%. In total, n = 157 subjects were needed to satisfy these requirements. The calculations for univariate comparisons assumed a baseline prevalence of 20% and the requirement to detect an odds ratio of 3.0 across groups. A sample of n = 156 subjects was required to detect the requisite effect at the 5% alpha level with 80% statistical power. Multiple regression analysis generally aims at 15 cases per predictor. A sample of n = 157 subjects would allow for the evaluation of around 15 predictors in a regression model based on these criteria. Using the maximum sample size estimate, a total of 157 subjects was therefore aimed at for this study.

To be able to include the varying occupational groups, a stratification of different industry sectors and occupations was undertaken to allow for systematic sampling of participants. This sampling technique ensures that all relevant groups of participants are covered within the study when at least one representative of every possible combination of these factors is included. As shown in Chapter 3, the Port Lincoln fishing sectors of prawn, tuna, sardine, mussel, rock lobster and abalone were targeted for this study, and workers on boats as well as land-based workers included.

Recruitment Process

In April 2013 Port Lincoln companies agreeing to participate in the survey were visited by the researcher and questionnaires distributed in person. The recruitment of workers for the survey was administered in agreement with the management staff in order to ensure a safe environment for both participants and researcher and not to disturb work processes. For workers, who did not wish to complete the questionnaire on the spot, an envelope was attached to the questionnaire that allowed returning the completed form at the end of the shift, or over the following days. At the end of the questionnaire the name of who to return it to was stated.

Land-based workers were recruited at processing plants, maintenance sheds, shops, as well as in offices, in the same way as described above. A specific difficulty of this industry lay within tracing the working population, as they comprised a mobile, self-employed group that worked according to weather conditions and at irregular times (Carter 2005; Lawrie et al. 2004). These circumstances posed a special challenge to this research study. Workers on boats could often not be personally met due to irregular hours or being out at sea. The questionnaires were therefore handed to the skippers or supervisors to take onto the boats and disseminate among the workers. For workers on boats the majority of the questionnaires were distributed in this way, via 'gatekeepers' such as members of an industry association, supervisors or skippers. The attached envelope ensured anonymity by returning the completed form sealed in the envelope.

To be able to include small businesses of self-contracted workers who did not have an office, further questionnaires were handed out at the Port Lincoln wharf, under supervision of the Primary Industries and Regions South Australia (PIRSA) Fisheries, as well as with the support of industry associations. Again, envelopes were attached to the questionnaires and points to drop completed questionnaires were provided, thereby allowing for later and anonymous return. After the initial distribution of questionnaires, the researcher visited each workplace three times a week over a period of several weeks in April and May 2013 to follow-up on the questionnaires, remind staff of distribution, answer questions and motivate workers for participation. Through these regular follow-ups as many workers as possible could be surveyed within the given time frame.

6.2.3 Data Collection

Choice of Survey as Data Collection Tool

By gathering data at a certain point in time, surveys offer the possibility of describing existing conditions and give a broad overview of populations or programs, and measure generalised features (Cohen, Manion & Morrison 2011). According to Morrison (1993) the strengths of a survey are that it is economical and efficient, represents a wide target population and provides descriptive information. Surveys are therefore an efficient way of collecting data from many people at relatively low cost and within a reasonable time period (Schutt 2012).

A self-administered cross-sectional questionnaire survey approach was used for this research study. This was designed as a paper-pencil format, as opposed to an online survey, as many workers of the fishing industry were mainly outdoors and did not readily have internet access at their workplace. Compared to structured interviews, this mode of data collection offered the opportunity to collect large amounts of data using limited resources. As many fishermen worked on boats and at irregular times, only this approach seemed viable. By using a survey with mainly closed questions, the participants could complete the questionnaire in a timely manner and without further resources. The questionnaire could be easily distributed and completed in all working environments such as on boats, at the harbour or within processing factories. Moreover, the strategy of self-reported survey ensured anonymity of workers' responses. Especially with topics regarding personal health issues or other sensitive information, such as drug and alcohol use, confidential data collection strategies were advisable.

Existing Survey Instruments

As no research has been undertaken on the perception of workers regarding health promotion in rural industries, such as the fishing industry, no previously published survey instrument could be used. Therefore, this exploratory approach created a new data collection tool, specifically designed for this research. This newly developed survey instrument was informed through the previously conducted qualitative study and refined

by drawing on expertise from the industry. Existing tools of data collection formed the basis and were modified and integrated to create a tailored survey instrument. The existing tools informing the development of this survey instrument were those of general health surveys, as well as surveys used for collecting information within organisations on staff health, as well as needs assessments directed towards employees.

Health Needs Assessments (HNA) have been defined as a systematic method for reviewing the health issues that populations face (Health Education Authority 1999). They aim at identifying what affects workers' health and what actions are necessary to improve workers' health status. The Health Education Authority (1999, p. 1) states that health needs assessment is an "invaluable foundation upon which to base a sustainable workplace health programme" and points out its potential in supporting agreement on priorities and resource allocation. Data collected through such a needs assessment can include measurement of health status, health behaviour, beliefs and attitude towards a healthy lifestyle, perceptions of health needs and priorities of change (Health Education Authority 1999; Hector & St.George 2013). The most relevant type of needs assessment for this research was the so called 'interest survey', which addresses perceived health needs and the interests of employees (National Quality Institute 1998). Prevailing interest surveys, however, have not been used in academic research nor been evaluated and remain single attempts in data collection strategies, often created by communities or regional offices. They therefore did not provide a tool of data collection that could be used without further modification and tailoring to the fishing industry.

Another source informing the data collection tool of this research was the 'Quality of Worklife Questionnaire' developed by the National Institute of Occupational Safety and Health (2013). Next to other primary goals it aims at measuring the relationship between job characteristics and worker health and safety and identifying targets for interventions (National Institute for Occupational Safety and Health 2013). This questionnaire, however, does not address the interest of workers towards offers of health promotion or the possible barriers of utilisation. Additionally, the German 'Diagnosis of Health-Promoting Work (DigA) questionnaire' was utilised to inform the questionnaire for this research. The DigA instrument sets out to identify job stressors, job resources, and

the resulting positive and negative work-related health and well-being states (Ducki 2011). Both personal and environmental factors are explored and the relationship between conditions of work and workplace health identified (Greiner 2004).

The existing tools of data collection needed to be combined and tailored to match the specific setting of the fishing industry and, without modification, were not suitable for this specific research study. A unique instrument of data collection was designed to specifically explore the health promotion needs of workers within the commercial fishing industry. This is presented in the following section.

Newly Created Survey Instrument (FISHP)

Due to restrictions of space, time and attention span of the respondents, questionnaires generally need to be restricted in length (Williams, Purdy & Storey 2005), while still being able to explore the topic under investigation in depth. This is of special importance within the setting of the commercial fishing industry where workers need to be mobile, react to weather conditions quickly, and are often in unstable environments where an extended engagement with a questionnaire is not possible.

The data collection instrument designed for this study, the Fishing Industry Survey of Health Promotion (FISHP), comprised 30 questions on perceived health risks, health status, utilisation of health services, existing structures of health support at work and interest in taking up offers of health promotion, as well as barriers in doing so. By making this questionnaire concise and limiting it to four pages, it was suggested that participants of the fishing industry could complete it during downtime at work without disturbing processes. Moreover, the questionnaire used mainly closed questions, making response simple and quick, while at the same time free text fields gave participants the opportunity to add further comments. Several responses used scales to allow answers to be weighed, with the Likert scale being the commonly used response format for health status and similar items. The final question was an open ended question allowing for the participants to give further comments on the topic of workplace health promotion. The complete questionnaire is provided in Appendix IX.

The questionnaire followed recommendations of good questionnaire design, keeping the wording simple, non-ambiguous and concise (Bowling & Ebrahim 2005). Given the often low socio-economic background of participants, special attention was given to using easily understood language. Furthermore, by using a clear structure, sub-headings and a supportive design, participants were led through the questionnaire. The following five sections were created, offering guidance to the participants:

- Personal, demographic data (questions 1 to 3)

- Work characteristics (questions 4 to 10)

- Personal health management (questions 11 to 16)

- Health at work (questions 17 to 26)

- Workplace health promotion (questions 27 to 30)

A personal invitation to complete the questionnaire, an explanation of the aim of the survey and an assurance of confidentiality were stated in an introductory comment, as well as in the clear instructions and notes for completion provided. At the end of the questionnaire, notes on how to proceed further with the document and where to return it were stated. Questions on personal demographic data were limited to a minimum to allow for anonymity within the workforce. To allow for an easy, non-threatening beginning of the questionnaire, these were used as introductory items.

Due to the sensitive topic of health issues and injuries at work, the wording and language had to be carefully chosen. As the interviews revealed, many employers were not keen to discuss safety issues and injuries. Therefore the survey did not ask specifically for incidents, but posed the question what risks the workers felt they were facing and what injuries they felt at risk of suffering. Due to the qualitative study, which revealed that many workers did not feel comfortable in admitting to injuries, an additional question of having witnessed incidents was posed, thereby asking indirectly for this sensitive information. The use of drugs and consumption of alcohol were also not asked about directly, but rather hidden among lifestyle factors and healthy behaviour. In this way the questionnaire did not ask about the use of drugs, but rather about the avoidance of drugs, giving the issue a positive connotation.

To assess the comprehensibility and logical flow of the self-administered questionnaire, the survey instrument was piloted and modified accordingly. In the first instance advice was sought from industry experts such as industrial inspectors who knew the fishing industry well and could confirm the accuracy of the questionnaire for this specific industry. In the second instance a pilot was conducted among a small group of workers from another rural South Australian fishing community. These were asked to complete the questionnaire and afterwards comment on any problems or ambiguity they faced during completion. This allowed ensuring unambiguous wording of the questions, as well as overall comprehensibility and clarity of items (Armitage, Berry & Matthews 2008; Rattray & Jones 2007). No major changes to the questionnaire were suggested by the participants of the pilot test, but several minor changes were undertaken to further clarify some of the survey questions and response options.

6.2.4 Ethical Considerations

As previously stated, ethics approval was granted for this research by the HREC of the University of Adelaide. For the quantitative study the following provisions were made to ensure ethical conduct to protect participant rights, confidentiality, dignity, and privacy.

All data collected from the survey were transferred from the questionnaires into an SPSS database by the researcher. As the questionnaires asked for no personally identifying data, the database contained no personal information and did not allow any connection to the individual person. Through a code printed onto each questionnaire the researcher was able to link the questionnaires to the workplaces where they were completed. All original questionnaires as well as the coding scheme remained confidential, with only the researcher having access. Any results coming forth in the analysis that refer to small numbers of workers and might be attributed to particular workers are not published.

On the questionnaire the participants were informed about their right to leave sections blank or not complete the questionnaire at all, without consequences or penalties. They were further informed about the purpose of the study and the confidential handling of

data, as well as ensured anonymity. Completed and returned questionnaires were taken as an implied consent to participate in the study.

6.2.5 Data Analysis

Data Management

The responses were manually coded and entered into a Microsoft Excel spreadsheet, double checked and imported into IBM SPSS Statistics 22 for analysis. After checking the data range of each variable, using scatter-plots and frequency tables, to detect potential errors at data entry, several steps were carried out for data cleaning and preparation.

The initial data evaluation revealed characteristics of the study sample that are presented in the following section. One questionnaire, with only the first few questions answered, leaving approximately 70% without response, was excluded from further analysis. This resulted in a sample of n = 179. All missing data appeared to occur completely randomly and the 'exclude cases pairwise' option by SPSS was chosen for handling the missing values. This is a preferred method of dealing with missing data (Pallant 2010) that minimises bias, while still acknowledging missing data, thereby providing an accurate estimate (Tharenou, Saks & Moore 2007). In general, very few occurrences of missing data were found throughout the questionnaire, with only two questions reaching a maximum of 4% of values missing. Therefore, when describing the characteristics of the survey participants throughout the data analysis, the reference sample is n = 179, unless otherwise indicated.

Further manipulation of data included collapsing the number of categories of a continuous variable, such as creating age groups, and merging data items by adding scores of single items to make up an overall score on a scale, such as number of threats to health. All these steps were accurately recorded in the codebook to keep track of any changes made.

Statistical Analysis

In this research study the survey undertaken was exploratory, meaning that no assumptions or models were postulated prior to the data collection. As not much is known about this workforce, apart from reports on injuries and safety, and no research has been undertaken on health behaviours or workplace health promotion approaches, this exploratory approach allowed for new information arising from the collected data. To explore the surveyed population of workers of the fishing industry in detail, a comprehensive descriptive analysis was undertaken. It involved the analysis of mean (M) and standard deviation (SD) or median (Mdn) and interquartile range (IQR). When presenting the results an accuracy of three significant figures is quoted for the sample of n = 179.

In a second step, relationships among the data were explored and analytical statistics performed. Chi-Squared Tests (χ^2) were used to examine the relationship between categorical variables, taking a probability criterion of $p < .05$, and an effect size being determined by the phi-coefficient. Differences between two independent groups on a continuous measure were examined using the Mann-Whitney Test, the non-parametric alternative to the t-test. This test compared the mean ranks, taking into account a probability value of $p < .05$ and determining the test statistic 'U' as well as effect size 'r'.

These non-parametric statistics are seen to be the best match, as they are ideal for categorical and ordinal scales, for small samples and when data does not meet the stringent assumptions of parametric techniques (Field 2013). Additionally the Kruskal-Wallis Test was used to compare scores on a continuous variable for three or more groups, determining the test statistic denoted by 'H'. For correlation of continuous variables a Spearman's Rank Order was conducted that examined the statistical dependence or strength of association between the two variables and determined the correlation coefficient 'r'.

In a further step bivariate analyses were performed on the determined outcome variables. All predictor variables that were significantly associated with the outcome variables were then further examined using multivariate analysis. This procedure could

inform how well a set of variables was able to predict a particular outcome. For categorical dependent variables, logistic regression was used to determine whether one or several explanatory variables significantly predicted a categorical outcome variable. The effect size of odds ratio (OR) and the corresponding 95% confidence intervals (CI) are reported. For count variables, the same procedure was undertaken using a Poisson regression. In all cases the entire model, as well as the contribution or importance of each predictor variable, was analysed, while checking for effects of multicollinearity. The statistical significance of each variable was assessed and, in addition, the strength of the entire model tested.

6.3 Results

6.3.1 Response Rate

With n = 179 completed and valid questionnaires, out of 342 questionnaires distributed among 19 companies and various owner-operated boats, a response rate of 52% was achieved. This rate is very high for this kind of research and can be regarded as successful for the sensitive topic of workplace health within the fishing industry. A study which explores the average response rate of surveys used in organisational research, states that response rates of 52.7% are a realistic expectation (Baruch & Holtom 2008). However, the workplace settings of these surveys are not comparable with those in the commercial fishing industry, where participant recruitment is much more challenging. Surveys undertaken by externals to the industry, without offering participants an incentive, often only achieve 10 - 15% response (Quinntessential Marketing 2014).

The high response rate can be attributed to the method of distribution through 'peers' or 'gatekeepers'. As described in the methods section of this study (Chapter 6.2), skippers, supervisors and association representatives supported the distribution of the questionnaire. Thereby, the timing of approaching participants could be optimised, the number of distributed questionnaires adjusted and thus the response rate increased. The satisfying response rate can be further attributed to the contact with industrial managers and stakeholders over an extended time period and multiple follow-ups. Also, the straightforward layout and clearly arranged set of understandable questions might have contributed to the response rate.

6.3.2 Descriptive Statistics

In the following section results of the descriptive analysis will be presented. These present the industry's characteristics, depict occupational characteristics and describe individual features of the workers of the fishing industry. To allow for consistency, the results follow the questions asked in the survey and are presented according to the structure of the questionnaire.

Participating Enterprises

The industry's characteristics were collected through an individual ID number on each questionnaire and therefore, unlike the other variables, do not represent statements made by the participants themselves.

The 179 participants were recruited from 19 different companies, as well as several owner-operated boats of the Port Lincoln fishing industry and reflect the various industrial sectors. As Port Lincoln's largest branch of commercial fishing the tuna sector is represented by over half the respondents (54.2%). The other participants come from the mussel sector (3.4%), as well as sectors of wild-catch, namely the prawn sector (25.1%), sardine sector (7.8%), abalone sector (5.6%) and rock lobster sector (3.9%) as figure 6.1 depicts.

Figure 6.1: Industrial sectors included in the survey
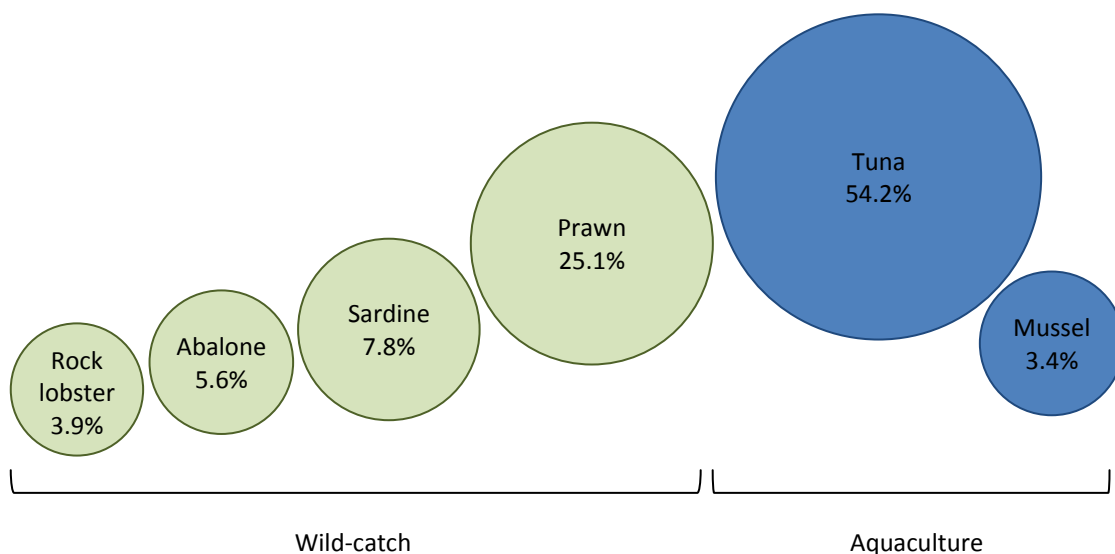
Of the participating companies, small-sized enterprises with less than 30 workers made up the largest group of companies with 60.3%. As table 6.2 shows, 28.0% of companies consequently qualified as large-sized companies, leaving 11.7% of questionnaires that could not be classified, as the company size was unknown.

Table 6.2: Company sizes included in the survey

Industry size	Number of workers	Percent of participants
Small-sized	1 - 29 workers	60.3%
Large-sized	30+ workers	28.0%
Missing	unknown	11.7%

Worker Characteristics (Questions 1 to 3)

The following sections summarise the distribution of each variable according to the questionnaire. Due to the diversity of the workforce, including workers on boats (skippers, deckhands and divers), workers in factories and processing plants, as well as office workers and management staff, the descriptive analysis will take variations among these groups of workers into account.

The median age of the participants was 35 years (Mdn = 35.00, IQR = 46), slightly younger than the average age of the general Australian workforce with 39 years (Australian Bureau of Statistics 2012a). Due to the asymmetric age distribution of participants the median is chosen, rather than the mean, to depict the age distribution of the workforce. Figure 6.2 displays the age distribution of all participants and contrasts this with the workers of the tuna sector, showing that with an average age of just over 32 years (Mdn = 32.62, IQR = 44) these workers are younger than the general workforce of the fishing industry. As figure 6.2 shows, within the tuna sector only 14.7% of workers over the age of 45 years can be found, which suggests that workers leave the industry at an early age.

Figure 6.2: Age distribution of the survey participants (by sector)
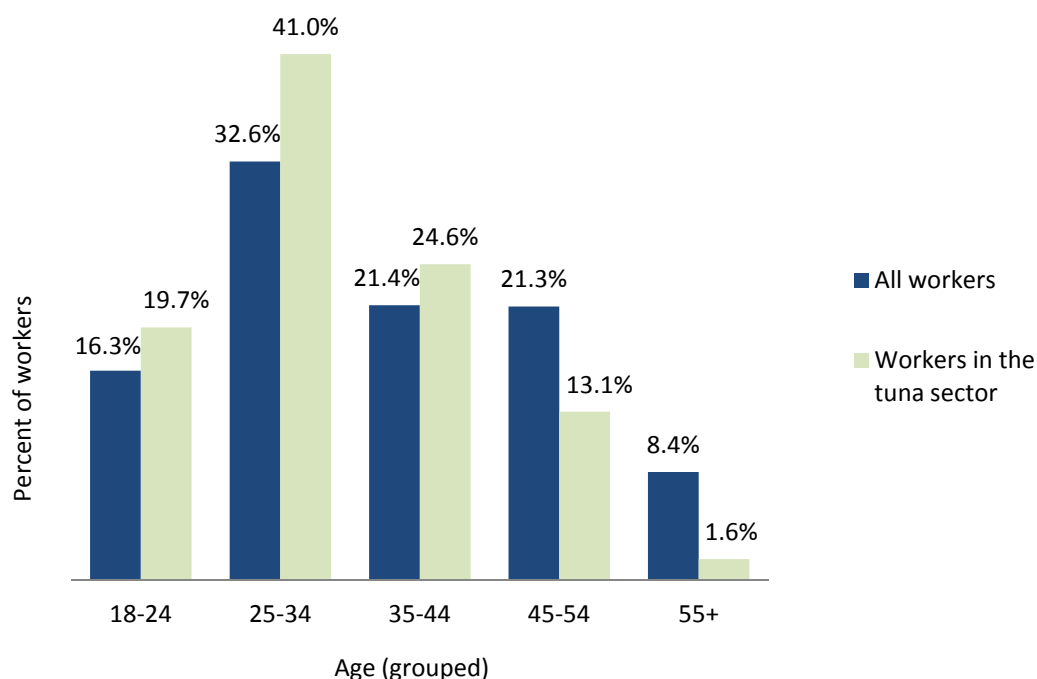
The participants of the survey were mainly male (86.6%) with 13.4% females in the sample. Of the participants working on boats, 91.2% were male, placing most females in office jobs and retail. Of all process workers 50% were also females. Among all participants, slightly more than half (53.1%) did not hold a trade, TAFE or university qualification, while 41.9% were qualified and 5.0% stated their level of qualification as 'other' or did not give an answer.

Work Characteristics (Questions 4 to 10)

The majority of the participants were workers on boats (62.6%), such as deckhands, skippers and divers. Further occupational roles of the participants were seafood or fish processors (13.4%) and office workers (14.0%), such as accountants, receptionists, management and administrative staff. The remaining group of other occupations (10.0%) comprised packers, drivers, engineers and mechanics.

Figure 6.3 depicts the different occupations represented in the survey, illustrating workers on boats, process workers and office workers and others. For the following analysis the workers on boats were often contrasted with land-based workers, which included the workers in processing, offices and other.

Figure 6.3: Occupational groups included in the survey
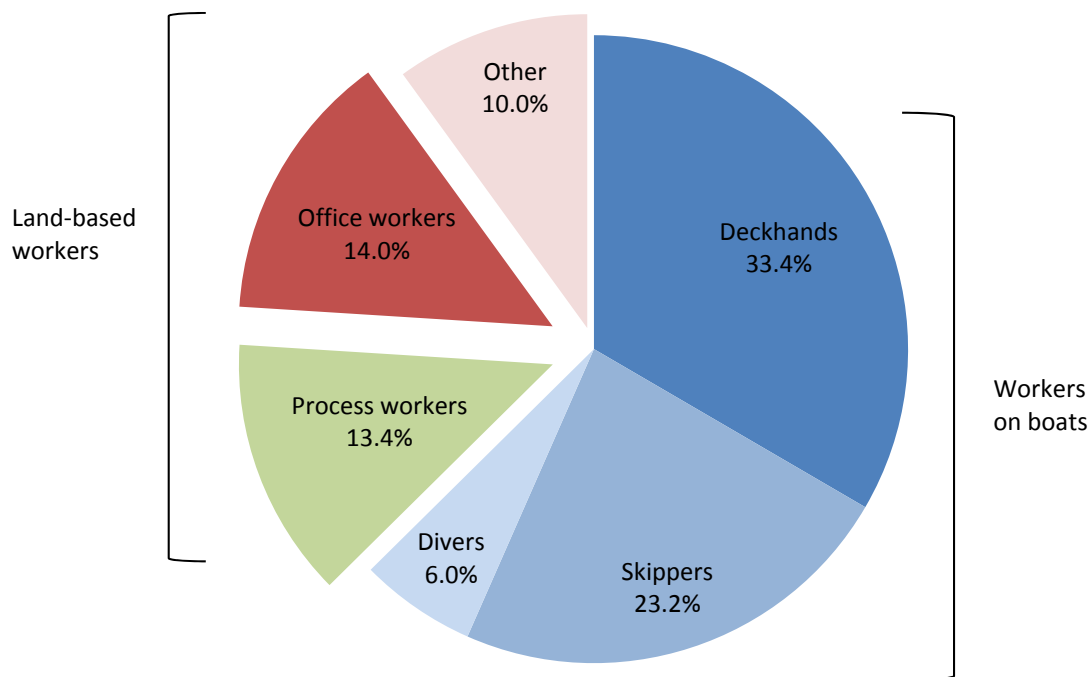
The length of employment varied largely among the respondents. Therefore the median was calculated, instead of the mean, indicating an average length of employment of five years (Mdn = 5, IQR = 42). Slightly less than a third (32.0%) had been in their current employment for two years or less and slightly more than half of the participants (52.8%) had been employed for five years or less. Next to these short employment durations, 29.1% were employed for more than 10 years.

The participants stated that they worked an average of eight months (235 days) per year (Mdn = 7.8, IQR = 10). Among all participants 35.8% were non-permanent staff and hired as casual staff. Of these non-permanent workers (n = 64) almost half (46.8%) were paid by share of catch and were not considered a 'worker' by WorkCover (Chapter 2).

 The survey questions on the overall job satisfaction revealed that half of the participants (49.2%) showed a large dedication to their job, stating they 'loved their job'. Four participants commented that the work was 'part of my lifestyle' and 'what I have done all my life'. 35.2% stated they were undecided what their job meant to them with five participants commenting that it had 'ups and downs', 'good days and bad'. Further 15.6% were not satisfied with their current occupation or felt stuck with it. Seven participants commented that it 'paid the bills' and that they were working for the money.

About two thirds of the participants (63.7%) had considered leaving the fishing industry once or several times. For those workers considering leaving (n = 114) the main reasons to do so were financial (45.6%), followed by time spent away from home (30.7%) and long working hours (27.2%). Despite the high risk of injuries, leaving the industry for health reasons or due to physically demanding work was stated by only 15.8% and 14.9% of the workers, as table 6.3 depicts. Other reasons (26.3%), which the workers gave as free text answers, were being unsatisfied with the current work conditions (seven participants), private reasons related to family, leisure or travelling (five participants), retirement (three participants), and other job opportunities (two participants).

Table 6.3: Reasons for leaving the industry

Reasons for leaving the industry (multiple answers possible)	Percent of workers considering leaving the industry (n = 114)
Financial aspects	45.6%
Time away from family / friends	30.7%
Long working hours	27.2%
Reasons of health and well-being	15.8%
Physically demanding tasks	14.9%
No up-skilling / qualification available	11.4%
Other	26.3%

Personal Health Management (Questions 11 to 16)

The participants rated their overall health positively, with 80.4% of the participants ranking their own health status as very good or good and 17.9% rating theirs as average, leaving 1.7% of the participants stating a poor health status.

The questions on the usage of health services revealed that the participants tend not to visit health practitioners regularly. These are only consulted if there is 'a severe issue', as 60.2% of the participants stated. As figure 6.4 illustrates, 12.6% answered they 'try to sort themselves out' and 7.5% do not attend health practitioners because of barriers. These barriers include time restrictions and services not being offered. The participants commented that 'doctors are not open when we come back to port' and that it takes several weeks to get an appointment (three participants). Further analysis revealed that workers on boats attend health providers less and try to sort themselves out more often than land-based workers (χ^2 (3) = 11.98, p < .01).

Figure 6.4: Participants' utilisation of health services
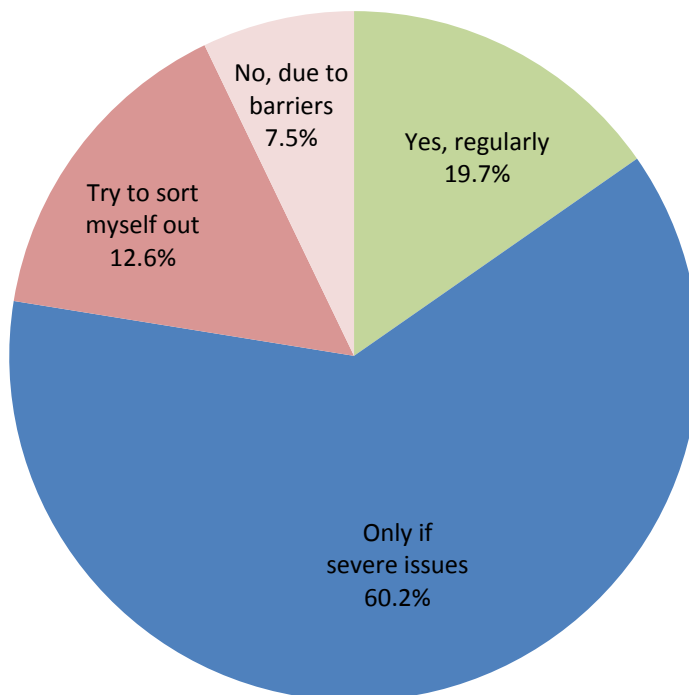
The participants perceived themselves to be largely in control over their own health, with 48.6% of the workers feeling very much in control of their health and only 2.8% feeling they had hardly any control. For workers on boats the perceived self-control was slightly lower than that of land-based workers, however, numbers were too small to quantify this correlation.

The participants pointed to a high concern of staying healthy with 96.6% of all participants utilising an average of three different strategies for a healthy lifestyle (M = 3.17, SD = 1.73). These strategies were 'eating healthy' (72.6%), 'doing sports' (59.2%) and 'relaxation' to balance stress at work (44.1%) and 'socialise' (36.3%). Less often 'check-ups' (19.0%) were used as strategies to maintain a healthy lifestyle. Other strategies, mentioned by 6.1% of the participants, included working, as six participants stated.

Among the strategies to stay healthy, the participants were also asked whether they avoided the use of alcohol and drugs to maintain a healthy lifestyle. Almost a third of the participants (30.2%) stated that they avoided drinking alcohol and half of the participants (49.7%) stated that they avoided drugs. These numbers suggest that a high number of participants consume alcohol and drugs. However, the level of drinking cannot be judged and the type of drugs is not stated. Participants could be referring to prescription drugs or illicit drugs. Taking these limitations into account, it can be stated that the levels of drug and alcohol use are significantly higher among male workers compared to female workers of the fishing industry (χ^2 (1) = 5.05, p < .05) and among workers on boats as opposed to land-based workers (χ^2 (1) = 7.66, p < .01).

When asked about their interest in gaining more control over their health and learning more skills to stay healthy, almost half the participants (45.8%) stated an interest, further 30.7% were undecided and 22.9% answered that they had no such interest. Later in the questionnaire, when asked about their interest in specific offers of workplace health promotion, the large majority of participants (93.6%) stated an interest in taking up such offers and pointed out particular interests that matched their needs.

Workplace Health (Questions 17 to 26)

The job tasks the participants performed include high risks, with 72.1% of all participants mentioning risks of injury through occupational hazards such as machinery or moving objects. Further risks the participants mentioned their work to entail included physically demanding tasks, involving repeated twisting, bending and lifting (70.4), as well as exposure to extreme weather conditions (68.2%) and repetitive tasks (47.5%). The main concern stated by 74.3% of all participants was, however, the risk created by long working hours through work on demand, work at unsocial times or shift work, as table 6.4 demonstrates. Together with the risk of working under time pressure, which was stated by 62.0% of the workforce, these circumstances pose particular threats to workers' health that go beyond that of physical injuries. Several participants emphasised the long working hours 'without adequate sleep' in the free text field of this question. As the following table shows, these risks are higher for workers on boats.

Table 6.4: Risks participants perceived to their health by occupational group

Risks perceived by participants (multiple answers possible)	Percent of all workers	Percent of workers according to occupational group		
		Boats	Processing	Office
Long working hours through work on demand, work at unsocial times, shift work	**74.3%**	88.3%	50.0%	41.7%
Occupational hazards such as moving objects, machinery	**72.1%**	82.9%	62.5%	-
Physically demanding tasks involving repeated twisting, bending and lifting	**70.4%**	81.1%	75.0%	-
Exposure to extreme weather conditions	**68.2%**	89.2%	n/a	-
Working under time pressure	**62.0%**	67.6%	45.8%	54.2%
Repetitive tasks	**47.5%**	57.7%	45.8%	-

The following question asked the participants to state which particular injuries or diseases they felt at risk of suffering as a result of their work. The survey revealed that the large majority (82.1%) of the participants felt at risk of suffering at least one health issue as a result of their work. On average the participants stated a risk of suffering three different work-related injuries or diseases (M = 3.43, SD = 2.77).

The main injuries that workers feel at risk of suffering were cuts and bruises (60.9%), chronic back pain (47.5%), sprains / strains (45.3%), fractures (33.0%) and ear and eye injuries (35.2%). Moreover, almost half of the participants (43.6%) stated they felt at risk of suffering stress-related or mental health problems. Workers on boats, more often than the other occupational groups, felt a threat from suffering work-related health problems (χ^2 (1) = 6.82, p < .01).

Figure 6.5 gives an overview of the health issues the participants felt at risk of suffering. It becomes evident that, apart from chronic back pain, most injury risks are higher among workers on boats. Also, the threat of suffering stress related or mental health problems is significantly higher, with more than half of the workers on boats (51.4%) perceiving themselves as at risk.

Figure 6.5: Perceived threat of suffering work-related health issues (by occupational group)
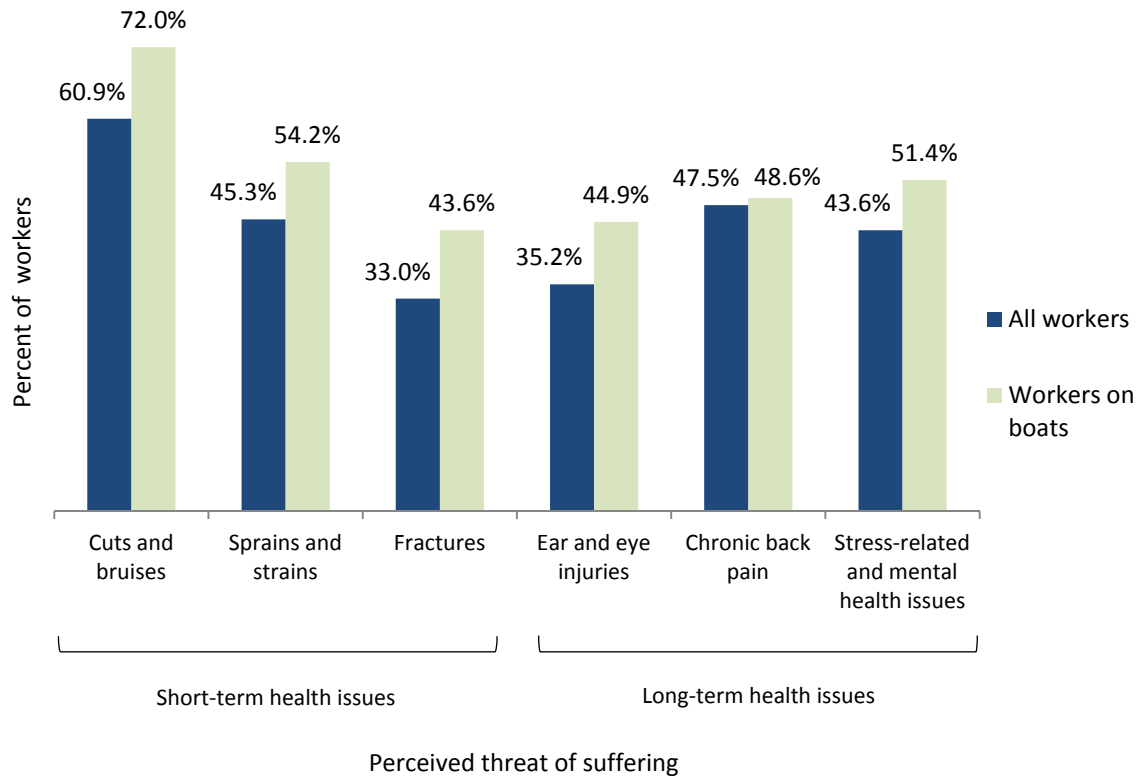
Of the participants, more than half (52.5%) stated they had suffered one or more injuries as a result of their work during their current employment. Of these, a fifth (20.1%) had suffered more than two injuries. Even more injuries were witnessed, with 60.9% of the respondents having witnessed one or several workplace injuries during their current employment, and a third of these (30.2%) having witnessed more than two workplace injuries. Again the number of workplace injuries is significantly higher for workers on boats compared to land-based workers ($\chi^2(1) = 8.83$, $p < .01$), with 40.5% having suffered two or more injuries, while in the occupations of processing 58.3% have never been injured.

Despite the large number of injuries and the threat of suffering further injuries, the participants stated that working kept them healthy (44.7%) or did not have an impact on their well-being (38.5%). Only 14.8% stated it made them unhealthy or restricted them in maintaining a healthy lifestyle.

When asked whom they held responsible for their health at work, a large number of workers (39.7%) stated that they alone felt responsible for their health at work. A total of 41.5% felt responsible for their health, but pointed out that this responsibility for health at the workplace should be shared with the employer. Only 11.2% held their employer alone for responsible, as table 6.5 shows.

Table 6.5: Perceived responsibility for health at work

Perceived responsibility for health at work				
My employer	Mainly my employer, but also myself	Both at the same rates	Mainly myself, but also my employer	Myself
11.2%	0.0%	5.6%	41.5%	39.7%

The succeeding question asked the participants in what way their workplace provided them with a healthy and safe working environment. The survey revealed that the participants mainly saw their own knowledge of 'knowing how to avoid injuries' (82.1%) as a helpful asset for a healthy working environment. It became evident that only a quarter of the participants (26.3%) felt supported by their employer in their health at work and only slightly more than a third (36.3%) knew where to obtain information regarding workplace health issues. That a safe working environment included time to work safely was confirmed by almost all participants (97.8%). A total of 65.9% of the participants stated they felt adequately trained and 63.7% stated that they had the necessary equipment to work safely.

Table 6.6 shows that, according to the participants' perceptions, most of the current offers of health support at the workplace revolve around the workers' themselves having to possess the necessary knowledge and skills. According to the workers' perceptions, the employers mainly supply safety training and equipment and infrequently take a proactive approach of offering support and underlining the importance of workers' health and well-being.

Table 6.6: Perceptions of health support at work

WHP approach	Perceived WHP offer (multiple answers possible)	Percent of participants
Workers' own knowledge	I know how I can avoid injuries at work	82.1%
	I know where I can get information and support at work concerning health / safety issues	36.3%
Safety training and equipment supply	I have the time to work according to the safety measures	97.8%
	I have the equipment I need to work safely and prevent injuries	63.7%
	I have received suitable training to work safely	65.9%
Health promotion and support	I feel my company / employer generally attaches great importance to workers' health	32.4%
	I have health support by my manager / supervisor	26.3%

When asked about their satisfaction with current workplace health promotion offers at work, only half the participants (50.8%) stated being satisfied with the current situation. The remaining 49.2% were either dissatisfied or only partly satisfied. In the free text comment two participants stated the lack of WorkCover coverage and lack of payment for medical expenses as problematic.

Sources that were used to obtain information on health at work were often, as stated by the participants, their supervisors or OH&S managers (66.5%). More than a quarter of the participants also mentioned workmates (26.3%) as a source of information, as seen in table 6.7. Family members (14.5%), health providers (14.0%) or the internet (12.8%) were mentioned less often as sources. When compared to land-based workers, workers on boats consulted other workmates even more as a source of information regarding workplace health issues, while health providers and internet were used less often.

Table 6.7: Sources utilised for information on health at work

Source of information (multiple answers possible)	Percent of participants
Supervisors, OH&S managers	66.5%
Workmates	26.3%
Family	14.5%
Health providers	14.0%
Internet	12.8%

Workplace Health Promotion (Questions 27 to 30)

The survey revealed that the term or concept 'workplace health promotion' is widely unknown with 87.7% of all participants stating they had not heard the term before or did not know the term, and only 12.3% stating they had heard the term. Despite largely not knowing the term of workplace health promotion, 86.6% of the participants gave a definition of what they thought workplace health promotion should entail. The remaining 13.4% stated they did not know what it might mean. Of those selecting possible meanings (n = 155) most participants (68.4%) thought that health promotion included issues of workplace safety. Just over 40% of the participants suggested that workplace health promotion might include enhance workers' self-management strategies (42.6%) or offering health services at the workplace (41.3%) and slightly less than a third (29.0%) suggested workplace health promotion would involve management support.

The survey revealed that, with 93.6%, the overwhelming majority of the participants stated an interest in taking up offers of workplace health promotion, leaving only 6.4% of all participants stating no interest. The participants pointed to a broad array of interests, and on average picked seven different WHP offers that would be relevant for them (M = 6.65, SD = 5.60).

Table 6.8 shows the top rated workplace health promotion offers as chosen by the participants that specified their interests (n = 161). Most interest was shown in offers of skin cancer screening, with almost 60% of all workers stating they would like to see their workplace offer such an initiative. Further topics of interest among the participants were corporate insurance rates (56.5%), testing of hearing and eyesight (54.0%) and immunisation programs (48.4%). Stress management or mental health support was depicted by over a third of all participants (36.0%) as topic of interest. In the free text space for comments, further suggestions of possible workplace health promotion offers made by participants entailed first aid training, confined space training and dental care.

Even though the interests are similar among all participant groups, when comparing the different occupational groups, process workers showed a higher interest in back training (57.9%) than the other participant groups, while stress management and mental health support was mainly named as a preference by workers on boats (38.2%). In contrast to the other occupational groups, office workers showed an increased interest in offers of physical activity, such as gym membership (56.0%) or relaxation courses (44.0%).

Table 6.8: Top ranked WHP topics of interest by occupational group

Rank	WHP topics of interest (multiple answers possible) (n = 161)	Workplace health promotion topics of interest by occupational group		
		Boats	**Processing**	**Office**
1	Skin cancer screening (59.6%)	Skin cancer screening (61.8%)	Immunisation programs (73.7%)	Corporate insurance rates (60.0%)
2	Corporate insurance rates (56.5%)	Corporate insurance rates (58.8%)	Skin cancer screening (68.4%)	Skin cancer screening (60.0%)
3	Ear and eye testing (54.0%)	Ear and eye testing (55.9%)	Ear and eye testing (63.2%)	Gym membership (56.0%)
4	Immunisation programs (48.4%)	Immunisation programs (45.1%)	Blood pressure checks (57.9%)	Blood pressure checks (48.0%)
5	Blood pressure checks (46.0%)	Blood pressure checks (43.1%)	Back training (52.6%)	Ear and eye testing (44.0%)
6	Visiting medical practitioner (40.4%)	Visiting medical practitioner (41.2%)	Corporate insurance rates (47.4%)	Relaxation (44.0%)
7	Gym membership (37.9%)	Stress management / mental health support (38.2%)	Visiting medical practitioner (47.4%)	Immunisation programs (40.0%)

When grouping the different types of offers of workplace health promotion into categories of provision such as information / education sessions, screenings, organisational changes, the following statements can be made: The largest interest of workers lies in offers of health screenings, in which altogether 83.9% of the workers showed an interest. These are followed by information and education sessions, which are of slightly less interest, but would still be used by half of the workforce (55.9% and 49.1% respectively). Organisational factors and changes that the employer could bring about, such as flexible working hours, time off work and provision of healthy food or corporate insurance rates would be welcomed by almost three quarters (71.4%) of the participants.

As described above, only 6.3% of the participants stated that they would not use offers of workplace health promotion because of a lack of interest. Therefore, for those participants stating an interest (n = 161) other perceived barriers in utilising offers of workplace health promotion were analysed. The main barriers participants perceived, which would prevent them from taking up workplace health promotion offers, were those of time constraints through a tight working schedule, as stated by 30.4%. A further 30.4% would not use a WHP offer as they were already satisfied with their health.

All barriers stated can be grouped into three overarching categories: barriers of work organisation (36.6%), such as participants feeling unable to leave their work space; barriers through issues of privacy (24.2%), such as participants not wanting health topics to be discussed at the workplace in front of workmates; and thirdly barriers because of personal satisfaction with the existing support and their own health (41.6%), for instance through the use of other sources. Table 6.9 shows all the barriers that the participants perceived in detail. For workers on boats, barriers of an organisational nature, such as time and space constraints, were higher, though not significantly, when compared to the land-based workers.

Table 6.9: Barriers towards utilisation of WHP offers

Barriers (multiple answers possible)	As perceived by percent of workers (n = 161)	Detailed barrier (multiple answers possible)	As perceived by percent of workers (n = 161)
Work organisation	36.6%	Time issues	30.4%
		Bound to the work space	16.1%
		Employer unsupportive of participation	8.7%
Privacy issues at work	24.2%	Employer involvement	14.9%
		Workmate involvement	13.7%
Satisfied with existing sources or current he	41.6%	Satisfied with health	30.4%
		Use of different sources	14.9%

6.3.3 Analytical Statistics

To be able to answer the research objectives and gain further insight into the participants' needs for workplace health promotion strategies, a detailed analysis of several outcome variables was undertaken. This analysis followed the research objectives posed in advance of the study and led to an analysis of the following four outcome variables:

- Factors influencing participants' perception of feeling a threat of suffering health issues as a result of current work (Threat of health issues);

- Factors influencing participants' interest in utilising workplace health promotion offers (WHP interest);

- Factors influencing participants' perception of barriers hindering the utilisation of workplace health promotion offers (Barriers);

- Factors influencing participants' consideration of leaving the fishing industry (Intent to leave industry).

The outcome variables were examined with regard to predictor variables influencing and determining these. Table 6.10 gives an overview over all predictor variables. In line with previous research that analyses factors influencing trends of occupational health, the predicting factors were grouped into work, worker, and workplace factors (Thatcher & Irvine 2010). By using bivariate and multivariate analyses, the predictor variables impacting on the individual outcome variable were identified and analysed.

Table 6.10: Outcome and predictor variables of the survey

Outcome variables	Predictor variables		
	Workplace factors	Work factors	Worker factors
Threat of suffering a work-related health issue Interest in workplace health promotion Barriers towards utilising workplace health promotion Intention to leave the industry (job satisfaction)	Workers in the tuna sector Workers in large companies (30+ workers)	Workers on boats (high risk occupation) Workers without employer support	Male workers Young workers (< 25 years) Unskilled workers Other-directed workers (low self-responsibility) Previously injured workers Intention to leave the industry (dissatisfied workers)

As shown in table 6.10, the outcome variable of consideration of leaving the fishing industry also functions as a predictor variable for the other outcome variables. In the following section the results of the bivariate and subsequent multivariate analysis for each of the four outcome variables are presented and the predicting factors for each outcome identified.

Outcome: Threat of Work-Related Health Issues

As the descriptive analysis has shown, the survey states high levels of injuries occurring throughout the fishing industry and highlights which injuries or diseases in particular the participants feel at risk of suffering due to their employment. To answer the research objective of which threats to health workers of the fishing industry perceive as a result of their work and to be able to target these perceived risks effectively, factors leading to this threat will be examined in detail.

Cross-tabulations revealed that 68.4% of all participants working in the tuna sector have suffered one or multiple injuries during their current employment. This rate of suffering an injury as a worker of the tuna sector is therefore significantly increased compared to the overall workers of the commercial fishing industry (χ^2 (1) = 19.31, p < .01). An increased risk of suffering workplace injuries is also found among workers of large companies that stated to have suffered injuries in three quarters (75.0%) of all cases. On the contrary, workers that felt in control over their health showed significantly lower injury rates (U = 2881.00, Z = -2.92, r = .22, p < .01).

In a further step factors influencing the threat participants felt of suffering (further) work-related health issues were investigated. Through a bivariate analysis, using a Poisson regression, each possible predicting factor was analysed regarding its influence on the outcome of health threat. For these calculations the number of perceived health issues was rated on a scale. The predictor variable of considering leaving the industry was excluded for this outcome variable, as the causal relationship is suggested being vice versa, with the threat of health issues predicting the job satisfaction and intention to leave the industry.

Table 6.11 presents each predictor variable associated with the perceived threat of suffering work-related health issues separately. The bivariate analysis examined each predictor singly and revealed that that the factors of working in the tuna sector, in a large company or on a boat increased the perceived threat of health issues. Also, workers who had previously been injured felt a 1.9 times (OR = 1.87) higher risk of suffering further injury than previously uninjured workers. It has to be noted that the predictor variables of company size and industry sector are confounded, as large-sized companies are only found within the tuna sector. Therefore it cannot be stated from this analysis, whether the company size or the industry sector initially influence the risk of health issues.

Table 6.11: Factors predicting perceived threat of work-related health issues (bivariate)

Predictor variable	Outcome variable: Threat of health issues OR 95% CI
Previously injured workers	**1.87*** [1.54; 2.28]
Workers on boats (high risk occupation)	**1.59*** [1.30; 1.95]
Male workers	**1.57*** [1.15; 2.13]
Workers in tuna sector	**1.36*** [1.12; 1.64]
Workers of large companies (30+ workers)	**1.34*** [1.10; 1.63]
Young workers (< 25 years)	1.21 [0.95; 1.54]
Unskilled workers	1.14 [0.95; 1.41]
Workers without employer support	1.11 [0.91; 1.36]
Other-directed workers (low self-responsibility)	0.87 [0.72; 1.06]

* significant with p < .05

A multivariate Poisson regression used all significant predictor variables arising from the bivariate analysis to create an overall model predicting the perceived threat of work-related health issues. By testing several predicting factors simultaneously, it is possible to adjust for potential confounders. Table 6.12 shows that according to this multivariate analysis two predictor variables influence the threat of suffering a work-related health issue: working on a boat and previously having suffered an injury. Workers who had been previously injured felt almost twice as much (OR = 1.77) at risk of suffering a further work-related health issue than workers who had not previously suffered an injury. Moreover, workers on boats were 1.4 times more likely (OR = 1.41) to feel at risk of suffering health issues in comparison to land-based workers. A test of the full model proved that the predictor variables described gave reliable explanations for the outcome variable examined.

Table 6.12: Factors predicting perceived threat of work-related health issues (multivariate)

Predictor variable	Outcome variable: Threat of health issues OR 95% CI
Previously injured workers	**1.77*** [1.44; 2.18]
Workers on boats (high risk occupation)	**1.41*** [1.12; 1.77]
Workers in tuna sector	1.19 [0.92; 1.53]
Workers of large companies (30+ workers)	1.03 [0.80; 1.34]
Male workers	0.95 [0.68; 1.34]

* significant with $p < .05$

Outcome: Interest in Workplace Health Promotion

To be able to answer the research question about how many participants and who in particular would be interested in utilising workplace health promotion offers, the outcome variable of interest in workplace health promotion offers was examined in detail. A scale was created, showing the intensity of interest, by counting the number of workplace health promotion offers that participants stated they would use. Cross-tabulations and correlation of variables showed that participants from the tuna sector showed a high level of interest in utilising offers of workplace health promotion, with 97.8% of the participants from the tuna sector stating specific offers that they would use ($\chi^2(1) = 6.10$, $p < .01$).

A Spearman's correlation of participants' age and their interest in health promotion offers revealed that younger workers stated an interest in an increased number of workplace health promotion offers they would utilise. This interest in workplace health promotion drops significantly with age ($r = -.22$). Moreover, workers that perceive an increased risk of suffering a work-related health issue also point to an increased interest in utilising workplace health promotion offers ($r = .23$). Workers taking on a large responsibility for their own health and maintaining a healthy lifestyle also showed a significantly increased interest in offers of workplace health promotion ($r = .25$; $r = .19$).

By using a Poisson regression, predicting factors influencing participants' interest in workplace health promotion could be identified and analysed. Table 6.13 shows the bivariate analysis, examining each predictor variable singly and identifying a whole range of predicting factors that impact on the interest in utilising offers of workplace health promotion. Young workers showed a 1.6 times (OR = 1.57) higher interest in utilising offers of workplace health promotion. It is further apparent that workers, who are dissatisfied with their current employment and consider leaving the fishing industry have a 1.2 times (OR = 1.16) higher interest in workplace health promotion offers.

Table 6.13: Factors predicting interest in workplace health promotion (bivariate)

Predictor variable	Outcome variable: WHP interest OR 95% CI
Young workers (< 25 years)	**1.57*** [1.34; 1.83]
Workers of large companies (30+ workers)	**1.45*** [1.26; 1.66]
Workers in tuna sector	**1.34*** [1.17; 1.53]
Male workers	**1.23*** [1.01; 1.49]
Unsatisfied workers (considering leaving the industry)	**1.16***[1.01; 1.33]
Other-directed workers (low self-responsibility)	**0.82*** [0.71; 0.93]
Workers with employer support	1.03 [0.90; 1.18]
Previously injured workers	1.01 [0.93; 1.20]
Unskilled workers	0.95 [0.83; 1.08]
Workers on boats (high risk occupation)	0.92 [0.81; 1.05]

* significant with p < .05

Predictive variables that were found to be significantly associated with the outcome variable in the bivariate analyses were included in a multivariate analysis that developed a model to predict the outcome of workplace health promotion interest. As table 6.14 shows, by testing several predicting factors simultaneously, it is possible to adjust for potential confounders and determine the variables contributing to an interest in health promotion. These comprise company size, worker age and maintaining a healthy lifestyle.

The multivariate analysis revealed that workers under the age of 25 years showed a 1.5 times higher interest (OR = 1.48) than older workers in utilising offers of workplace health promotion. Additionally, workers in large companies were 1.4 times more likely (OR = 1.36) to show an interest in workplace health promotion programs. The previously stated confounding of the predictor variable industry sector is cancelled out in this model and reveals the industry size as the actual predicting factor. A test of the predictive variables confirmed that these comprised reliable factors in predicting the interest in workplace health promotion.

Table 6.14: Factors predicting interest in workplace health promotion (multivariate)

Predictor variable	Outcome variable: WHP interest OR 95% CI
Young workers (<25 years)	**1.50*** [1.28; 1.76]
Workers of large companies (30+ workers)	**1.41*** [1.16; 1.71]
Male workers	1.14 [0.93; 1.39]
Unsatisfied workers (considering leaving the industry)	1.05 [0.92; 1.21]
Workers in tuna sector	1.03 [0.85; 1.24]
Other-directed workers (low self-responsibility)	0.92 [0.80; 1.05]

* significant with $p < .05$

Outcome: Barriers to Utilising WHP Offers

The in-depth analysis of the outcome variable of barriers only produced a significant response for the predicting factor of industry size, as table 6.15 shows. Workers of large companies perceive 1.4 times as many barriers as workers in small companies when wanting to utilise offers of workplace health promotion. As no further significant results could be obtained, no multivariate analysis was undertaken.

Table 6.15: Factors predicting perceived barriers towards utilising WHP (bivariate)

Predictor variable	Outcome variable: Barriers
	OR 95% CI
Workers of large companies (30+ workers)	**1.40***[1.03; 1.90]
Previously injured workers	1.29 [0.97; 1.73]
Male workers	1.21 [0.78; 1.88]
Workers in tuna sector	1.16 [0.86; 1.55]
Workers on boats (high risk occupation)	1.05 [0.78; 1.40]
Unsatisfied workers (considering leaving)	1.02 [0.76; 1.38]
Other-directed workers (low self-responsibility)	1.01 [0.76; 1.36]
Young workers (< 25 years)	0.95 [0.64; 1.42]
Unskilled workers	0.90 [0.67; 1.21]
Workers without employer support	0.80 [0.60; 1.08]

* significant with $p < .05$

Outcome: Intention to Leave the Industry (Job Satisfaction)

The qualitative study revealed that the job satisfaction of workers is of large concern to the fishing industry, as it was currently losing skilled workers to other rural industries. For this reason the possibility of workplace health promotion leading to a higher level of job satisfaction was further explored. Through a bivariate analysis, using a logistic regression, predictor variables leading to the contemplation of leaving the industry were examined. Table 6.16 shows all the possible predictor variables that are associated with perceived job satisfaction. It becomes evident that the factors of having previously suffered an injury and the perceived level of responsibility over one's own health have a large influence on participants' job satisfaction. Previously injured workers are almost three times more likely (OR = 2.80) to leave the fishing industry than workers who have not suffered an injury. Also, workers who feel there is no support from their employers regarding their health at work contemplate leaving the industry 2.5 times more often than workers with support from the employer (OR = 2.45).

Table 6.16: Factors predicting intent to leave the industry (job satisfaction) (bivariate)

Predictor variable	Outcome variable: Intent to leave industry
	OR 95% CI
Previously injured workers	**2.80***[1.38; 5.68]
Workers without employer support	**2.45*** [1.21; 4.98]
Other-directed workers (low self-responsibility)	**0.44*** [0.22; 0.88]
Workers on boats (high risk occupation)	1.81 [0.91; 3.60]
Male workers	1.35 [0.54; 3.39]
Workers of large companies	1.11 [0.52; 2.36]
Workers in tuna sector	0.97 [0.49; 1.92]
Unskilled workers	0.89 [0.45; 1.76]
Young workers	0.66 [0.27; 1.62]

* significant with p < .05

Due to the high odds ratio found in the predicting factor of employer support, this finding was further explored. The Kruskal-Wallis-Test proved that the more support workers perceived the more satisfied they stated themselves to be in their current employment (H(2) = 13.12, p < .001). Additionally, workers who felt they had employer support ranked their health status more positively (Mdn = 99.63) than workers without perceived employer support (Mdn = 80.78) as the Mann-Whitney Test revealed (U = 2838.50, Z = -2.62, r = .18, p < .01).

A multivariate logistic regression used the determined significant predictor variables from the bivariate analysis to create an overall model predicting participants' intention to leave the industry. As table 6.17 shows, two predicting factors significantly influence the contemplation of leaving the industry: previously having suffered an injury and feeling supported by one's employer. This multivariate analysis showed that workers that did not feel supported in their health and well-being by their employer considered leaving the industry more than twice as often (OR = 2.05) than workers perceiving health support at work. Previously injured workers were almost three times more likely (OR = 2.75) to show an intention of leaving the fishing industry.

Table 6.17: Factors predicting intent to leave the industry (job satisfaction) (multivariate)

Predictor variable	Outcome variable: Intent to leave industry
	OR 95% CI
Previously injured workers	**2.75***[1.41; 5.35]
Workers without employer support	**2.09***[1.07; 4.08]
Other-directed workers (low self-responsibility)	0.55 [0.30; 1.13]

* significant with p < .05

The following two tables bring together the results for all four outcome variables. As table 6.18 shows, the single predicting factor of company size has a large influence on most outcome variables. It becomes evident that most predicting variables stem from factors surrounding the worker, with the strongest predictor variable being that of previously

suffered injuries. Only the predictor of previous education and the holding of a qualification for the job do not show an influence on any of the outcome variables. At the same time, the surrounding factors of workplace and work account for the perceived threat of suffering a work-related health issue as well as influence the interest in workplace health promotion and the consideration of leaving the industry.

More accurate statements can be made when examining the results of the multivariate analyses, thereby adjusting for confounding factors. It is noticeable that each outcome variable is influenced by predictors from two areas of workplace, work or worker factors. Especially the outcome variables of job satisfaction and intention of leaving the industry are greatly shaped by the predictor variables. Workers without employer support consider leaving the fishing industry twice as often, previously injured workers even three times more often than their workmates.

Table 6.18: Predicting factors of all outcome variables, bivariate analysis

Predictor variables	Threat of health issues (Poisson regression) OR 95% CI	WHP interest (Poisson regression) OR 95% CI	Barriers (Poisson regression) OR 95% CI	Intent to leave industry (Logistic regression) OR 95% CI
Workplace factors				
Workers in tuna sector	**1.36*** [1.12; 1.64]	**1.34*** [1.17; 1.53]	1.16 [0.86; 1.55]	0.97 [0.49; 1.92]
Workers of large companies (30+ workers)	**1.34*** [1.10; 1.63]	**1.45*** [1.26; 1.66]	**1.40***[1.03; 1.90]	1.11 [0.52; 2.36]
Work factors				
Workers on boats (high risk occupation)	**1.59*** [1.30; 1.95]	0.92 [0.81; 1.05]	1.05 [0.78; 1.40]	1.81 [0.91; 3.60]
Workers without employer support	1.11 [0.91; 1.36]	1.03 [0.90; 1.18]	0.80 [0.60; 1.08]	**2.45*** [1.21; 4.98]
Worker factors				
Male workers	**1.57*** [1.15; 2.13]	**1.23*** [1.01; 1.49]	1.21 [0.78; 1.88]	1.35 [0.54; 3.39]
Young workers (< 25 years)	1.21 [0.95; 1.54]	**1.57*** [1.34; 1.83]	0.95 [0.64; 1.42]	0.66 [0.27; 1.62]
Unskilled workers	1.14 [0.95; 1.41]	0.95 [0.83; 1.08]	0.90 [0.67; 1.21]	0.89 [0.45; 1.76]
Other-directed workers (low self-responsibility)	0.87 [0.72; 1.06]	**0.82*** [0.71; 0.93]	1.01 [0.76; 1.36]	**0.44*** [0.22; 0.88]
Previously injured workers	**1.87*** [1.54; 2.28]	1.01 [0.93; 1.20]	1.29 [0.97; 1.73]	**2.80*** [1.38; 5.68]
Unsatisfied workers (considering leaving)	n/a	**1.16***[1.01; 1.33]	1.02 [0.76; 1.38]	n/a

Table 6.19: Predicting factors of all outcome variables, multivariate analysis

Predictor variables	Threat of health issues (Poisson regression) OR 95% CI	WHP interest (Poisson regression) OR 95% CI	Barriers (Poisson regression) OR 95% CI	Intent to leave industry (Logistic regression) OR 95% CI
Workplace factors				
Workers in tuna sector	1.19 [0.92; 1.53]	1.03 [0.85; 1.24]	-	-
Workers of large companies (30+ workers)	1.03 [0.80; 1.34]	**1.41*** [1.16; 1.71]	-	-
Work factors				
Workers on boats (high risk occupation)	**1.41*** [1.12; 1.77]	-	-	-
Workers without employer support	-	-	-	**2.09*** [1.07; 4.08]
Worker factors				
Male workers	0.95 [0.68; 1.34]	1.14 [0.93; 1.39]	-	-
Young workers (< 25 years)	-	**1.50*** [1.28; 1.76]	-	-
Unskilled workers	-	-	-	-
Other-directed workers (low self-responsibility)	-	0.92 [0.80; 1.05]	-	0.55 [0.30; 1.13]
Previously injured workers	**1.77*** [1.44; 2.18]	-	-	**2.75*** [1.41; 5.35]
Unsatisfied workers (considering leaving)	-	1.05 [0.92; 1.21]	-	-

6.4 Discussion

6.4.1 Key Findings

The previous chapters have indicated areas of need of supporting the health and well-being of fishing industry workers. However, it was unclear what the workers' perspective was on how they would like to receive such support. The survey gave insight into workers' preferred type of health promotion offers and revealed their perspectives on needs of workplace health support. It became evident that even though the term and concept of workplace health promotion was widely unknown, a large interest in utilising offers of health support at work was stated by the workers. A total of 94% of all participants purposefully chose offers of workplace health promotion suiting their needs which they would like to participate in. This is a clear signal of the large opportunity that exists for workplace health promotion within the fishing industry and points to the potential of implementation. Key findings that answer the stated research objectives, as well as the implications that arise in informing the development of a workplace health promotion, are presented in the following sections.

Health Issues of Concern

The results of the survey underline the findings of previous research on the risks that the fishing industry poses to workers' health and on the high levels of workplace incidents. The large majority of participants felt at risk of suffering at least one type of health issue as a result of their work. Within this young workforce this finding is of much concern and strategies to overcome such a high threat of work-related health issues should be identified. The survey revealed that especially workers on boats that are employed within the tuna sector face a high risk of injury and threat of further health issues. A high chance of experiencing health issues was found within companies with more than 30 workers. Reasons for this increased level of threat need to be further explored, taking into account the confounding of the variables of company size and industry sector which both influence the risk of injury. Given the higher level of structured OH&S procedures and the great resources of large companies, it should be questioned why workers working for medium-sized and large-sized companies show increased levels of injuries.

With one of the participants stating 'I am happy with the risks I take' and the high level of health threats not being a reason to leave the industry, it can be questioned whether the workers accepted this risk as part of their work. On the other hand, workers that suffered an injury increasingly contemplated leaving the industry. With only half of the participants stating they are satisfied with the currently existing support strategies at the workplace, there is clearly room for improvement.

Of main concern to the workers were the long working hours they experienced. These were rated to be a higher threat to their health and well-being than the high level of physical work and the hazardous working environment they faced. Factors such as shift work, work at irregular hours and on demand, as well as working under time pressure, were perceived as particular threats to health, with several workers stating fatigue made the rest of the job risky. It is apparent that these hazards are out of the workers' control, indicating the necessity of taking working conditions into account when planning a workplace health promotion strategy.

Sprains and strains as well as cuts and bruises were identified as the main workplace injuries, coinciding with previously stated musculoskeletal disorders as the most frequent injury type. Further reports of chronic back pain and hearing loss point to a burden of chronic conditions or long-term illness within the fishing industry. Such long-term health issues have a large impact on both workers and enterprises and need to be addressed and prevented.

Threat of Mental Health and Stress-Related Issues

The survey revealed that almost half of the participants felt at risk of suffering stress-related or mental health issues as a result of their work. This threat was especially high among participants working on boats. This large number of mental health issues underlines the necessity of a workplace health promotion program that goes beyond injury prevention to include the overall health and well-being of workers. Issues leading to this perceived threat need further investigation and it can be questioned whether

workplace pressures and work demands that are out of the workers' control are the cause of these issues.

More than a third of the participants indicated an interest in using stress management training and mental health support. It was not expected that workers would admit needing such supportive measures and this highlights the importance of a workplace health promotion program which includes psychological and social factors to support workers' health and well-being. An interest in support with drug and alcohol issues could not be found among the survey participants. It seems that the use of these is not seen as problematic, but rather accepted throughout the workforce.

Utilised Sources of Information

The survey participants appeared to be quite health-conscious and pointed out efforts at maintaining a healthy lifestyle. An average of three different strategies to remain healthy was described, such as physical activity and healthy nutrition. At the same time, the survey revealed that a large number of participants did not know where to receive information or support on issues regarding their health at work. This is especially relevant for deckhands of whom three quarters felt they did not know where to go for information or support. It can be asked whether support structures and easily accessible information was lacking or whether the fishermen were not aware of existing sources and support. The participants stated that their main sources of information were supervisors and workmates. Especially for workers on boats workmates were an important source of information and support.

A health promotion program should target this information gap and support workers with information on health. It is suggested that an increase in health literacy, empowering workers to identify the information they need, might be a helpful approach in supporting fishermen's health. Moreover, trusted sources, such as workmates, should be included as peers within a workplace health promotion program.

Health providers were rarely consulted, as the participants stated, and health services generally only used when severe problems made this necessary. The workers stated that they would 'sort themselves out' and pointed to the fact that they did not rely on health providers as a source of information. A notion of self-reliance and self-responsibility becomes apparent among the fishing industry's workforce. The majority of workers stated they felt responsible for workplace health issues, but would like to share this responsibility with their employers. It is therefore suggested integrating the promotion of worker self-management into a support program at the workplace and enhancing the skills of workers, empowering them to manage their health and well-being.

The lack of accessing health care services may also be due to workers perceiving barriers to do so. Participants mentioned restrictions of time and space and issues of being out at sea when health services were available. A program of workplace health promotion for workers of the fishing industry could therefore aim at reducing these barriers of access, for instance by introducing medical services to the workplace.

Preferences of Workplace Health Promotion Offers

The survey revealed considerable interest towards workplace health promotion offers by the fishing industry's workforce. The participants purposefully chose offers of workplace health promotion suiting their needs and in which they would like to participate. Young workers (under 25 years) demonstrated more interest as compared to older workers. Additionally workers with a high risk of injury, such as workers on boats, in the tuna sector and within large companies also showed an increased interest in using offers of workplace health promotion.

As the survey revealed, current health support offers at the workplace focussed mainly on aspects of safety and did not meet the need of supporting workers' overall health and well-being. The participants identified a range of workplace health promotion offers that would match their needs better. These included skin cancer screenings, auditory screenings or eyesight testing, immunisation programs and blood pressure checks as well as stress management and mental health support. Further offers of interest included

visits by health providers to the workplace and corporate insurance rates. Suggestions made by the workers that require further investigation include first aid training, confined space training and dental care.

Despite workers being employed within different industry sectors and with largely varying occupations, similar interests of health support could be identified across all sectors. Process workers pointed to a slightly higher interest in back training, while stress management was named as a preference by workers on boats. Office workers showed an interest in offers of physical activities such as gym membership or relaxation courses.

These findings give insight into the broad array of health needs that the workers themselves perceive and show their interest in utilising measures to prevent various health and well-being issues. A workplace health promotion program should target several of these issues and be able to offer a wide variety of health supportive offers. Next to the topics of interest, the preferred type and delivery method of workplace health support could be identified. The offers that participants revealed as most in demand were screening programs, such as skin cancer or auditory screenings, as well as offers of medical support such as visiting health practitioners or immunisation programs. Additionally, a large interest in practical training was identified, with workers showing interest in learning about stress management or back training. It is suggested that a workplace health promotion program tailored towards the needs of workers in the commercial fishing industries should utilise educational strategies and combine these with hands-on training and screening offers, thereby matching the preferences of the participants.

Reaching the Workforce with Interventions

Few barriers were perceived by workers that would hinder them from utilising offers of workplace health promotion. The main one mentioned within the survey was the tight working schedules and hours of work restricting the time to take up these offers. Participants' statements on long working hours and work at irregular times threatening their health and well-being underline the relevance of this barrier. On the other hand,

with an average of eight months of work per year, depending on the industry's season, the possibility of introducing a workplace health promotion program during the off-season is suggested.

The main challenge to the implementation of workplace health promotion programs within the fishing industry that became apparent during the survey was the large diversity of the workforce. With workers from different industry sectors often taking on several job roles and occupations within varying environments, it can be questioned how these can best be targeted. The large percentage of casual and hired staff could further impede reaching workers with a health promotion program. With a third of all participants stating they had worked in their current employment for less than two years, high fluctuation rates of workers throughout the industry become apparent.

By contrast, a large number of long-term staff are also common within the fishing industry, with half the workers stating they had worked in their current occupation for more than five years. The survey questions on job satisfaction revealed that half of the participants were dedicated to their job, revealing a large passion for their work and referring to it as 'lifestyle'. It is therefore suggested that next to a group of casually employed workers, another group of dedicated long-term workers exist within the fishing industry. A workplace health promotion program will need to be able to reach both groups of workers and to adapt to the industry's seasons and working hours.

6.4.2 Strengths and Limitations of the Study

Importance and Rationale of the Survey

The workers of the fishing industry are key informants to this research, as any workplace health promotion strategy is aimed towards improving their health and targeting their health needs. Therefore this survey was of great importance in order to identify the specific needs of the workforce and thereby test the possibilities of workplace health promotion strategies within the industry.

To date no research has been undertaken that identifies the needs and perceptions of the fishing industry's workforce. A call for including fishing industry workers in the development of prevention programs has been stated (Fragar, Lower & Temperley 2011), but seemingly not put into practice. Simultaneous to this research a study at a rural fishing site in Western Australia was undertaken to assess health behaviours and the utilisation of health services by fishermen (Kilpatrick et al. 2013). This study interviewed 15 fishermen and does therefore not offer the breadth of this research. The project was later expanded to identify how various fishing industry sites support fishermen in their physical health and mental well-being, and 34 interviews were conducted (King, Kilpatrick & Willis 2014). The results match those of this research well and underline significant findings. The report, however, does not depict the possibilities of health promotion strategies. Therefore this survey can be seen as novel, making a unique contribution to research in the field of workplace health promotion and informing future industry initiatives.

This survey reached a high response rate and could therefore gain a large and representative sample of the Port Lincoln fishing industry workforce. It incorporated a wide variety of workers from different sectors, industry sizes and with varying occupational tasks and working environments. Therefore a rich and new insight into the perceived health needs and interests of the workers of this industry is given.

Choice, Development and Implementation of Survey Method

Since no previously published survey instrument matched the aims of this study or was compatible for use within the setting of a fishing industry, a new questionnaire was developed from first principles. This data collection instrument, the Fishing Industry Survey on Health Promotion (FISHP), was created with the advice of industry experts and tested through a pilot study. It could thereby be tailored to the population under investigation and matched the research objectives well.

It becomes apparent that the data collection technique corresponded with the setting and allowed for efficient data collection, thereby achieving a high response rate. The completed questionnaires showed no large numbers of missing values and sensitive questions were answered without apparent bias. Despite the difficulty of recruiting workers from this specific industry and motivating them to participate in a study, a robust sample size could be obtained and all relevant industry sectors were covered.

The study gives a representative picture of the general population of workers within the fishing industry, indicating the validity of the survey tool developed. The survey sample reflects the gender and age structure of the overall population of workers in the fishing industry well. It comprised an appropriate number of small and family-run businesses. Furthermore hired and casual workers were also represented in the same proportion as found in the general workforce. Moreover, the sample proves to reflect the actual distribution of workers across various occupations, such as office workers, workers in processing and workers on boats.

Limitations

Despite the success of the survey in achieving a representative sample within a population that is known to be difficult to recruit, some limitations can be stated that highlight a need for further investigation. One main drawback is that the choice of data collection method leads to unintentionally excluding illiterate workers.

The recruitment of the workers was, in part, outside the control of the researcher and had to rely on 'gatekeepers' such as industry supervisors and skippers. It is often the case in organisational research that gatekeepers such as managers influence the collection of data (Keesling 2008) and it can be questioned whether sensitive areas of work or certain occupational groups of precarious employment are thereby under-represented in the survey. Several industrial managers were critical of being surveyed on issues of health and not all companies were willing to distribute the questionnaire among their workers. A positive bias towards companies that support their workers and workers that have a good health record can be suspected. However, the results pointed to the health risks being congruent with findings of previous research, therefore do not indicating such a bias.

Workers with long-term diseases or injured workers, who did not attend their workplace during the conduct of this survey, are not included. This results in a slight bias and possibly depicts the health of workers more positively than it actually is. Moreover, the abalone sector was only represented with land-based workers and no workers on boats were included in this survey, as this industry sector was not willing to participate in the study. In the other sectors, very small and self-contracted businesses may be under-represented due to the difficulty of tracing and recruiting these as non-listed businesses with less than five employers. Also casual workers or hired staff that only work seasonally are not fully captured by this survey, as it only presents a snapshot in time.

The findings of increased threats towards health and well-being for workers employed within large companies and in the tuna sector needs further investigation. Additionally, the use of illicit drugs and the acceptance of alcohol consumption during working hours as well as the large burden of mental health risk warrant further investigation. Further research incorporating a larger sample from this industry site, repeating this survey to allow for time sequences or conducting the survey within other fishing industries is therefore suggested to expand the research findings presented. Moreover, studies among the families of fishing industry workers could give a further insight into health and well-being issues and inform the development of a comprehensive health promotion program.

6.5 Conclusion

The survey revealed that workers were very supportive of workplace health promotion programs within the commercial fishing industry. They showed themselves receptive to utilise health promotion programs and pointed to an array of offers they would like to see their workplace provide. Moreover, benefits to the employer's side through offering health promotion programs became evident. Workers who feel supported in their health and well-being by their employers rated their overall health status more positively, showed increased job satisfaction and contemplated leaving the fishing industry significantly less often than workers without such support.

It further became apparent that a health promotion program for workers of the commercial fishing industry needs to go beyond measures of safety to include a wide variety of health support. The described lack of health provider accessibility and barriers towards utilising health services could be compensated by offering health services at the workplace. The findings of the survey further show that a workplace health promotion program tailored to the identified needs of the workforce should incorporate various screening offers as well as education and training sessions. The workers showed to be highly self-reliant regarding managing their own health issues and were keen to gain further knowledge. Workers who claimed to possess know-how about their health at work and who felt confident in managing their health showed significantly lower injury rates than workers that did not hold the necessary knowledge and skills. For this reason this research suggests increasing workers' health literacy and empowering them in their health management and supporting them in taking on responsibility for their own health.

A further component, which a comprehensive workplace health promotion program for the fishing industry needs to incorporate, is that of psychological and social support. Such a component can support workers in addressing the harsh working environments they face and the perceived threat of mental health issues can be tackled. This study therefore recommends building upon existing structures and utilising identified, trusted sources, such as workmates, within a health promotion program.

The diverse working environments, work at irregular hours and the part-time and casual employment of workers call for a health promotion program that is flexible enough to reach the various groups of workers at a convenient space and time and that can be integrated into the complex setting of the commercial fishing industry. Due to the workers clearly stating their needs and showing an interest in purposefully selected workplace health promotion offers, they constitute an important partner in creating such strategies. Workers should therefore be involved in the development process of workplace health promotion programs and their opinions obtained throughout. These implications arising from the survey will be brought together with the results of the other sources of data collection in the following chapter and merged to create a framework for workplace health promotion for the fishing industry.

Chapter 7:

Synthesis of Perspectives and Development of a Framework

7.1 Introduction

This research aimed at investigating the Port Lincoln commercial fishing industry as a specific setting for utilising workplace health promotion strategies. Additionally, it explored how a framework could be structured to offer effective workplace health promotion within this industry setting.

By using Port Lincoln as a case study, gaps in current health support, implications for designing successful WHP strategies, as well as pragmatic considerations, such as drivers of and barriers to implementation, could be identified. An evaluation of the WorkCoverSA claims of the Port Lincoln fishing industry, as well as an initial literature provided the basis of this research. Three strands on data collection and analysis provided insight into the possibilities of utilising workplace health promotion within commercial fishing industries: An integrative literature review gave a broad perspective on specific industry characteristics and made suggestions towards a pragmatic health promotion approach. Interviews with industry managers, stakeholders and health providers gave an insight into the perception of health promotion and the various roles and responsibilities in providing health support at work. Additionally, a survey among the workforce highlighted the topics of health promotion and types of information delivery that workers favoured.

To be able to build the case under examination these data strands are converged in a triangulating fashion (Yin 2014). According to the paradigm of realism a process of description and interpretation is undertaken. Various perspectives gained from the three strands of data collection are therefore brought together in this chapter and an in-depth picture of utilising workplace health promotion within the commercial fishing industry is created. Different sources may provide varying perceptions of reality, creating a 'family of answers' (Pawson & Tilley 1997). Contradictory findings are considered and a picture of the complexities of reality created (Sobh & Perry 2006). Following from the realist approach, as described by Pawson and Tilly (1997), it is explored how strategies of workplace health promotion may work under particular circumstances and in particular ways. Thereby the program design and intervention activities can be aligned with the realities of the setting (Poland, Frohlich & Cargo 2008). The findings give suggestions on

how to best target the fishing industry workforce with health promotion programs and which circumstances to take into account when planning such programs.

In a first step this chapter presents a range of pragmatic considerations informing the design of a framework for workplace health promotion in the commercial fishing industry that arose from the synthesis of the various data sources. When bringing together the key findings of the data strands, four domains of content, which a workplace health promotion program should address, were identified. The findings from the various data sources are systematically presented according to these domains. In a further step specific industrial characteristics and principal mechanisms are added, including mutual trust and respect, leadership, communication and participation. These mechanisms create areas of activity and allow translating the domains into practice. Moreover, the various players in the commercial fishing industry, identified during this research, and their influence on workers' health and well-being are accounted for and integrated into the framework.

To conclude, the framework is presented in detail and its utilisation demonstrated. It can direct the development and implementation of workplace health promotion strategies by serving as a guide, which may be modified by adding or deleting items and thereby adapting it to specific the needs of fishing industries.

7.2 Considerations towards a Pragmatic Framework

Across all strands of data collection a range of considerations and suggestions for deploying health promotion approaches within this specific industry setting were made. Working under the paradigm of realism, a need arises to target the specific context and align the health intervention strategies with the existing social contexts (Poland, Frohlich & Cargo 2008). When synthesising the findings of this research several contextual features were identified that should be considered in a framework for workplace health promotion.

Need to Communicate the Potential of WHP

Despite the broadly identified need for utilising health interventions, the commercial fishing industries have not fully recognised the potential of workplace health promotion strategies, as the case of Port Lincoln shows. The concept of workplace health promotion was widely unknown, yet the idea of using it to retain qualified staff was taken up with great interest by industry management and stakeholders. The interviews revealed that the Port Lincoln commercial fishing industry has reached a 'tipping point' in terms of retaining skilled workers, with several industry managers showing concern over the high rates of staff turnover, as these impacted negatively on the productivity of the fishing industry. The survey found that more than half of the current workforce was contemplating leaving the Port Lincoln fishing industry. This finding was confirmed by another study within the South Australian fishing industry which found that the majority of mature workers were planning to leave the industry (Miller, Ellis & Petherick 2013).

Motivated and experienced workers, with years of knowledge and skills were therefore being lost from the Port Lincoln commercial fishing industry. Throughout the interviews with industry managers and from recent literature, it became evident that attracting young people with the necessary skills to the commercial fishing industry, and consequently retaining them were some of the largest challenges that the industry encountered (Curtotti, Hormis & McGill 2012; Miller, Ellis & Petherick 2013).

A need for a proactive approach in making work in the fishing industry attractive and in implementing succession plans for older and injured workers was mentioned by several stakeholders. As one of the interviewees said, it would be 'foolish and short-sighted' if the fishing industry did not create innovative and proactive ways of retaining qualified staff and offer benefits other than financial incentives to their workers (Chapter 5).

For this reason this research suggests utilising workplace health promotion strategies systematically as a "tool to attract and keep high quality employees and maintain productivity and morale" (Centres for Disease Control and Prevention 2013). The survey confirmed the large potential of workplace health promotion strategies to keep staff connected and committed to the industry: workers who felt supported by their employer in their health and well-being reported higher levels of job satisfaction and considered leaving the industry less often (Chapter 6). Several reports additionally underline reduced staff turnover and improved staff retention as a result of workplace health promotion initiatives (Burton 2010; European Agency for Safety and Health at Work 2012; World Health Organisation 2014).

To achieve a systematic utilisation of health promotion strategies, the value and benefits of health promotion activities need to be clearly communicated and disseminated to managers and stakeholders in the fishing industry. Additionally industry managers need to be educated in adopting a proactive approach of offering workplace health promotion and in becoming "agents and visionary leaders" (Chu & Dwyer 2002, p. 175). Further literature supports this approach and states the necessity to train and support industry managers in understanding that the health and well-being of employees as their responsibility (Dickson-Swift et al. 2011). Proactively engaging in strategies of workplace health promotion and supporting workers' health could furthermore lead to an enhanced image of the fishing industry within the surrounding community and make it an increasingly attractive workplace.

Need to Target Workers' Preferences

The interviews revealed that existing measures of health support within the Port Lincoln fishing industry occurred in an unstructured manner, with interviewees stating they 'go with whatever works' in the manner of taking 'horses for courses'. Simultaneous research at other fishing sites in Australia found that actions were ad-hoc and untargeted (King, Kilpatrick & Willis 2014). Throughout all three strands of data collection in this research a clear need for a systematic and more comprehensive targeting of workers' health and well-being was stated. The interviewees themselves raised the concern that the existing approaches of adhering to safety regulations were not sufficient to address the broad range of health and well-being issues that the workers experienced (Chapter 5).

Half the workers participating in the survey confirmed this finding and stated they were dissatisfied with current measures of health support (Chapter 6). The survey further revealed that the workers felt they were lacking knowledge about where to receive information or support for health issues. They indicated they were very health-conscious and felt largely accountable for caring for their own health at work. An overwhelming majority of workers stated an interest in utilising workplace health promotion offers. Irrespective of their educational background, in the survey the workers purposefully chose potential offers matching their needs and suggested a shared responsibility of employees and employers regarding health at work. This shows a strong contradiction to the findings of the interviews, with interviewees painting a picture of workers as uneducated and uninterested in health care issues.

It became apparent that the main interest of the fishing industry workforce focussed on medical checks, visiting medical practitioners, immunisation programs and offers of screenings such as skin cancer screening, auditory screening, eyesight testing, and blood pressure assessments. Further interest was stated in education and training formats that could target back therapy, stress management, confined space training and first aid. Additionally, corporate insurance rates and dental care were suggested by workers in the industry.

These identified needs were in large parts the same throughout the different industrial sectors and were confirmed by the findings of interviews and the literature. Next to physical injuries, the most frequently mentioned health issues which should be addressed within a framework for workplace health promotion were skin cancer, hearing loss and chronic back pain. Moreover drug and alcohol abuse, stress-related and mental health issues were found within the findings of all data strands. Due to the broad range of needs identified, a health promotion program should consider a wide variety of health topics and offer different types of health support offers that can be flexibly compiled and provided to the workforce. Strategies that target the workforce from various angles, utilise a hands-on approach, and incorporate various formats of health promotion are therefore suggested. Additionally, the workers should be actively included in the planning and development process of a workplace health promotion program to ensure that their needs are addressed sufficiently.

Need to Fit with Existing Structures

Both the interviews and the integrative literature review pointed to the diverse occupational groups and working environments within the fishing industry, as well as changeable workforce sizes and unstable surroundings. As the interviews revealed, irregular hours of work, being out at sea and working according to external demands pose a specific challenge in implementing a sustainable and stable workplace health intervention within an unstable and unpredictable environment. The literature confirms this finding, describing the fishing industry workforce as a diverse, dispersed and transient workforce, and particularly challenging to reach with intervention programs (Grimsmo-Powney et al. 2010; Lawrie et al. 2004; Matheson et al. 2001). Especially seasonal and casual workers experienced barriers when wanting to access healthcare services (Kilpatrick et al. 2013). Long working hours created barriers of access (Allan et al. 2012) and resulted in workers of the fishing industry being 'invisible' to local health-care providers (King, Kilpatrick & Willis 2014).

For these reasons a workplace health promotion program needs to be tailored to the structures of the fishing industry and target workers at a suitable place and time. The interviewees suggested using down-times while trawling or doing maintenance work, and

weeks during the off-season for health promotion programs (Chapter 5). The integrative literature review highlighted the need of employing 'soft entry points' by ensuring easy access for workers to utilise health promotion offers (Chapter 4). Industrial or recreational gatherings and community events could be utilised as points of implementation and could realise such easy access (Fragar, Lower & Temperley 2011; Kilpatrick et al. 2013)

Additionally, the various players and their interactions between each other, as identified through the various strands of data collection, need to be considered. This consideration matches the paradigm of realism that highlights the various influences on health interventions. Poland, Frohlich and Cargo (2008) point out that stakeholder interaction and social processes may lead to a program to break down at any time. Therefore existing socio-economic structures and mechanisms, such as support among workmates and interactions among various social groups need to be taken into consideration within a pragmatic framework for workplace health promotion.

7.3 Four Domains

All strands of data collection revealed elements necessary for a workplace health promotion program for the commercial fishing industry. Throughout all data strands the necessity of a collaborative approach to workplace health promotion and occupational health and safety standards was mentioned. In order to address the specific and often dangerous working conditions within the fishing industry a workplace health promotion program needs to include a domain addressing the physical working environment. Factors such as facing hazardous working environments, being susceptible to adverse weather conditions and taking on physically demanding tasks need to be considered and included.

A further key finding seen across all data strands was that the workers' health issues in fishing industries go well beyond those of injuries. A large burden of workplace and psychosocial pressures and the threat of mental health problems were demonstrated. As the interviews revealed, the prevailing culture within the fishing industry was 'cut-throat', with single employers struggling to personally support and care for their workers, so as not to lose them through the severe workplace and psychosocial pressures resting on them (Chapter 5). A further domain of a workplace health promotion program therefore needs to address psychosocial support structures at the workplace. The encouragement of workmate support, as well as the initiation of a cultural shift in terms of valuing workers, is therefore aimed at within this domain. Moreover, drug and alcohol abuse and stress-related and mental health issues were mentioned by most industry managers and also by more than half of the workers as areas that needed particular attention within the fishing industry (Chapter 6).

When contrasting the findings of the survey and those of the interviews, differences in information emerged. While the interviewees doubted the workers' capability of taking on responsibility for their own health, the workers themselves stated they needed more information on workplace health and were lacking support in keeping healthy. For workers to be able to identify the information they needed and to cope with the manifold pressures they encountered, an empowerment of workers is suggested as a third domain of a workplace health promotion program. By strengthening their individual capacity,

workers may be motivated to adopt healthy behaviour and also overcome barriers of access to health providers.

The integrative literature review revealed that the health of the workers is affected by the communities in which they live and work. Despite minimal interaction of the fishing industry with industry outsiders such as health providers, factors implying a strong sense of community were detected. The interviews showed that the town of Port Lincoln is largely affected by the fishing industry and much of the community life revolves around the industry's seasonality. The importance of adding a domain of community interaction is further highlighted through the small-sized enterprises and owner-operated businesses within the fishing industry that stated cost as a barrier to implementing health promotion programs. By sharing resources and expertise throughout the broader industry and community context a successful delivery of workplace health promotion strategies is suggested.

It becomes apparent that these four broad domains, which a workplace health promotion for the commercial fishing industry needs to incorporate, are largely congruent with the avenues of influence suggested by the WHO (presented in Chapter 2). The following sections draw on the findings of all data strands and show how these help shape a framework of workplace health promotion for this specific industry by addressing the four domains of physical working environment, social support structures, individual capacity and community engagement.

7.3.1 Physical Working Environment

Managing Workplace Hazards

The various data sources confirmed significantly high levels of risk that the fishing industry imposes on workers' health and well-being. The survey found that the large majority of workers felt a threat of suffering an injury or disease as a result of their work. According to the participants, occupational hazards included moving objects and machinery, exposure to extreme weather conditions and physically demanding tasks

involving repeated twisting, bending and lifting, posed high risks of injury. The interviews with industry managers further pointed to challenging workplace environments, including boats and unstable working platforms and extreme weather conditions.

Both the interviews and the survey showed that workers in the fishing industry were generally aware of the health risks that the work within the industry incurred. These were, however, widely accepted, as the interviewees described. Previous research points to similar findings of work-related physical pain and injury being perceived as an unavoidable part of work in the fishing industry (Kilpatrick et al. 2013). In the survey, less than 15% of the participants stated they would consider leaving the industry because of physically demanding tasks. However, after having been injured, this notion changed with three quarters of previously injured workers contemplating leaving the industry (Chapter 6). It can be suggested that the high levels of physically demanding tasks are no longer manageable for workers who are constrained by prior injuries. Moreover, it can be questioned whether this consideration of leaving the industry after having suffered an injury, is in part also due to a lack of adequate injury treatment and to the consequent long-term effects or disabilities that arise.

These findings clearly show that any health promotion approach for the commercial fishing industry needs to be combined and intertwined with existing occupational health and safety strategies. As the European Agency for Safety and Health at Work (2012, p. 4) states health promotion is a "complementary support for, but not a replacement of, workplace risk management. [Rather] proper risk management is an essential foundation for a successful WHP programme." Existing safety training and the availability of safety equipment need improving, as the survey revealed that a third of workers felt they had not been provided with these. Additional information sessions could therefore be offered and workers reminded of introductory safety training. Support from workmates to work safely and adhere to regulations could be encouraged and an appeal to 'look out for your mate' campaign promoted.

Designing a Supportive Work Organisation

Next to the hazardous working environment, the empirical data identified factors of work organisation that impacted on the workers' health and well-being. Even more than the dangers arising from their physical working environment, the workers cited long working hours as their main concern which they felt was imposing negatively on their health. Work at irregular times and long hours of work without adequate sleep, as well as high workloads and tight staffing were confirmed during the interviews. Some of the supervisors described particularly work-intensive phases during the harvest season and the resulting fatigue as torturous (Chapter 5). The integrative literature review confirmed this finding, stating long working hours, sleep deprivation and irregular sleep patterns as the main stress factors of fishing industry workers (Hansen, Hjarnoe & Jepsen 2011; Hayman, Anderson & Lamm 2010; Matheson et al. 2001).

Additionally, the industry supervisors interviewed described high levels of stress, the intensity of work and lack of tolerance for mistakes during the harvest season. This finding was evidenced by literature on the fishing industries (Carter 2005; Murray & Dolomount 1995). Due to the fishing industry working with live products and towards an external market demand, the interviewees described the control over factors of work organisation as being limited. Nevertheless these factors need review and critical scrutiny within the context of a comprehensive workplace health promotion strategy. Measures suggested within this domain of physical working environment therefore include reviewing rosters and scheduling 'back-up' staff, rotation of tasks and additional support during harvest seasons, as well as the consideration of flexible working hours, limiting the permitted working hours per day and scheduling rest periods.

7.3.2 Social Support Structures

Addressing Psychosocial Pressures

Throughout the interviews the workers were referred to as a vulnerable group and a large concern about the mental health of the workforce existed among the interviewees. The interviews revealed a large range of pressures impacting negatively on the workers' health and well-being. These included long working hours and working in isolation separated from familiar surroundings and social support networks. Additionally, financial pressures arising from the uncertainty and seasonality of the work were mentioned as further stress factors by some of the health providers. A similar statement was made in an industrial report, stating "perpetual occupational and livelihood uncertainty resulting from insecure management arrangements" as the main cause for stress-related issues (King, Kilpatrick & Willis 2014, p. xi).

With many of the workers coming from a low socio-economic background, having little education, social security and no qualifications, the pressures were often increased as no fall-back option was present. The interviewees pointed out that not all workers had adequate insurance and many showed high rates of illiteracy. According to some of the health providers interviewed, injured workers would become 'invisible' to the industry and remain without support. The fishing industry workers were therefore referred to as being 'on the fringe of society', struggling to find personal stability (Chapter 5).

The NSW Mental Health Network describes a chain of events that can lead to a psychological breakdown of agricultural workers (Australian Centre for Agricultural Health and Safety 2006). Following the findings from this research, a similar chain of events can be suggested for fishermen: external business pressures through economic demand, market pressure and regulations; leading to high stress levels on the business and on individuals; leading to feelings of loss of control; leading to poor problem solving and difficulty coping; leading to social isolation and loneliness; leading to feelings of worthlessness; leading to alcohol misuse, paired with a lack of insight into mental health problems and a lack of knowledge about available services; leading to depressions and other mental disorders (Australian Centre for Agricultural Health and Safety 2006).

The survey confirmed mental health problems to be a significant threat within the fishing industry, with almost half of the survey participants stating they felt at risk of suffering stress-related or mental health problems as a result of their work (Chapter 6). While the industry managers struggled to speak openly about these issues in the interviews, research at other fishing sites confirmed mental health problems as a key challenge within the commercial fishing industry, stating that "the most significant health and well-being issue facing commercial fishers today [was] stress, anxiety and depression, often referred to by fishers as 'mental health'" (King, Kilpatrick & Willis 2014, p. xi).

Within this domain, the chain of events leading to workers suffering mental health problems or turning to drugs and alcohol needs to be broken and pressures arising from the workplace, which negatively influence workers' well-being, addressed before they create further negative effects.

Targeting Drug and Alcohol Abuse

In this research the interviewees specifically emphasised the need to target the high levels of drug use that they witnessed throughout the Port Lincoln fishing industry. Despite the survey not clearly uncovering the levels of drug and alcohol use, multiple studies report drug and alcohol abuse within fishing workforces (Bereny 2010; Evans et al. 2005; Gates, Roxburgh & Copeland 2008; Lawrie et al. 2004). Research conducted at the same setting even pointed to high levels of illicit drug usage during or shortly before work shifts (Evans et al. 2005). According to the interviewees, such drug and alcohol abuse was problematic as it triggered mental health problems in the workforce. A study by Allan et al. (2012) confirmed that high levels of psychological distress were intertwined with alcohol consumption and predicted an at-risk alcohol use. Velander et al. (2010, p. 390) state that "issues of control, isolation and stress, linked with individuals' perceptions of their powerlessness, have been identified as factors related to depression and anxiety and drug use in the workplace".

While the managers interviewed showed no clear strategy for dealing with drug and alcohol use during or before work shifts, the health providers and stakeholders stated a clear need to address these issues within the fishing industry (Chapter 5). This call is also

found within several of the papers reviewed in the integrative literature review which suggest utilising health promotion programs to tackle drug and alcohol consumption (Carruthers, Boots & Midford 2002; Fragar, Lower & Temperley 2011; Lawrie et al. 2004; Matheson et al. 2001). However, some of the health providers interviewed questioned whether the industry managers were interested in prohibiting drugs or whether some enterprises tolerated their usage and 'turned a blind eye'. As one of the stakeholders suggested a 'broad spectrum' of approaches in dealing with drug and alcohol use is found throughout the businesses of the fishing industry (Chapter 5). While some managers put a zero-tolerance on drug use, others showed no proactivity in addressing issues of drug abuse.

With industry managers reporting that they socialise with their workers over a beer and provide alcohol at the end of the week, the acceptance of alcohol as part of a workplace culture becomes evident. The literature review confirmed that the consumption of alcohol was not seen as problematic, but rather accepted throughout the industry (Allan et al. 2012; Brooks 2011). This creates a strong tension between sharing alcohol as a form of social bonding and the prohibiting of alcohol to support workers' health and well-being. It has to be questioned whether alternative ways of socialising without the drinking of alcohol could be offered to workers.

Utilising Existing Support and Trust

In the interviews the industry managers highlighted the benefits of small-sized businesses. Despite the larger companies having more regulated structures of occupational health and safety procedures, the managers of smaller said they were able to support the health and well-being of their workers more easily and had fewer problems in this respect than larger companies. The industry managers described the benefit of being able to look after workers personally and interact with them on an equal level. The survey confirmed these statements, showing that the workers in large companies felt an increased threat of injury and declared a larger dissatisfaction with their employment than workers in small companies.

The importance of 'mateship' was stated in the interviews, with industry supervisors and skippers personally caring for their workers and 'looking after' them (Chapter 5). The survey confirmed that workers saw their workmates and supervisors as trustworthy and the main source for health information. The literature underlines this finding and a 'pastoral care' of skippers over their crew was stated in previous research (Massey, Lamm & Perry 2007 as found in Hayman, Anderson & Lamm 2010). The literature further suggests that workers' health may be prioritised in small-sized businesses due to workers being an integral part of the business and 'part of the family' (Hughes et al. 2011; Linnan & Birken 2006). This research therefore suggests utilising existing structures of support and encouraging industry managers to care for their workers' health and well-being.

This research therefore recommends utilising and further strengthening support among workmates and utilising trusted sources of information, such as skippers, to disseminate information regarding health and well-being to the workforce. The integrative literature review highlighted those workers belonging to the fishing industry "will engage with health-related information, programs and services that come from, or are endorsed by, trusted and credible individuals and organisations" (Kilpatrick et al. 2013, p. 63). Therefore, utilising key opinion leaders, trusted workmates or peers to act as role models and to promote health messages throughout the industry is recommended.

Since previous research found that, within the fishing industry, the skipper's word is law and counts more than authorities and government regulations (Hayman, Anderson & Lamm 2010), skippers could be educated in workplace health promotion issues and therefore disseminate information among the broader workforce and encourage workers' participation. An approach to promote workplace safety that made use of retired and senior skippers as 'mentors' in disseminating information and offering support to the industry's workforce proved to have a higher uptake than other initiatives (Hayman, Anderson & Lamm 2010).

Creating Supportive Environmental Structures and Initiating a Cultural Shift

Further assistance through managers and from companies is needed. Throughout the interviews, health supportive environments were repeatedly mentioned in terms of having flattened hierarchies and a 'good atmosphere' (Chapter 5). The survey further revealed that workers, who feel supported in their health and well-being by their employer, showed increased job satisfaction (Chapter 6). Therefore, these supportive environmental structures are an important element within a workplace health promotion framework.

A supportive context and culture of organisations has been stated as key factor of effective health promotion programs in previous research (Parsons 1999). The culture of the fishing industry, however, was depicted as very competitive, with one of the stakeholder describing it as 'cut-throat' (Chapter 5). Some of the interviewees suggested that workers of the fishing industry were undervalued by management and that leadership qualities were problematic, with some industry managers acting as dictators. A study by Evans et al. (2005) in the same study setting found an increased drug use among workers that felt undervalued by their employers.

Although some industry managers had turned to personally caring and 'mollycoddling' the workers, this contradictory statement raised the concern as to whether workers were being adequately valued and were deemed worth supporting. Some of the health providers interviewed stated that workers were being treated as 'tools' and only kept as long as they were functioning accordingly (Chapter 5). With several industry managers admitting not wanting to invest in casual workers or transient staff, this notion of workers being replaceable is further reinforced. The statement: "A good deckie is your best piece of equipment" (Wright 1992, p. 137 as found in King 2007) has long prevailed throughout the commercial fishing industry. More recent research even refers to deckhands as 'living prostheses' of skippers (King 2007), pointing to them being merely embodied tools. These statements confirm the findings of this research and reflect the overall prevailing culture within fishing industries.

As two of the interviewees stated, the need to revisit the culture of the fishing industry and changing it to a more supportive one is required. Suggestions of including workplace health promotion strategies into the mission statement of companies and proposing improved workers' health as one business goal are broadly stated in the health promotion literature (Chu & Dwyer 2002; Dickson-Swift et al. 2011; The Health Communication Unit 2009). The literature identified in the integrative review also calls for a cultural change (Murray & Tilley 2006). Such a cultural shift within the workplace is only possible if it is proactively enforced by employers as part of the workplace health promotion strategy. As Chu & Dwyer (2002, p. 178) state: "Employers should not only take their legal obligations in workplace health and safety more seriously, they should place even more importance on their leadership roles in setting proactive policy directions, facilitating organizational development, and building a healthy organizational culture".

During the course of this research a training programme, named 'Be the Best Boss' was developed by AgriFood National Regional Initiatives and offered to the commercial fishing industry on the Eyre Peninsula (Forrester 2014). This program emerged from the larger National Seafood Industry Leadership Program that trains industry managers and supervisors and enhances their communication and leadership skills (Briggs 2012). Stating that "fifty percent of employees who don't feel valued will look for another job within the space of a year" (Forrester 2014), this program trains managers and aims to create a better workplace culture which ultimately retains workers and keeps them connected to the fishing industry.

This research therefore suggests utilising this training program on a larger scale and including the training of all management levels to understand the health and well-being of employees as their responsibility. Supportive leadership styles may create a respectful communication style among the various levels of employment and encourage workers to take advantage of workplace health promotion offers.

7.3.3 Individual Capacity

Reducing Barriers to Health Services

As previously stated workers in the fishing industry in large part accept injuries as part of their work and often self-manage any health issues. The survey revealed that workers only consulted doctors if severe issues made this necessary and only 14% named health providers as sources of information for workplace health issues (Chapter 6). Previous research confirmed that only a few workers in the fishing industry would seek health care or support services (Allan et al. 2012) and would rather 'patch themselves up' (Grimsmo-Powney et al. 2010). The stakeholders interviewed confirmed that, due to the workplace environment and the time spent out at sea, the workers were dependent upon their own resources to overcome injury and disease. The literature describes how fishing industry workers have created a set of skills to 'come-by' and are largely proactive in addressing the treatment of their health issues (Jensen et al. 2014; Kilpatrick et al. 2013). The workers in the fishing industry therefore had an image of an independent and largely self-reliant group, with the interviewees depicting them as 'cowboys' (Chapter 5).

In some interviews the self-management skills of fishermen were cast in a different light, with interviewees describing workers using a negative connotation, as being 'tough', 'stoic' and taking on a 'blokey' attitude of not admitting to health issues (Chapter 5). Previous research suggests that a masculine identity of not admitting to health symptoms is especially prevalent in rural sectors (Albrecht, Freeman & Higginbotham 1998; Galdas, Cheater & Marshall 2005) and impedes workers seeking advice. Other researchers point to the embarrassment that workers experienced when having to openly admit to injuries (Eklöf & Törner 2005). Especially mental health issues are not openly communicated. As an industry representative stated, "mental health problems are widespread throughout the industry, but a lot of the fishers suffer in silence" (Blucher 2014). A workplace health promotion program targeting fishing industry workers needs to further examine barriers to access and offer support in a way that is easily accessible, as well as acceptable to the workers.

Empowering Workers and Increasing Health Literacy

As the interviews revealed, the industry managers and stakeholders were aware that most workers did not possess an adequate skill set or the necessary resilience to overcome the depicted workplace pressures they were facing. Several interviewees therefore suggested educating workers and equipping them with skills to improve their overall health and well-being. This approach is of high value, as the survey revealed that workers who felt in control over their health and said they possessed know-how on workplace health, showed significantly lower injury rates (Chapter 6). As one of the stakeholders suggested, a workplace health promotion program for the fishing industry should therefore aim at increasing the health literacy of workers in order to strengthen their self-determination and empower them to 'look after themselves'. Due to previous research stating that workers possessed a limited capacity to manage the high level of uncertainty of their work (King, Kilpatrick & Willis 2014), an approach of empowering workers is seen as one key element of a health promotion approach for the commercial fishing industry.

As workers may not be aware of existing support measures the fishing industry or the surrounding community provides, and show to be largely self-reliant, the need to equip workers with further know-how is evident. Building on the concept by Kickbusch (2001) of increasing workers' health literacy (Chapter 2), they are enabled to identify useful information and strategically utilise existing support structures. Moreover, by supporting workers in developing an independent skill set, their resilience against the high level of imminent psychosocial pressures can be enhanced and personal coping strategies strengthened (Berkels, Henderson & Henke 2004; Kickbusch et al. 2013). In referring back to the Social Cognitive Theory (Chapter 2) the self-efficacy of workers, meaning their "self-confidence about the ability to successfully carry out behaviour even when faced with challenges", is improved through such an approach.

It is therefore not surprising that the approach of utilising worker empowerment for a health promoting approach within fishing industries was also found within the literature reviewed. Encouragement in taking on responsibility for their own health and in motivating them towards a healthy lifestyle was suggested (Hawkes et al. 2004; Jaremin

2005) and the Finnmark study clearly stated empowering workers to enhance their health and well-being (Lupton et al. 2002; 2005). Fragar, Lower and Temperley (2011) specifically recommended increasing mental health literacy and the training of workers in managing pressures.

The usefulness of this strategy is further highlighted by previous literature, showing that the idea of empowerment is of special relevance within interventions geared towards vulnerable or dependant groups (Jenkins 1991), such as groups of isolated rural communities (Rissel 1994) and nomadic employees working at different sites (Kilpatrick et al. 2013). This approach of enhancing workers' individual capacity is therefore seen to match the fishing industry workforce well. Moreover, this approach respects and supports the stated independence and self-reliance of the workers, instead of trying to change them.

7.3.4 Community Engagement

Building Trustful Partnerships with Stakeholders and Local Health Providers

A lack of proaction by managers of the Port Lincoln fishing industry to take on responsibility and provide comprehensive health support was found in both the interviews and the survey, and a fear of turning into a 'welfare company' stated by one of the interviewees (Chapter 5). The interviews with industry managers demonstrated that a fear of penalty through regulatory bodies hindered them in assuming more responsibility over workers' health and openly communicating health risks. It became evident that the fishing industry had separated itself from a wider setting and is seen not to trust outsiders. The industry managers showed distrust towards government regulations, legislative impairments and generally towards outsiders to the industry. They described feeling 'blamed' and 'talked down to' and tried to avoid any contact with 'red tape' regulations (Chapter 5). This finding was backed up by the integrative literature review (Hawkes et al. 2004; Hayman, Anderson & Lamm 2010), with one study showing that government bureaucracy was being viewed as 'the enemy' by the fishing industries (King, Kilpatrick & Willis 2014). Possibly for this reason no cooperation between companies of

the fishing industry and external organisations or health providers was found throughout the interviews.

Such partnerships were, however, strongly advised by the literature identified during the integrative review, with the literature pointing to the importance of stakeholder support and collaboration with local health services (Hawkes et al. 2004; Levin et al. 2010). The building of partnerships and networks of support between industry groups and researchers, as well as with stakeholders were suggested (Carruth et al. 2010; Hawkes et al. 2004). A recently published industrial report took a similar stand, suggesting governments, health services and industry groups should cooperate in providing "services, facilities, information sources and social infrastructure" to workers of the fishing industry (Kilpatrick et al. 2013, p. 65). This approach of collaboration is especially valuable for small businesses as found in the fishing industry. The stakeholders interviewed questioned whether a long-term commitment of investing in workers' health was viable for small-sized businesses that had limited resources and financial capabilities. The literature confirmed this finding, stating that small-sized businesses were dependent on external facilitators in terms of planning, implementing and evaluating health promotion activities (Williams & Snow 2012), due to limited resources to carry out interventions (Lindstrom 2004; Nishikido et al. 2007).

This research therefore suggests that existing industry groups support small and impermanent enterprises and share resources and knowledge with regard to health support strategies. In order to be heard within the broader industry setting and to create sufficient strength to implement comprehensive workplace health promotion strategies, a uniting of small businesses is recommended. By forming industrial bodies or unions small businesses' needs could be represented at a higher level. A New Zealand initiative bringing together fishermen, industry stakeholder groups and government agencies to improve the safety performance within the industry, successfully created local support structures and achieved the dissemination of health promotion into small-sized businesses, enterprises and workplaces (Lamm 2013).

A framework for workplace health promotion for the fishing industry therefore needs to emphasise trustful collaboration to overcome feelings of blame and distrust. A collaborative approach and communication between the industry and existing government bodies and local health services is recommended. Instead of imposing a system from the outside, a grassroots approach is suggested in which workplace health promotion programs are developed by the industry itself.

Interacting with the Broader Community

The interviews pointed to the Port Lincoln industry being closely intertwined with the surrounding community, with a large part of the town's workforce being engaged in the fishing industry. Moreover, in government reports the fishing industries have been cited as an important economic and social resource within coastal communities (Fisheries Research and Development Corporation 2014b). The interviewees underlined the significant and positive contribution of the industry towards the development of the region. The fishing industry showed to have a large impact on the entire region and brought growth and wealth to the country town by creating jobs, attracting young families and producing numerous satellite businesses. The rural setting of the fishing industry and its close interaction with its surrounding community therefore calls for the integration of the community within a comprehensive workplace health promotion strategy. As previous research highlights, the health of a workforce is linked with its surroundings, creating an interdependence of enterprises and the broader community producing a ripple effect of interventions (Terry & Nunn 2002). As fishermen and their families tend to live locally and in close proximity to the industry, the usefulness of such an approach is further underlined.

The literature highlights the benefit of involving a broad array of community organisations such as clubs, schools, health services and the media in the implementation of a comprehensive workplace health promotion program (Lupton et al. 2002; 2005). As described in the integrative review (Chapter 4) an innovative approach of community intervention within a rural fishing industry town utilised community events and traditions, as well as recreational activities as platform to implement health messages and health and safety promotion programs (Murray & Tilley 2006). The study by Murray and Tilley

(2006) further highlights the benefits of including friends and families of fishermen, as well as teachers, students and other community members into a broad community health program.

This research suggests that, by targeting workers during recreational activities and community events and 'picking them up' within their familiar surroundings, barriers of accessibility to a health intervention are overcome. Previous research confirms that these 'soft entry points' are preferable to accessing formal health services (Kilpatrick et al. 2013) with "services enter[ing] the existing gathering places or everyday environments where people live and work to provide health information or services" (King, Kilpatrick & Willis 2014, p. xi). A framework for workplace health promotion for this industry should therefore incorporate this approach of community engagement to create easily accessible health support.

7.4 Tailoring of the Framework

To be able to put these four domains of content into practice and activate their implementation throughout the industry, the framework needs adapting to the specific workplace culture and setting. The specific characteristics and structures of the fishing industry setting need to be taken into account and incorporated within the broadly defined domains. The framework needs to be sufficiently flexible to be integrated into the informal industrial setting and the unstructured operating enterprises. Therefore the identified players and mechanisms need to be incorporated and the framework tailored to the commercial fishing industry.

The paradigm of realism emphasises that any intervention is embedded into several social systems of individuals, interpersonal relations, organisations, and broader infrastructural and policy elements (Poland, Frohlich & Cargo 2008). As Green (1988, p. 474) states, "each party has control or influence over some of the factors which affect workers' health, but none controls all". These various players need to be recognised within the framework for workplace health promotion and competing influences as well as existing social networks or incentive structures taken into account within a framework for workplace health promotion (Poland, Frohlich & Cargo 2008). As previously stated, a strong notion of mateship was found within the fishing industry, with workmates helping each other out and skippers perceiving a large responsibility for their crew. Such structures of support should be drawn out and utilised within a framework for workplace health promotion.

For this reason it is supplemented with a socio-ecological model as previously outlined in Chapter 2. This model explicitly considers the multiple levels of influence that act on the worker and integrates environmental and policy contexts of health behaviour, thereby incorporating social and psychological influences. Strategies that systematically target mechanisms of change at various levels of influence can thereby be determined and implemented (Sallis, Owen & Fisher 2008).

To achieve the desired interaction among the various levels of influence and generate an intervention from within the industry, the identified barriers of mistrust need to be addressed. This research therefore suggests there are several principal mechanisms that guide the active transformation of the framework. Mutual trust and respect was identified as one key element by this research in creating a healthy workplace. The evidence of this research showed that only by building of trustful relationships across all levels of industry players, can effective health promotion strategies be realised. A culture that values workers as an essential resource that needs to be motivated and kept healthy is proposed.

Moreover, the evidence from this research pointed to the need for employers to commit to and support the creation of health supportive workplaces. The taking on of responsibility and showing increased proactivity in supporting workers' health and well-being, was named a prerequisite of successful workplace health promotion within this research. Support among workmates, caring for and looking out for one another, as well as flat hierarchies and supportive leadership styles were identified as further central elements. For this reason the mechanisms of leadership and communication were incorporated into the framework. These apply to all levels of players and guide the interaction of these in developing a healthy workplace.

Additionally, the active participation of all players in transforming workplace health promotion programs into practice constitutes the fourth mechanism. These mechanisms are not mutually exclusive, but were reoccurring within the various data strands, identified as key factors by the industry participants and are therefore see as principal factors guiding the framework's utilisation.

Figure 7.1 shows the suggested framework of workplace health promotion for the commercial fishing industry. It incorporates the described domains of content, a socio-economic component depicting various levels of influence, as well as principal mechanisms guiding the interactions and activating the implementation of workplace health promotion strategies.

Figure 7.1: The DOME Framework of Health Promotion
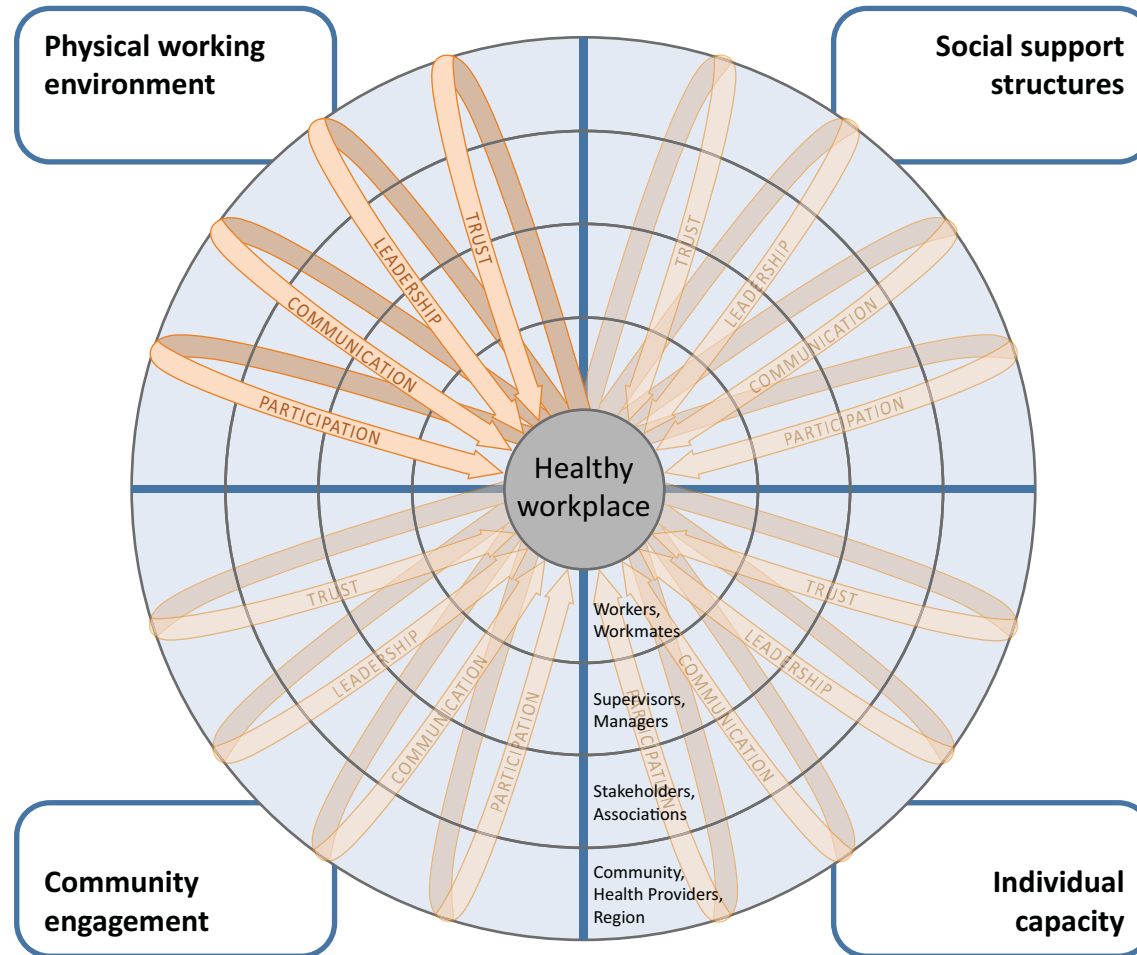
7.4.1 The DOME Framework of Health Promotion

The suggested framework for workplace health promotion is evidence-based, was designed from the findings of various data sources from the research and specifically created to address the particular needs and the setting of the commercial fishing industry. It is a pragmatic framework that is easy to understand and can be flexibly applied to the given setting, while at the same time being comprehensive in its approach and utilising current best-practice strategies.

The DOME Framework of Health Promotion targets the creation of a healthy workplace for both workers and employers. All activity revolves around achieving this goal. The framework spans across the entire fishing industry setting and incorporates various levels of players from within and around the industry. Four domains (*DO*) are addressed that incorporates both behavioural, as well as environmental aspects and therefore comprises a comprehensive health promotion approach, as proposed by the definition of health promotion underlying this research. The utilisation of the framework is guided by principal mechanisms (*ME*) of mutual trust, leadership, communication and participation. These mechanisms steer the interaction among the various players of the industry and activate the framework.

The framework addresses the characteristics of the fishing industry and takes account of the players within the industry setting. Small-sized enterprises are considered and the utilisation of existing structures and resources, as well as involvement of external organisations is factored in. By including a broad variety of stakeholders, as well as local health providers and the community in the framework, a strong supportive structure for small-sized enterprises to implement workplace health promotion approaches is created.

The utilisation of local structures and the engagement of the fishing industry with its surrounding community is supported. By targeting workers at a community level and approaching them where they work and socialise, 'soft entry' points are created and barriers of access reduced. The framework therefore presents a feasible and pragmatic approach that utilises existing structures and is appropriate for rural settings with low levels of infrastructure.

The four domains all address issues of concern that were raised by the workforce, industry managers and stakeholders, and thereby refer to prevalent needs. The framework incorporates various ways of understanding of health promotion and targets the creating of a healthy workplace from various angles. Ideally all four domains are addressed within a comprehensive health promotion program. However, through the components being individual domains, they can be individually addressed. This creates a flexible approach with the framework being adaptable to the given circumstances and individual needs. The premise of a 'one-size' health promotion intervention not fitting all is thereby accounted for. Within each domain different formats of health promotion and communication channels can be utilised, including information and awareness raising, education, training sessions and workshops to enhance empowerment and the workers' skills.

The framework promotes the individual responsibility of all industry players and encourages proactive approaches of open communication and participation in creating healthy workplaces. The independence of the fishing industry is thereby accounted for and a grassroots approach of the framework being activated by the players themselves generated. Existing structures and positive approaches, such as social support among workmates and personal care within small-sized enterprises, are utilised within the framework. Interaction and communication between the various players of the industry is encouraged and collaboration with external stakeholders and health providers endorsed. The mechanisms of trust, leadership, communication and participation guide the interaction among the various players of the industry and activate the framework.

The suggested framework of workplace health promotion in itself is not able to solve all identified health issues of fishing industry workers. However, it provides a blueprint for applying WHP strategies to commercial fishing industries or other regional industry sectors. It is suggested that by industry members actively applying this framework changes towards achieving healthy workplaces can be made.

Instead of imposing a system onto the industry, all levels of players within the fishing industry need to actively contribute in implementing and utilising this framework. Through this grassroots approach the industry's autonomy is supported and the industry strengthened from within. It is suggested that by offering this framework to regional development boards regional adaptability and local ownership is fostered and the framework's value enhanced.

The DOME Framework of Health Promotion therefore constitutes a roadmap of applying workplace health promotion strategies to fishing industries. It t can be used in various ways and for different identified health needs. Table 7.1 presents a matrix of how each domain can be addressed and put into practice. The roles of the various players in working this framework, as well as the mechanisms steering the utilisation of the framework are depicted within this matrix. It therefore creates a tool of planning, implementing and evaluating health promotion strategies. It may be utilised as scorecard to identify how comprehensive workplace health promotion approaches are. Progress over time and the addition of new elements and expansion of health promotion strategies across the four domains can be tracked.

Table 7.1: Blueprint for value-based workplace health promotion

		Trust	Leadership	Communication	Participation
Physical working environment		• Employers are trusted to supply the appropriate equipment and comply with safety standards • Workers can trust their health and safety to come first • Management can trust in workers acting responsibly and using the provided equipment	• Employers set policies around equipment supply. Hazard management and standard operations procedures are conducted • Time and place for healthy behaviour are provided • Employers employ strategic work organisation processes and schedule working hours to ensure workers' well-being • Health promotion is included in the company's mission statement	• Frequent and easily accessible information on health and well-being is provided at the workplace • Workers can openly communicate perceived health risks to their managers • Managers and industry report on health risks and injuries and collaboratively take action to mitigate risks	• Workers make use of the provided equipment • Workers and employers collaboratively participate in the provision and maintenance of a safe work environment • All management levels actively participate in health promotion programs
Social support structures		• Workmates support and trust one another • Healthy behaviour is reinforced and supported among workmates • Opinions of others are valued and respectful interaction takes place among all industry members	• Healthy behaviour is supported and positively reinforced • Leadership initiates social support among both workers and employers • Supervisors and managers set a good example and act as role models. Workers are encouraged to demonstrate leadership among their peers • Company managers utilise low level hierarchies and leadership styles that encourage workers and emphasise the recognition of the workforce • Cooperative leadership styles enforce a shared responsibility of workers and employers regarding workplace health	• Frequent and easily accessible information on health and well-being is provided at the workplace • Workers explain and demonstrate the benefits of preventative measures to workmates and peers • Experience and knowledge is shared across all management levels • Supervisors and managers are approachable for issues regarding workers' health and well-being and can refer these to the necessary support services	• Healthy behaviour is made routine and actively taken up by both workers and employers • All workers have an equal opportunity of utilising workplace health promotion offers and are encouraged by employers to participate in these • Workers actively engage in the offers of workplace health promotion that the workplace provides • Supervisors and managers show personal involvement with workers and are approachable for workers

	Trust	Leadership	Communication	Participation
Individual capacity	• Workers trust the employer and the employer's role, and trust being recognised and empowered at the workplace • Managers recognise and value the workforce and workers feel valued and empowered by their company • Employers trust workers to do a good job and take responsibility over their health at work • Workers are encouraged to broaden their skills and qualifications	• Workers take personal responsibility and speak up about perceived issues of workplace health • Employers recognise their workers, reward healthy behaviour and utilise positive motivation techniques • Supervisors and managers participate in leadership training and enhance their skills as responsible leaders • Workers are empowered to take responsibility for their own health	• Workers and employers are educated in workplace health and pass on information amongst each other • Workers know where they can get information they need and pass knowledge on to their workmates • Communication on workplace health is enhanced among different companies and industry sectors	• Workers participate in and make use of check-ups and offers of medical consultation or screenings • Both workers and managers participate in education and training sessions • Workers are actively empowered to deal with psychosocial pressures they face
Community engagement	• The fishing industry engages with the community in terms of workers' health and a healthy lifestyle outside of the workplace is encouraged • The community trusts that the fishing industry is a healthy environment to work in and reinforces a positive image of the fishing industry as looking after workers • Workers and employers trust in health service providers to reach out to the fishing industry • Industry enterprises create trustful partnerships with industry outsiders and create supportive relationships without the notion of being blamed or talked down to	• Workplace champions and role models of the fishing industry are identified and publicly recognised • Public figures that have credibility within the community act as advocates for healthy behaviour and a healthy lifestyle	• Existing structures are used to disseminate health promotion messages. Easy access of workers to information and support is ensured • The fishing industry communicates and collaborates with stakeholders and regulatory bodies • Industry stakeholders participate in the dissemination of knowledge on workplace health • Health promotion communications and messages include the wider community as well as specific target groups • Consistent public messaging on health and well-being thereby reinforces healthy behaviour of the fishing industry workforce, their families and the broader community	• The industry reaches out to health service providers to deliver health services to the fishing industry workplaces • Industry stakeholders reinforce workplace health promotion practices • The fishing industry presents itself at community events where activities reinforce healthy behaviour and issues around creating a healthy work environment are presented • The fishing industry holds partnerships with health service providers • Resources are provided by stakeholders and the community, and sponsorships for a healthy fishing industry are founded

7.4.2 Practical Examples

The framework can by utilised for various health and well-being issues detected throughout commercial fishing industries. The two main health issues that were evident within this research and that the players of the fishing industry would like to address in the future, were those of skin cancer and mental health issues. The threat of suffering skin cancer as a result of working in the fishing industry was highlighted during this research by both employers and workers and mentioned as one of the workplace health issues of concern. Workers suffering from mental health problems were stated as the main challenge within commercial fishing industries, with stress anxiety and depression being the most common issues affecting workers' health and well-being. For this reason the utilisation of the framework is presented using these two examples.

The blueprint of table 7.1 is populated, showing how this matrix can support the industry in creating effective workplace health promotion. The value of the framework to address specific health issues is demonstrated and the activation of the concept presented. Progress over time in developing health promotion strategies across the four domains can be kept track of and evaluated using a matrix like the ones presented in tables 7.2 and 7.3.

Table 7.2: Example of skin cancer prevention

	Trust	Leadership	Communication	Participation
Physical working environment	• Employers supply appropriate equipment for sun protection as well as sunscreen • Employers trust in workers acting responsibly (being 'sun smart') and using the provided equipment and sunscreen • Workers can rely on the company protecting them from the risk of skin cancer	• Employers set policies on reducing the risk of skin cancer among the workforce • The employer leads, and enforces a sun protected physical environment. Time and space to apply sunscreen and take preventative measures are provided to the workers • Workers demonstrate leadership among peers in maintaining a sun safe environment	• Easily accessible information about risks of sun exposure and the possibilities of preventing skin cancer are provided and disseminated • Workers openly communicate perceived health risks (i.e. lack of shade or equipment) to their employers	• Workers use provided protective equipment and apply sunscreen • Employer checks the working environment • Joint participation in responsible corrections and creation of a health supportive work environment
Social support structures	• Workmates support and encourage one another to use preventative measures to avoid skin cancer	• Skippers, supervisors and employers positively reinforce the utilisation of sunscreen and act as role models in utilising equipment	• Workmates communicate to each other the risk of sun exposure and look out for one another • Employers cooperate with health providers and communicate on how to mitigate the risks of sun exposure • Experience and knowledge is shared across all management levels and industry enterprises	• The application of sunscreen is made a routine of the everyday work in which workers actively participate • Workers and employers also take up healthy behaviour and apply sun protection outside of working hours when socialising
Individual capacity	• Workers are encouraged to show healthy behaviour and act 'sun smart'	• Workers take personal responsibility for their skin cancer risk • Supervisors and skippers are educated in skin cancer risks and act as responsible leaders	• Workers know where to receive the information they need on skin cancer and pass knowledge on to their workmates • Workers and managers are educated in skin cancer prevention and are given skills to undertake self-assessment of their skin	• Workers know how to prevent skin cancer and act 'sun smart'. Skin cancer screenings are utilised by the workers and self-assessment is regularly undertaken • Education and information sessions are attended by workers and management staff

	Trust	Leadership	Communication	Participation
Community engagement	• Being 'sun smart' and taking measures to prevent skin cancer are encouraged outside of the workplace • The fishing industry acts as an advocate for skin cancer prevention at community events. The industry may be employer of • Health providers are trusted by the workers and consulted in skin cancer issues. • The fishing industry creates trustful partnerships with health providers and organisations such as the Cancer Council	• Champions / role models showing healthy behaviour as well as 'sun smart' workplaces are voted for and publicly acknowledged • Public figures act as advocates for skin cancer prevention	• There is open communication on skin cancer risks and preventative measures between the fishing industry and stakeholders or health providers • The fishing industry communicates its practices of being 'sun smart' to the broader community • Consistent public messaging on skin cancer prevention include the wider community and reinforce healthy behaviour of the fishing industry workforce, their families and the broader community	• Health service providers deliver skin cancer screening at workplaces in the fishing industry e.g. at the wharf • Industry stakeholders participate in the dissemination of knowledge on skin cancer prevention • The fishing industry initiates partnerships with health providers and health services, as well as organisations such as the Cancer Council • The fishing industry presents itself at community events and raises awareness for skin cancer prevention. • Resources are provided by stakeholders and the community and sponsorships to support 'sun smart' workplaces are founded

Table 7.3: Example of mental health support

	Trust	Leadership	Communication	Participation
Physical working environment	• Employers are trusted to create safe workplaces, reassuring workers that their health and well-being is being put first • Management can trust workers to act responsibly	• Employers employ strategic work organisation processes and schedule working hours to ensure workers' well-being • Time and place are provided for making healthy behaviour possible • Workers and employers encourage others to take responsibility for their health and well-being • Supervisors and managers are trained in recognising and handling mental health problems	• Workers openly communicate perceived issues and pressures impacting on their health and well-being • Provision of easily accessible information and support with mental health problems • Supervisors and managers take action to reduce mental health problems and support workers showing issues	• Supervisors and management participate in mental health promotion programs and adopt these within their company • Workers make use of provided information and support structures
Social support structures	• Workmates support and trust one another with regard to mental health problems • Workers experiencing mental health problems are respectfully handled and supported • All workers are equally valued and have equal opportunities	• Positive reinforcement and support of healthy behaviour, such as avoiding alcohol and drugs • Leadership initiates social support among both workers and employers • Pathways to mental health support are shown and workers guided accordingly • Supervisors and managers set a good example and act as role models. Workers are encouraged to demonstrate leadership among their peers • Company managers utilise low level hierarchies and leadership that encourage workers and emphasise recognition of the workforce	• Frequent and easily accessible information on health and well-being is provided at the workplace • Workers can openly communicate experienced workplace pressures and well-being issues. Experience and knowledge is shared across all management levels • Supervisors and managers are approachable for issues regarding workers' health and well-being and can refer these to the necessary support services	• Workers take on responsibility for their health and well-being and socialise without the use of drugs and alcohol • Workers actively engage in the offers of mental health promotion that the workplace provides • Supervisors and managers show personal involvement with workers and are approachable for workers

	Trust	Leadership	Communication	Participation
Individual capacity	• Workers trust the employer and the employer's role, and trust being recognised and empowered at the workplace • Managers recognise and value the workforce and workers feel valued and empowered by their company	• Employers recognise their workers, encourage and reward healthy behaviour and support workers' self-esteem • Workers take personal responsibility and speak up about workplace pressures impacting on their mental health • Workers responsibly handle drugs and alcohol • Workers are empowered deal with workplace and psychosocial pressures • Supervisors and managers participate in leadership training and enhance their skills as responsible leaders	• Workers and employers are educated in mental health and pass on information among each other • Workers' mental health literacy is improved and issues of mental health are recognised throughout the fishing industry • Employers provide easily accessible information and support for mental health (tool kits, mental health first aid)	• Workers make use of counselling, support services and training programs • Employers participate in leadership training and in empowering workers
Community engagement	• The fishing industry engages with the community and health providers in terms of workers' mental health • Workers and employers trust in health service providers to reach out to the fishing industry • The community trusts the fishing industry to take care of workers and value them	• Workplace champions and role models of the fishing industry are identified and publicly recognised • Public figures that have credibility within the community act as advocates for mental health	• Awareness of mental health problems is raised and acceptance for workers with such issues gained • Workers have easy access to information and support outside the workplace • Health promotion messages on mental health include the wider community • Consistent public messaging on mental health supports the fishing industry workforce, their families and the broader community	• The industry reaches out to health service providers to deliver mental health support to the fishing industry • The fishing industry presents itself at community events and points to mental health issues • Events within the community raise awareness and inform on mental health problems • The fishing industry holds partnerships with health service providers and adopts mental health support programs such as 'Beyond Blue'

To be able to remain sustainable over time the suggested framework needs to be updated and continuously developed. The Public Health Action Cycle as universal tool for continuous improvement of health programs, comprises the steps of assessment, policy development (or program design), implementation and evaluation (Rosenbrock & Hartung 2012; Ruckstuhl, Somaini & Twisselmann 1997). By repeatedly assessing and prioritising and the needs of the target population and evaluating and refining the intervention program such cyclical models ensure maintaining a sustainable and effective intervention. Another well-recognised model of continual improvement for workplace health and safety was developed by the WHO Regional Office for the Western Pacific (WHO Regional Office for the Western Pacific 1999) and has been modified over time. This approach comprises eight steps of mobilise, assemble, assess, prioritise, plan, do, evaluate, improve. These are cyclical repeated to allow for ongoing enhancement of a workplace health promotion program. Even though this process of continuous improvement is not pictured in the framework, it is suggested to include this strategy of evaluation into any workplace health promotion program developed from the presented framework.

Chapter 8:

Conclusions and Recommendations

8.1 Significance of this Research

Despite the fact that strategies for the promotion of workers' health within commercial fishing industries have been called for, no research into the utilisation of workplace health promotion for this industry has been undertaken. At present the concept of workplace health promotion is gaining more and more recognition, as organisations recognise that "future success in a globalising marketplace can only be achieved with a healthy, qualified and motivated workforce" (World Health Organisation 2014). The aim of this study was therefore to investigate the Port Lincoln commercial fishing industry and explore the possibilities of utilising workplace health promotion strategies within this industry setting. To accomplish these aims, this research study made use of a mixed method exploratory case study and obtained data from multiple sources.

In essence, this research presents a novelty in several instances. The researcher personally engaged with the industry and over a prolonged research period, and within the setting gained the trust of industry representatives. Thereby rich insight into an industry that has been stated difficult to investigate was gained and new knowledge created. By pulling together the findings of multiple data sources, a detailed picture of the case under investigation was gained and a broad understanding of utilising health promotion approaches within commercial fishing industries created.

Perceptions of a wide variety of players, including industry managers, stakeholders and health providers were explored. Additionally, a survey of the workforce produced a representative sample on a considerable scale that had previously not been achieved. Moreover, a survey tool (FISHP), which allowed investigating the specific needs of the diverse workforce, was developed that can be used widely throughout other fishing industry sites.

Throughout all data sources the value of workplace health promotion and the benefits of utilising such strategies within commercial fishing industries were emphasised. Possibilities of delivery and implementation were highlighted and implications towards a pragmatic framework for workplace health promotion derived. The developed DOME

Framework of Health Promotion (Chapter 7) is tailored to the industrial setting and answers the call for strategies of health promotion in commercial fishing industries. It presents a novel approach, addressing the issues identified in the Port Lincoln industry while at the same time meeting international standards of best practice.

The framework provides guidance on how the relevant players within the commercial fishing industry can act towards implementing an effective workplace health promotion strategy. By constituting a comprehensive and adaptable framework it can easily be adjusted to various settings and modified according to newly arising needs. It is suggested that the framework is transferable to similar contexts of fishing industries Australia-wide and internationally.

8.2 Strengths and Limitations of the Overall Research

The case study methodology underlying this research allowed for a detailed exploration of workplace health promotion strategies within a specific commercial fishing industry setting. As the case study approach was anchored in real-life situations, insight into contextual and cultural structures as well as complex social interactions could be gained. Implications for the creation of a pragmatic framework for workplace health promotion tailored to the fishing industry could be derived from these findings.

Time constraints arising from the PhD specifications set limits to this research and only allowed for the inclusion of a single case. Case study research utilising such a single-case approach is often criticised for its lack of generality or transferability. However, other researchers argue that the results of a case study are transferable and that much can be learned from a particular case. As a representative of the average coastal community and regional fishing towns, the Port Lincoln fishing industry is deemed a valuable case study setting.

The innovative and well-managed approach to the Port Lincoln fishing industry showed large potential for health promotion strategies. Approaches to workplace health promotion within an Australian fishing industry were most likely to arise from this kind of setting. By investigating the measures that the Port Lincoln commercial fishing industry takes to support the health and well-being of its workers, a good baseline of knowledge was created and future directions for other industries derived. Prolonged contact with the case study and an extensive period of research within the Port Lincoln community as well as representative sample sizes of the various participant groups provide a rich description of the study setting and enhance the generality. While acknowledging that other fishing industries may differ from the Port Lincoln setting, the generalisation of the theoretical propositions arising from this research, which relate to the application of health promotion principles in commercial fishing industries, is suggested.

Another limitation that should be addressed is that of a single researcher undertaking all data collection and analysis procedures. By collecting data through a single researcher the

possibility of a bias in the information obtained needs to be mentioned. As the paradigm of realism states, the values of the investigator inevitably influence the inquiry (Guba & Lincoln 1994) and the same real life situation may be differently interpreted by different researchers. Therefore it needs to be accepted that any explanations are interpretivist in character and a fallible comprehension of reality may have occurred (Bhaskar 1998; Easton 2010).

The risk of receiving biased information was actively minimised by an extensive period of research within the case study setting, as well as the triangulation of various methods. Following the paradigm of realism, various perspectives and multiple viewpoints were incorporated to gain a picture reflecting reality. The presentation of participants' quotes and the discussion of contradictions further enhanced the validity of the findings. Additionally, findings were reported back to the industry and thereby verified.

8.3 Recommendations

The findings of this research have captured the diverse possibilities and benefits of utilising strategies of workplace health promotion within commercial fishing industries and communities. Specific industry characteristics and various barriers to implementation have been addressed in the development of a pragmatic framework for effective health promotion strategies. Due to this innovative approach with the concept of health promotion being largely unknown throughout the fishing industry, further measures are necessary to translate the DOME Framework of Health Promotion and successfully utilise it within commercial fishing enterprises. Based on the evidence from this research, several recommendations are set forth. These address future researchers, the commercial fishing industry of Port Lincoln and other fishing industries planning to implement a workplace health promotion program, as well as regulatory organisations entrusted with the health and well-being of fishing industry workers.

8.3.1 Recommendations for Future Researchers

Several aspects within this research warrant further consideration. Therefore this research supports future collaborative research with commercial fishing industries. Due to the concept of health promotion being largely unknown throughout the Port Lincoln fishing industry, the dissemination of health promotion knowledge to the commercial fishing industries is strongly recommended. Additional research that endeavours to work towards the translation and practical implementation, as well as evaluation and ongoing development of the suggested framework, is seen as beneficial and valuable to commercial fishing industries. For this reason the following recommendations for future researchers are given:

Broaden the Focus of this Research

This research utilised the rural town of Port Lincoln as a case study and was limited to data collection suitable to the PhD project timeline and a single researcher. Future research could take on a broader focus, include a longitudinal view and incorporate

further case study sites. Research within other commercial fishing industries and other industry sectors is seen as beneficial and would allow testing the findings of this case study. It should be explored whether commercial fishing enterprises that face more stable conditions and work as all-year businesses or industries in more metropolitan settings or in other countries share similar views and perceptions of workplace health promotion. Additionally, the translation of the framework to other rural Australian industries, such as mining, forestry or agriculture, would also be a valuable extension of this research.

Implement the Proposed DOME Framework of Health Promotion

Trialling the suggested framework within the Port Lincoln fishing industry and in similar settings would prove worthwhile and augment the existing understanding of utilising workplace health promotion strategies within commercial fishing industries. Implementation and practical application of the proposed research is strongly recommended to validate the findings of this research. Such implementation would additionally prove beneficial to the respective fishing industry.

For this reason it is suggested to put the suggested domains into practice and to utilise the framework for one or several health issues. Ideally a program of workplace health promotion targeting workers from several fishing industry enterprises and various industry sectors could be created. Over time the implemented health promotion approach should be broadened to encompass various health issues and diverse formats of delivery. An evaluation of the effects of the implemented workplace health promotion program and the measuring of workers' health and well-being as well as their job satisfaction would complete the implementation of workplace health promotion programs and contribute to an ongoing development of the proposed framework.

Initiate an Ongoing Professional Development of WHP Strategies

This research has revealed the current health needs of the fishing industry and created a framework to foster the implementation and utilisation of workplace health promotion strategies. To be able to sustain an effective health promotion program over a long period of time, a cycle of continuous improvement needs to be undertaken. The Public

Health Action Cycle functions as a universal tool for the continuous improvement of health programs and could be used as a guideline. It comprises the four cyclical steps of assessment, policy development (or program design), implementation and evaluation (Rosenbrock & Hartung 2012; Ruckstuhl, Somaini & Twisselmann 1997). By utilising such a cycle, it can be ensured that the needs of all players are met and that the program remains sustainable over time. The data collection and evaluation processes could be undertaken in cooperation with academic institutions.

Undertake Further Research on the Mental Health of Fishermen

A principal finding of this research was the high level of experienced stress-related and mental health issues among the workforce. As there is limited research on how to identify and address these health issues within the commercial fishing industry, future research should investigate this area of workplace health and well-being in depth. Reasons for the large threat of stress-related and mental health issues need further exploration. Additionally, the association of psychosocial and workplace pressures with drug and alcohol abuse and mental health problems needs to be investigated. The detrimental effects of social drinking habits and negative peer influence should be explored and prevention programs targeting drug and alcohol abuse developed.

It is suggested to build onto findings from research undertaken among similar workforces and cooperate with the developers of existing mental health programs. Such initiatives exist for agricultural workers (Australian Centre for Agricultural Health and Safety 2006; Brumby, Willder & Martin 2009) and in the construction industry (Mates in Construction 2013). As this research has shown the fishing industry would largely benefit from a comprehensive mental health program. Strategies of how to cope with psychosocial pressures, the targeting of drug and alcohol abuse, as well as the prevention of suicide should be included in such a program. By communicating broadly on mental health problems within the fishing industry, awareness can be raised and issues made visible throughout the community.

8.3.2 Recommendations for the Fishing Industry

The following recommendations are offered as strategies to put the suggested framework for workplace health promotion into practice in order to maintain and enhance the health and well-being of fishing industry workers. A motivated and committed workforce may thereby be retained and tied to the industry. To successfully plan, develop and implement effective WHP strategies the following suggestions are made towards fishing industries.

Establish a WHP Work Group

This research found that the commercial fishing industry distrusted outsiders to the industry and felt blamed by regulatory bodies. The implementation of a workplace health promotion program should therefore be undertaken from within the industry. This grassroots approach will prevent imposing an external system on the fishing industry. A work group entrusted with the implementation of WHP strategies is able to take existing structures into account and ensure that the health intervention matches the needs of the various players involved.

All players identified as being involved in a concept of workplace health promotion need to be represented within the work group. By creating a round table with industry managers, industry stakeholders, community members, regional developers and regulatory bodies, issues of distrust can be overcome and partnerships strengthened. Various perspectives, skills, understanding and resources are thereby brought together and workplace health promotion strategies collaboratively planned and implemented by the work group. Additionally, workers need to be part of such a work group to ensure the WHP program successfully meets their needs. By including the industry workforce into the planning process, worker ownership is created and the confidence of the workers in the WHP program gained. Within the work group communication among members should occur on the same level and respectful and trustful teamwork is encouraged. Open, clear and frequent communication about the purpose of workplace health programs, the practical implementation of workplace health promotion strategies and the continuous development of these constitute the main tasks of the work group.

Systematically Implement the DOME Framework throughout the Industry

To successfully implement workplace health promotion strategies and utilise the suggested framework, six guiding propositions are made. These include engaging trusted sources and peers, ensuring easy access, creating supportive work environments, prioritising the empowerment of workers, offering a variety of health promotion formats and topics and engaging with the surrounding community.

- Engage trusted sources and peers

  This research revealed several facilitators and structures beneficial to workplace health promotion programs that could be taken advantage of. For this reason it is suggested to utilise and strengthen internal support structures, including the prevailing notion of 'mateship' and personal care within work groups. Trusted and valued sources, such as skippers and peers, should support the dissemination of workplace health promotion information to the workforce and encourage worker participation. These informal leaders could be nominated workplace 'champions' and engage in promoting healthy behaviour and support the creation of a healthy workplace culture. A training of these peers in relevant leadership skills is recommended. Additionally, the establishment of an organised effort to represent workers' views on a higher level is encouraged, should no such body of worker representation exist within the respective fishing industry.

- Ensure easy access

  Since the workers of fishing industries present a mobile group that works at varying places and is often out at sea, this research has emphasised the importance of reducing barriers to access to health promotion offers. Health interventions should therefore be implemented at places where the fishing industry workforce can easily utilise them. In order to encourage workers in the fishing industry to make use of health promotion offers, these could be presented at industrial gatherings, recreational activities or other social events. Community clubs and local groups could be won as collaborative partners to support the dissemination of workplace health promotion offers. Local events allow

incorporating the workers' families and friends and therefore provide a broad platform to disseminate health promoting messages.

Due to the workers of the fishing industry working at irregular times, depending on the weather conditions, political decisions or seasons, workplace health promotion programs need to be set up accordingly. The off-seasons of the industry sectors, as well as down-time on boats or maintenance work before or after a season should be utilised as time frames with which to align workplace health promotion strategies. Inductions, compulsory training sessions or licensing procedures also hold the potential to incorporate workplace health promotion messages. Moreover, offers of local health providers should be specifically targeted towards the fishing industry's seasons and working hours, and a 'fishermen's consultation hour' during after-hours is suggested.

- Develop supportive work environments

This research identified the workplace culture as a significant constraint on successfully implementing workplace health promotion programs. Interviewees identified inconsistencies in the support and valuing of workers by industry managers. A sharing of responsibility with regard to workplace health was called for by the workers, but not answered by industry managers. Therefore the initiation of a cultural change towards valuing a healthy, qualified and motivated workforce is suggested. To achieve this, it is recommended to incorporate workers' health and well-being into the mission statement, values and policies of each enterprise. Genuine long-term commitment from management staff needs to be gained and all levels of management should be involved in a workplace health promotion program. To achieve these goals, participation in leadership programs to develop communication and the leadership skills of management and supervision staff is recommended.

- Prioritise empowering workers

  As this research has revealed, the workers of the fishing industry comprise a self-reliant and independent group of workers. At the same time a large range of workplace and psychosocial pressures were identified that were impacting negatively on workers' well-being. For this reason the prevailing self-determination of workers should be supported and workers empowered to take on further responsibility for their health whilst at work. By enhancing the health literacy of the workers, resilience towards the imminent pressures can be generated and their well-being improved. For this reason equipping fishing industry workers with the relevant skills is seen as a central element of a workplace health promotion program. By receiving support from supervisors and managers and being rewarded for success, the self-efficacy of workers may be increased.

- Offer a variety of health promotion formats and topics

  A broad range of workshops and activities should be offered within a health promotion program. Education and information alone will not create a sustainable effect on workers' health. Rather hands-on formats, multi-facetted programs and various methods of delivery are suggested, as these were favoured by the workers of the industry. Free or subsidised screening programs, medical checks, as well as visits by medical practitioners to workplaces are recommended, and a combination of information and training sessions to enhance the health skills of the workforce is suggested. The use of multiple communication channels, as well as innovative communication and marketing strategies, are seen as beneficial to enhance a WHP program.

  Next to physical injuries, the most commonly mentioned health issues needing attention were skin cancer, hearing loss and chronic back pain. Moreover, drug and alcohol abuse, stress-related and mental health issues were mentioned as topics that needed sparticular attention within the fishing industry. Therefore stress-factors inducing mental health problems, such as social and financial difficulties, as well as drug and alcohol abuse need to be addressed through

structured intervention programs. Tool-kits, pathways to information, hand-out materials as well as information sessions on mental health should be offered to both workers and managers and would be of large value to the fishing industry. These initiatives should be paired with community interventions that raise awareness and help overcome the stigma of mental health problems.

- <u>Engage with the surrounding community</u>

    This research found a large intertwinement of rural fishing industries with their surrounding community. The health of workers was in large part influenced by the community setting, and workers' families were in turn also influenced by the workplace health and well-being of the industry workers. By implementing strategies of health promotion into a broader community setting, fishermen and their families can be targeted well and barriers hindering access to health interventions reduced. For this reason the fostering of collaboration between the local industry and the surrounding community is recommended. A locally developed and owned health promotion program will fit the setting well and gain larger acceptance than an externally planned program.

    Additionally, this research revealed that the fishing industry was losing local workers to other rural industries and was eager to gain a positive image throughout the broader public. Such a positive image can be enhanced by showing support for the health and well-being of the workforce and by cooperating with regional development boards.

8.3.3 Recommendations for Regulatory Bodies

Put WHP on the Agenda

A large knowledge gap regarding the concept of health promotion was found throughout the fishing industry. No systematic approaches to supporting workers' health and well-being and no cooperation with local health services were found. It is therefore questioned how the fishing industry could be educated in health promotion and how knowledge of this concept could be disseminated throughout the industry. Existing bodies that are entrusted with the health and safety of industrial workers have, until today, mainly focussed on aspects of safety and injury prevention. To be able to broadly address the identified need of health promotion programs, the regulatory bodies should include health promotion in their strategies and on their agenda. During the course of this research, large cuts in health promotion projects and positions were undertaken. Nevertheless SA Health has cited health promotion as the top strategy for improving the health and well-being of the Port Lincoln population (SA Health 2010). Therefore it is suggested that there should be cooperation between the Port Lincoln fishing industry, as the largest employer, and SA Health and other regulatory bodies such as SafeWork SA.

As SafeWork SA states, its interest in promoting workers' health and well-being has increased over time (SafeWork SA 2014). Moreover, during the course of this research an Australian-wide campaign of workplace health promotion was launched. For South Australia the campaign entitled Healthy Workers - Healthy Futures (HW-HF) Initiative was delivered to different industrial sectors by SA Health. It aimed at encouraging South Australian employers and employees to identify chronic disease risk factors and to develop workplace environments and cultures that support healthy lifestyle behaviour (SA Health 2012). The central focus of the initiative was the funding of industry host agencies, such as peak industry bodies, regional business associations and unions to lead the change in agenda across their sector. The fishing industry could potentially be a future industry worthy of such an initiative. It is suggested that the commercial fishing industries could largely benefit from such an approach by gaining support in managing the health of its workers and implementing a workplace health promotion program.

Create Trustful Partnerships

This research could hardly identify any partnerships of fishing industry enterprises with stakeholders, such as local health providers or regulatory bodies. A notion of distrust was found, with the industry managers stating they felt blamed, instead of supported in addressing workers' health. A clear divide between the industry and regulatory bodies was found, with industry managers pointing to the responsibilities of SafeWork, rather than being proactive in supporting workers' health. For this reason a strengthening of partnerships and a collaborative approach to promoting the health and well-being of the industry's workforce is suggested. It is recommended that the implementation of effective and comprehensive workplace health promotion programs should be strived for in concerted action. Additionally, a sharing of resources and expertise is called for. Since long term investments to sustain health promotion initiatives are needed, sustainable partnerships supporting fishing industry enterprises are necessary.

Implement a Systematic Documentation of Workplace Health Issues

This research revealed that the health status of fishermen and incidents of workplace injuries and disease are not systematically documented and only incompletely captured. Due to a notion of feeling blamed, workplace incidents were covered up and not openly communicated by the fishing industry. Additionally, under-reporting was found within WorkCoverSA data. As many workers in the commercial fishing industry are not entitled to compensation cover or do not claim for injuries, only a fraction of the incidents actually occurring is documented. Moreover, mental health and stress-related diseases are often not identified or not classified as workplace incidents.

For this reason a systematic and comprehensive collection of data on workplace health and well-being issues is suggested. Only thereby can workplace health promotion programs be effectively planned and the needs arising systematically targeted. An ongoing evaluation of workplace health issues and a subsequent revision of health promotion topics of interest are recommended.

8.4 Conclusion

This research targets one of the most profitable Australian industries and suggests adding to its value through investment in the health and well-being of the industry's workforce. Following on from the statement 'make your employees happy, the profits will follow' (Nelson 2012) this research offers an innovative approach to utilising workplace health promotion to enhance job satisfaction and increase worker retention in the commercial fishing industry. According to the WHO the development of workplace health promotion is a prerequisite for sustainable social and economic development (World Health Organisation 2014).

The findings from this research provide a starting point for the future development of workplace health promotion programs. They provide valuable insight, raise the awareness of workplace health promotion and can initiate a process of change. Since most players in the Port Lincoln fishing industry show that they recognise the need to use such health promotion approaches and are looking for innovative ways of retaining staff, the presented framework provides a valuable tool.

The suggested DOME Framework of Health Promotion needs to be tested within commercial fishing enterprises and its feasibility, efficacy and sustainability trialled. The diverse challenges of implementing workplace health promotion strategies into a rural setting with unpredictable profit margins and various conflicting interests need to be acknowledged.

By systematically enhancing the health and well-being of workers, ultimately gains in productivity, as well as improved rates of staff retention are anticipated. A healthy, motivated and productive workforce that is mentally resilient and shows reduced rates of absenteeism can be worked towards. Additionally, the industry's reputation of looking after workers may be enhanced and an overall strengthening of the competitiveness of the commercial fishing industry achieved.

Flow-on benefits in processing, retail, trade, finance and transport may contribute to the economic and social prosperity of the industry's surroundings. It is suggested that by presenting this approach to regional development boards and supporting the building of workplace health promotion strategies from within the industry and in collaboration with the community, local ownership and a strong beneficial regional effect are created. By providing rich insight into the case under investigation and presenting a clear audit trail, it is suggested that the findings from this research can be transferred to similar contexts and further developed for other fishing industries Australia-wide and internationally.

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Appendices

List of Appendices

Appendix I - Categorisation of WorkCoverSA Data

Categorisation of Injuries (TOOCS)

Own category	TOOCS of nature of injury (as defined by WorkCoverSA)
Amputations	Traumatic amputation including enucleation of eye (loss of eyeball)
Contusions	Contusion with intact skin surface and crushing injury excluding those with fracture
Eye Injuries	Disorders of the conjunctiva and cornea
Ear injuries / hearing loss	Deafness; Other diseases of the ear and mastoid process; Traumatic deafness from air pressure or explosion
Infectious diseases	bacterial infections in conditions classified elsewhere and of unspecified site; Other infectious and parasitic diseases
Intracranial injuries	Intracranial injury, including concussion
Mental health diseases	Mental disorders
Musculoskeletal injuries	Arthropathies and related disorders - disorders of the joint; Dislocation; Disorders of muscle, tendons and other soft tissues; Fractures; Fracture of vertebral column with or without mention of spinal cord lesion; Osteopathies, chondropathies and acquired musculoskeletal deformities; Sprains and strains of joints and adjacent muscles
Injuries to the nervous system	Disorders of nerve roots, plexuses and single nerves; Dorsopathies / Disorders of the spinal vertebrae and intervertebral discs; Injuries to nerves and spinal cord without evidence of spinal bone injury;
Respiratory diseases	Other respiratory conditions due to substances
Wounds and skin diseases (incl. burns)	Burns; Contact dermatitis; Open wound not involving traumatic amputation; Other and unspecified dermatitis or eczema; Other diseases of skin and subcutaneous tissue; Superficial injury
Other injuries and diseases	Damage to artificial aid(s); Effects of weather, exposure, air pressure and other external causes, not elsewhere classified; Electrocution or shock from electrical currents; Foreign body on external eye, in ear or nose or in respiratory, digestive or reproductive systems; Hernia; Poisoning and toxic effects of substances; Multiple injuries; Other diseases

Categorisation of Occupational Groups

Own category	Definition	Occupational group (as defined by WorkCoverSA)
Aquaculture	Work in aquaculture and on fish farms	Diver
		Farm Hands nec.
		Fishing Hand
		Labourers and Related Workers nec.
		Seafarer
		Ship's Master
		Animal Attendant
		Aquaculture Farmer
		Aquaculture Worker
		General Farm Hand
Fishing	Employment as general fisherman	Diver
		Farm Hands nec.
		Fishing Hand
		Labourers and Related Workers nec.
		Seafarer
		Ship's Master
		Deck Hand
		Master Fisher
Office jobs and fish wholesale	Jobs in offices and management positions	Accountant
		Fisheries Officer
		Human Resource Manager
		Payroll Clerk
		Project or Program Administrator
		Receptionist (General)
		Research and Development Manager
		Sales Assistant (Food and Drink Products)
		Shop Manager
		Specialist Managers nec.
		Storeperson
		Supervisor, Stock and Purchasing Clerks
		Supervisor, Storepersons
		Systems Manager
		Warehouse Administrator
Processing	Fish and seafood processing	Butcher
		Factory Process Workers nfd.
		Fish Process Worker
		Poultry Process Worker
		Product Examiner
		Seafood Process Worker

Appendix II - HREC Ethics Approval

THE UNIVERSITY
of ADELAIDE

RESEARCH BRANCH
RESEARCH ETHICS AND COMPLIANCE UNIT

SABINE SCHREIBER
SECRETARY
HUMAN RESEARCH ETHICS COMMITTEE
THE UNIVERSITY OF ADELAIDE
SA 5005
AUSTRALIA

TELEPHONE +61 8 8303 6028
FACSIMILE   +61 8 8303 7325
email: sabine.schreiber@adelaide.edu.au
CRICOS Provider Number 00123M

Applicant: Associate Professor A Wilson

School: School of Nursing

Project Title: *A framework for workplace health promotion approaches in commercial fishing enterprises - a case study of Port Lincoln*

THE UNIVERSITY OF ADELAIDE HUMAN RESEARCH ETHICS COMMITTEE

Project No: H-2012-082   RM No: 0000013618

APPROVED for the period until: **30 June 2015**

It is noted that this study will be conducted by Andrea Barclay, PhD candidate.

Refer also to the accompanying letter setting out requirements applying to approval.

PROFESSOR GARRETT CULLITY   Date: 2 1 JUN 2012
Convenor
Human Research Ethics Committee

Appendix III - Search Strategies of the Integrative Literature Review

Search Grid for Scopus

Fishing industry	Workplace Health Promotion	NOT	Limits
Fisher*	"Health promoti*"	"Animal health"	TITLE-ABS-KEY
Fishing	"Promotion of health"	"Seafood safety"	LIMIT-TO(LANGUAGE, "English")
Aquacultur*	"Prevention of disease*"	"Food safety"	
Maricultur*	"Health education"	"Fisher* test*"	LIMIT-TO(PUBYEAR, 1993-2002)
Piscicultur*	"Disease prevent*"	"Fisher's P value*"	
"Fish farm*"	"Injury prevent*"	"Fisher* exact"	EXCLUDE(SUBJAREA, "ENGI")
Aquafarm*	"Health behavi*"	"Fish consumption"	EXCLUDE(SUBJAREA, "BIOC")
"Fish process*"	"Health education"		EXCLUDE(SUBJAREA, "CENG")
"Tuna industr*"	"Health literacy"		EXCLUDE(SUBJAREA, "VETE")
"Tuna fisher*"	"Primary prevention"		EXCLUDE(SUBJAREA, "EART")
"Seafood industr*"	"Educational intervention"		EXCLUDE(SUBJAREA, "CHEM")
"Seafood process*"	"Occupational health"		EXCLUDE(SUBJAREA, "MATH")
	"Organi* health"		EXCLUDE(SUBJAREA, "ENER")
	"Work* health"		EXCLUDE(SUBJAREA, "PHYS")
	"Employ* health"		
	"Job health"		
	"Staff health"		
	"Worksite wellness"		
	"Work* intervention*"		
	"Occupational intervention*"		

Search Grid for EMBASE

Fishing industry	Workplace Health Promotion	NOT	Limits
Fisherman:de Fishing:ti,ab,de Fisher*:ti,ab Aquaculture:de Aquacultur*:ti,ab Mariculture:ti,ab,de Pisciculture:ti,ab,de "Fish farm":ti,ab Aquafarm*:ti,ab "Fish farms":ti,ab "Fish farming":ti,ab (Fish NEAR/1 process*):ti,ab (Tuna NEAR/1 industr*):ti,ab (Tuna NEAR/1 fisher*):ti,ab (Seafood NEAR/1 industr*):ti,ab (Seafood NEAR/1 process*):ti,ab	"Health promotion":de "Health education":ti,ab,de "Health literacy":ti,ab,de "Primary prevention":ti,ab,de "Occupational health":ti,ab,de (Promot* NEAR/1 health):ti,ab (Prevent* NEAR/2 disease*):ti,ab (Prevent* NEAR/1 injur*):ti,ab (Health NEAR/1 behavi*):ti,ab (Work* NEAR/1 health):ti,ab (Work* NEAR/2 intervention*):ti,ab (Organisation* NEXT/1 health):ti,ab (Organization* NEXT/1 health):ti,ab "Worksite wellness":ti,ab (Employ* NEAR/1 health):ti,ab (Occupation* NEAR/2 intervention*):ti,ab "Job health":ti,ab "Staff health":ti,ab	"Animal health" "Seafood safety" "Food safety" Fisher* NEAR/1 test* Fisher* NEAR/1 exact "Fisher P value" "fish consumption"	[1993-2013]/py [embase]/lim [english]/lim

Search in Databases

Occupational Health and Safety databases

- National Institute of Occupational Health and Safety (NIOSH), Australia
- Comcare Publications, Australia
- Safe Work Australia Publications
- WorkCover Corporation of South Australia
- Health & Safety Executive, UK
- European Agency for Safety and Health at Work
- National Academies Press
- National Ag Safety Database, U.S.
- Canadian Centre for Occupational Health and Safety

Hand search, Australia

- Fisheries Research and Development Corporation (FRDC)
- Rural Industries Research and Development Corporation (RIRDC)
- Fishery Councils
- Fisheries Division of Primary Industries and Resources, South Australia (PIRSA)
- Department of Agriculture, Fisheries and Forestry (DAFF)
- Centre of Excellence for Science, Seafood and Health (CESSH), Curtin University
- Australian Bureau of Agricultural and Resource Economics (ABARE)
- National Seafood Industry Alliance
- Australian Fisheries Management Authority (AFMA)
- Commonwealth Fisheries Association

Hand search, International

- Food and Agriculture Organization of the United Nations (FAO), Fisheries and Aquaculture Department
- International Labour Organisation
- Ministry of Fisheries of various countries
- Fisheries Research Councils of various countries

Appendix IV - Flyer Announcing Interviews in Port Lincoln

Andrea Barclay – Researcher

Andrea Barclay is conducting this research for her doctorate at the University of Adelaide, Faculty of Health Sciences. She holds a Masters degree in Public Health and a Bachelor of Health Communications, which she completed in Germany. She has worked for the German doctors' association as press officer and for Lufthansa Technic in the area of workplace health promotion.

Contacts

This research project has been granted **approval** from the University of Adelaide's Human Research Ethics Committee.

If you have any questions about this project and your participation feel free to contact me.

If you wish to discuss matters related to the project, or your rights as a participant, with an independent person, you may contact the Human Research Ethics Committee's Secretariat on phone (08) 8303 6028.

Andrea Barclay

PhD candidate
The University of Adelaide

Email: andrea.barclay@adelaide.edu.au
Mobile: 0458 188 602

Strengthening the commercial fishing industry

...through a healthy workforce

Image by Rosanna Milligan

A research study
of PhD candidate Andrea Barclay

THE UNIVERSITY of ADELAIDE

What is the study aim?

As a **high profile enterprise** the commercial fishing industry plays an important role in shaping the Australian landscape.

This research aims to **identify the views of people within this industry sector**, from the commercial fishing, seafood processing, wholesale and aquaculture businesses.

➢ How can industries make themselves attractive to potential workers?

➢ How can the fishing and aquaculture enterprises optimise their capability and capacity?

➢ How can a healthy workforce make the industry even more profitable?

The study aims to develop strategies to support workers' health to **enhance worker motivation and ultimately increase productivity**.

Who is behind the study?

This research project is conducted by PhD candidate Andrea Barclay together with a team of independent researchers at the University of Adelaide. The team is working with support by the SA government and the fishing and aquaculture industry.

Image by Lois Callaway

What does participation involve?

As a member of the Port Lincoln fishing and aquaculture industry you are invited to share your views. Take the opportunity to discuss the possibilities of this industry sector to invest in future workers.

I will be contacting key people in the fishing industry and am visiting workplaces in Port Lincoln in **December 2012 and February 2013** to conduct individual interviews. These will take approximately 45 minutes. You are also very welcome to contact me directly.

All records of conversation and personal details will remain strictly **confidential**. No identifying details on you personally or your business will be released to anyone.

Share your views -

Your voice is important!

Appendix V - Interview Guideline, Industry Managers

Introduction

- Introduction of the researcher and the research project
- Consent to record the interview / Confidentiality
- Timing

-----Beginning of interview-----

Background information on individual enterprise

- Type of enterprise
- Number of workers / Occupational groups
- Role of informant

Current workplace health initiatives

Tell me about the strategies your company utilises to support your workers' health.

Further questions (if applicable)

- What kind of measures do you undertake to promote healthy behaviour? (Educational programs, wearing UV protection / safety clothing, lifting correctly)
- What kind of measures do you undertake to provide a healthy work environment? (Healthy food, change rooms, break room with tea / coffee, no smoking policy)

If there are strategies being utilised, ask further questions:

- Who is the driver of this initiative?
- Is the health service offered during working hours?
- Is the initiative evaluated in any way?

Current workplace health issues

What impact does working in the fishing industry have on workers' health?

From your perspective, what are the key health needs of workers in the Port Lincoln fishing industry?

Further questions:

- What do you think are the priorities for health in the fishing industry?
- Are the workers self-managing their health?

Definition of workplace health promotion

What does the term "workplace health promotion" mean to you?

Possible answers might be:

- Ensuring worker safety
- Educational strategies to change workers' healthy behaviors

- Creating a health supportive environment
- Offering organisational health support (free medical check-ups)
- Strengthening personal competence of workers regarding health (assistance programs)
- Including health in the mission statement and management strategies of the company

How could fishing enterprises support and enhance workers' health (in an ideal setting)?

What do you think of the following approaches? *(Hand a copy of the list attached to this interview guideline to the interview partner and go through the points on the list.)*

Potential benefits of a healthy workplace

What do you think the potential benefits of such workplace health promotion approaches (as mentioned in the list we just looked at) might be?

If productivity is mentioned:

- What is the relationship between productivity and health promotion?

Barriers and facilitators for implementing workplace health initiatives

Do you consider your company / employer to be proactive about health promotion?

In what way would you consider implementing these strategies (as mentioned on the list) for your company?

Further questions (if applicable):

- What hinders you implementing these approaches of workplace health promotion?
- What are the challenges when implementing approaches of workplace health promotion?
- Is health promotion in the fishing industry different from health promotion somewhere else?

Responsibility for workplace health promotion in the fishing industry

In what way do you see yourself responsible in supporting workers' health?

Further question:

- Is it the workers' responsibility or the employers' responsibility to maintain workers' health?
- How responsive in general is the fishing industry with workers' health?

-----End of Interview-----

Closing of interview
- Thank you
- Any last points?
- Reassurance of confidentiality
- Procedure of data analysis and reporting

Possible workplace health promotion approaches *(Interview prompt)*

Healthy Work Environment

Safe working environment
Change room and showers
Bicycle facilities
No smoking policy

Educational Program / Information

Regular safety training
Back Safety (correct lifting of weights)
Cancer prevention
Heart disease prevention
Health education materials (brochures)

Free Medical Check-ups at Work

Hearing or eyesight test
Blood pressure check / cardiovascular risk screening
Skin cancer check
Immunisation programs (flu shots, vaccines)
Diabetes check
Visiting occupational health nurse

Fitness Programs

Corporate fitness membership rates
Running / cycling / rowing groups
Stretching / relaxation programs

Healthy Nutrition

Healthy eating course / workshop
Weight management
On-site healthy food

Assistance Programs

Smoking cessation
Job stress management
Managing chronic pain
Substance abuse
Return to work assistance (after long-term illness)
Psychological counselling (i.e. depression, anger)
Family services (i.e. child care)

Work Organisation

Time off work to visit doctor / specialist
Flexible working hours

Other

Private health insurance at special conditions

Appendix VI - Information Sheet, Interviews

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INFORMATION SHEET ON INTERVIEWS

Project title

A framework for workplace health promotion approaches in commercial fishing enterprises - a case study of Port Lincoln

Invitation to participate

I invite you to participate in a research project which is conducted as part of my studies towards a Doctor of Philosophy at the School of Nursing, University of Adelaide. It is titled: "A framework for workplace health promotion approaches in commercial fishing enterprises - a case study of Port Lincoln".

Before you decide whether or not you wish to participate, please read the following information carefully and be sure to ask any questions you have. The researcher team will be happy to discuss it with you and answer any questions that you may have. You are also free to discuss it with your family and friends, if you wish.

Background to the study

The aim of this research project is improve health promotion strategies in rural industries. The project will work on developing suitable strategies and activities to promote health in the workplace. Port Lincoln commercial fishing enterprises will be taken as a case to explore the needs and perspectives of employees, employers and local health providers on implementing workplace health promotion.

A small grant to cover the cost of this research such as travel costs has been made available by the SA government. The researcher is on an international scholarship for research students funded by the Australian government.

Procedures

If you would like to participate in this study you will be asked to share your ideas, opinions and thoughts on health at the workplace. Participation involves a face to face, digitally audio recorded interview of approximately 60 minutes, to be conducted confidentially at your workplace or other discrete public place at a time suitable to you. The interview will be transcribed by a professional transcription service. All identifying data and names will be removed from the recording before transcription to ensure anonymity.

If you want to request copies of data that relate specifically to you, this will be provided. You have the possibility to request that some or all of the interview content be removed from the dataset before analysis.

Participation is voluntary

Participation is voluntary, if you do not wish to take part, you are not obliged to. You may decline to answer any question, request to stop recording or terminate the interview. You are free to do so without providing a reason. There is no direct payment for your participation.

Confidentiality

All information and documents containing your personal information and information on your company/practice will be kept strictly confidential. Any names and distinguishing features will be removed from the thesis and any other output of the project to protect the privacy and identities of all participants or institutions involved in the study. Anonymity will be maintained in any reports or publications produced from this research. No one other than me will have access to information that links you to the research.

In spite of removing all identifying data, it may still be possible to draw a link to your company/practice as the study is restricted to Port Lincoln and the sample of participants is rather small.

All data will be stored in a locked filing cabinet and/or on a password protected computer in a locked office in the School of Nursing, University of Adelaide. Only specified investigators have access to these.

Benefits of the research

The findings of this study may offer insight into health at the workplace. It may inform employers and health providers of the possibilities of supporting workers' health at the workplace. Future practice may incorporate issues identified in this study which could potentially lead to an improved support of workers' health.

Contacting the researcher

Any enquiries about the study can be directed to the researcher Andrea Barclay or the principal research supervisor Alison Kitson. Phone numbers and email addresses of all researchers involved in the study are listed below.

This study has been approved by the University of Adelaide Human Research Ethics Committee. If you wish to discuss any other aspect of this study with someone who is not directly involved, or if you have any complaints or reservations about the ethical conduct of this research, you may contact the Human Research Ethics Committee's Secretariat on phone (08) 8303 6028.

Thank you for considering this request. If you would like to participate in the study please complete the accompanying consent form.

Kind regards

Andrea Barclay
Tel.: (08)831 37566
Mobile: 0458 188 602
Email: andrea.barclay@adelaide.edu.au

Alison Kitson
Head of the School of Nursing, University of Adelaide
Tel.: (08) 8313 0511
Email: alison.kitson@adelaide.edu.au

Dino Pisaniello
Associate-Professor, School of Population Health and Clinical Practice, University of Adelaide
Tel.: (08) 831 33571
Email: dino.pisaniello@adelaide.edu.au

Kathryn Powell
Post-Doctoral Research Fellow, School of Population Health and Clinical Practice, University of Adelaide
Tel.: (08) 831 33466
Email: kathryn.powell@adelaide.edu.au

Appendix VII - Consent Form, Interviews

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CONSENT FORM

1. I have read the attached Information Sheet and agree to take part in the following research project

Title:	A framework for workplace health promotion approaches in commercial fishing enterprises - a case study of Port Lincoln
Ethics Approval Number:	H-2012-082

2. I have had the project, so far as it affects me, fully explained to my satisfaction by the research worker. My consent is given freely.

3. Although I understand the purpose of the research project it has also been explained that involvement may not be of any benefit to me.

4. I have been informed that, while information gained during the study may be published, I will not be identified and my personal details as well as company names will remain confidential.

5. I understand that I may decline to answer particular questions and ask for the recording to be ceased during the interview or withdraw from the study at any time.

6. I understand receiving no direct payment for participation in this study.

7. I understand and agree that the conversation will be audio digitally recorded.

8. I am aware that I should retain a copy of this Consent Form, when completed.

....

(Name of participant)   (Signature of participant)   (Date)

I have described the nature of the research to the participant above and in my opinion she/he understood the explanation.

....

(Signature of researcher)   (Date)

Appendix VIII - Nodes Tables of Thematic Analysis

Overview of Codes and Categories Developing into Four Main Themes

Code	Category	Subtheme	Theme
Lifting	Back issues	Risk of injury / disease	**Perceived pressures and risks**
Cuts and bruises	Other physical injuries		
Repetitive work			
Skin cancer	Skin cancer		
Shift work	Long hours	Workplace pressures	
Work at irregular times			
Long hours			
Fatigue			
Tight staffing	Work organisation		
Work with life product	External demands		
Working towards market demands			
Challenging work environment	Work environment		
Confined space			
Financial issues	Socio-economic draw-back	Psychosocial pressures	
Unskilled / illiterate			
Worthless worker			
Away from home	Isolation		
Unstable relationships			
Stress	Stress		
Mental health	Mental health issues	Mental health issues	
Drug and alcohol abuse	Drug and alcohol use		

Code	Category	Subtheme	Theme
Safety training	Health as safety	Reinforcing safety regulations	**Understanding of workplace health promotion**
Safe Work SA task			
Legislative requirements			
Rotation of tasks			
Supplying equipment			
Learning by doing	Health education	Raising awareness and educating	
Awareness raising			
Changing behaviours			
Immunisation	Health offers		
Counselling			
Medical checks			
Taking pressure off	Personal care	Caring for and looking after workers	
Keeping workers happy			
Socialising			
Keep motivated			
Need to manage risks	Empowering workers	Empowering workers	
Empowering workers			
Up-skilling			
Management task	Management task	Aligning environmental and cultural factors	
Low level management			
Change of industry culture	Environmental approach		
Good atmosphere			
Supportive work organisation			
Cooperation with external providers			

Code	Category	Subtheme	Theme
Casual workers	Work organisation	Structural issues	**Factors impeding the WHP implementation**
Transient / seasonal staff			
Work organisation			
Work at irregular times / at night			
Varying industry sizes	Unstructured, ad hoc approach		
Varying regulations / no common ground			
Go with whatever works			
No overarching bodies	Industry structure		
Tight staffing			
Flogging workers	Worthless worker	Image of workers	
Workers as uninterested / dumb			
Weeding through workers / pick workers			
Blokey / masculine			
External political regulations	Lack of trust	Distrust towards outsiders	
Outsiders bring problems			
Red tape	Feeling blamed		
Fear of blame			
Feeling assessed			
Investment of time	Cost	Costs and unknown benefits	
Investing money / Cost			
Uncertainty of benefits			
Tight profit margins / variability			
Fear of negative outcome			
Distrust in changes	Gridlocked		
Narrow view			

Code	Category	Subtheme	Theme
Skin cancer screening	Areas of interest	Heath promotion topics	**Possibilities of utilising WHP**
Auditory screening			
Drug and alcohol			
Provision of healthy food			
Counselling services			
Diabetes			
Back training			
Physical activity			
Smoking			
Workplace bullying	Mental health related topics		
Mental health			
Suicide			
Less absenteeism	Benefits for management	Company benefits	
Productivity increase			
Keeping workers happy			
Motivation workers			
Staff retention		Staff retention	
Remain competitive			
Similarities of sectors	Facilitating factors	Opportunities for implementation	
Show workers support			
Contemplation			
Down time			
Rural setting			
Job as lifestyle			

Development of Quotes into Theme 'Perceived Pressures and Risks'

Quote	Code	Category	Subtheme	Theme
You're always lifting in this game and you gotta be pretty careful with everyone's backs, you know. (IM5) They are on their feet and lifting for long periods of time, so they definitely suffer from more... I wanna say more muscle issues that lead to a compromised spine later. Initially before the age of fifty it's usually just muscle strain, lower back. Because they're bending over and lifting all the time and they're on their feet for such a long period of time. (HP2)	Lifting	Back issues	Risk of injury / disease	Perceived Pressures and Risks
They're big, so these fish can be... some of them 100 kilos. The smaller ones might be 18 and 19. They're still big, powerful animals. We actually physically have to catch them, so divers actually catch the fish by hand and then they bring them up into a conveyor that holds them up. [...] They're extremely powerful [tuna fish]. They could break your arm easily enough, like the tail muscle's like this big. If it hits you on the table it can break your arm. (IM8) Injuries are only usually small stuff you might get a cut or something from working with knives and things like that. (IM4)	Cuts and bruises	Other physical injuries		
I think probably one of our... you know, obviously these RSI type issues of doing the same thing for eight hours. (IM1) Repetitive type of injury... repetitive type of work process that causes those kinds of... strains and sprains... (IM9)	Repetitive work			
Being out on the deck of the boat all day in the sun plus the reflection of the water surface and it's a really big concern of mine, particularly. I don't know how the rest of the industry feels but I think that, that… we have so much skin cancer in Australia as it is and then I don't have the data but I could only assume that it would be even higher again on… in the fishing industry. (SH5) But there's still risks, you know. There's still out in the sun. There's still possibly getting burned. (SH7)	Skin cancer	Skin cancer		

Quote	Code	Category	Subtheme	Theme
So they… I haven't been out directly on a boat, but they sleep during the day, and they work… they start work at 5 o'clock, maybe even earlier to get the boat ready. And then they fish from anywhere from 6 or 8 o'clock, depending when the sun sets, and then they'll fish until six in the morning. Then there'll be some finishing up work, before they go to bed. (SH1)	Shift work	Long hours	Workplace pressures	
So then you've got sort of shift work coming into it as well and it's full-on work. And then they have, maybe a couple of months off or the next two weeks off, and then they go out again. So it's so different to nine-to-five work. All the different sectors can be very long hours and very tiring and very dangerous. (SH2)				
But during our busy time of the year if we are transferring fish from the tow cages, from when we first bring them back, into our holding cages here, those days can be up to 15 hours, just depends… We have quite a few variables so we don't exactly have set hours. And the nature of it, we can't just stop and go, oh no that's it for today. We'll have to finish what we are doing and make sure everything is okay to be left there overnight before we can call it quits for the day. (IM4)	Work at irregular times			
Some of the hours that you work as well, when the fish are on, you catch 'em. That's how you make your income, whether it be working with phases of the moon, the tides, even gaps in the weather. Where like for us the swell'll be right , if you get days when the swell drops right out, then that's when we can work and can get into that impact zone where a lot of the abalone live. So you have to make the most of that and you will do long days of diving. (IM7)				
Yeah, I think the biggest... I think if they stuck to 38 hours a week... If they did five days at eight hours or whatever they'd be fine. But they go chasing. They offer the extra dollar and so, they end up working 14 hours a day, seven days a week and that's what the body can't cope with. It's that overload. (HP3, 05:35)	Long hours			
So they're working at night and then they're spending up till lunch the following day unloading the product to the tuna farm. And then by 3:30, 4 o'clock in the afternoon they've got to go again. (SH4)				

Quote	Code	Category	Subtheme	Theme
I would say the number one is fatigue, sleep deprivation. Yeah. Without sticking your neck out because the last thing's we want to do is have to have two shifts on the boat. Yeah. [...] Prawns and sardines work at night time. And a lot of the day, so in terms of packing up or unloading or processing fish. And potentially there's sleep deprivation is the big … is the real number one. It used to knock the crap out of me. And I think that alone leads to potential you know, risks in other areas, but I don't know how you fix it. (SH4) It's just compressed into a short, really intense work period. [...] I think if you have been sleep deprived you understand what that's like. It's torturous. It's terrible. (SH4)	Fatigue			
They've changed their general health and safety approach, that's anything above 20 or 30 kilo shouldn't be lifted by one person. Sometimes they just don't have two persons, so… (HP5)	Tight staffing	Work organisation		
So that's quite stressful 'cause you've got to catch the fish and then when you get the fish back, it's very, very stressful trying to transfer the fish into their pens and get 'em all settled in. That's very stressful. That's probably the most stressful week out of the whole year, I think. Because one little error can cost you millions of dollars. […] You can't relax because if a storm comes or you've got seals or you've got poachers… anything can happen. (IM6)	Work with life product	External demands		
If the weather is good, you go. If the weather's no good, you don't go. And sometimes when the weather's no good, they still go 'cause they got boats there waiting. The overseas boats are waiting to take the products so they've gotta process it as quick as they can, get it on the boats and get them off. (HP3) But the customers on the freezer ships tend to be bigger, like 300 or 400 tons of fish or bigger customers. So we harvest straight to meet their work schedules. Each of those boats will take 40 tons of fish in a day. And we've serviced sometimes three freezer boats on the same day. So we sometimes have to harvest 100 tons of fish in a day so it's quite a big operation and harvesting is quite involving. (IM8)	Working towards market demands			

Quote	Code	Category	Subtheme	Theme
It can be quite dangerous at times, your rough weather, jumping off of boats on the farms. So there's a lot of hazards. (IM6) Fishing just by its nature, working to the weather, I mean, Mother Nature and weather is always going to pose a risk to your health and safety out on the water. That's one of the risks that you accept when you work in the industry. And it is, it can be, a lot more taxing on your body. I you've got moving platforms that you're working from, and it's not like an office environment. (IM7) It's cold and it's wet and it's miserable. In the middle of winter, it's no fun and people get knocked around on boats or bounced around, it gets cold. It really is a young man's industry, certainly doing the hands-on work is a young man's industry. (SH7)	Challenging work environment	Work environment		
Fights between male workers, living together on small space for weeks (HP6) You have to be allowed to able to get along with others. In almost a big brother kind of environment, where you're in each other's face all the time. (SH5)	Confined space			
Fishing where it's a lot more uncertainty with your income. It depends a lot on how much you catch. (IM7) Because there's a lot of wealth in the fishing industry, but also a lot of debts. So particularly for some of the younger guys who take on big mortgages and debt or whatever, they're not going to worry about a gym membership. They just need to catch the quota, and get… run the business to pay their debts, and to stop the bank putting them out of business. And that's where there's the well-being from a mental point of view… the psychological part of it. (SH2)	Financial issues	Socio-economic draw-back	Psychosocial pressures	
Crew, like the general deckhands, there's always guys around, but they're, you know, they're just guys, but for the skilled engineers and the skippers, it's getting very, very difficult. (IM6) You can lead a horse to water but you can't make them drink. I think a lot of them do as much as they can. But they're just, they're dumb. They're dumb and they're bully boys and they're tough. (HP3)	Unskilled / illiterate			

Quote	Code	Category	Subtheme	Theme
Now, my perception of it is that the people that work for them and help catch the product are just basically tools that they use to assist them to get the product. (SH3) They usually just have to get a medical clearance but the problem with the injuries on the boats is they're usually pretty substantial. It's usually backs, backs and shoulders and knees. And once you've had that injury, unless you've got some other skills you can offer, then they don't want you back. [...] They have this attitude that, "I pay you to work. I don't pay you to think. Just do the job." (HP3)	Worthless worker			
Because the guys are stuck in the boats for... we'll go out for... Oh we were stuck in a boat for bloody nearly two months chasing those stupid fish. (IM2) We always try and find stable people especially the guys that have to go to sea because they're at sea for quite a while. Depending on which boat they go on, like the same boat will go out and spend three months at sea pretty well for the whole of the catching season and only maybe come in for a couple of days here and there just to put fuel on the boat and more stores and then they're back out again. (IM4)	Away from home	Isolation		
Like being away from your family whether it be wives, girlfriends, kids, the works, and that can be a big stress on relationships, and I'm sure that if you looked into it, there are a number of studies being done on that at the moment. (IM7) But on the other hand, being away from land so much can have some negative effects on family, and friendships, and maintaining friendships, and having the relationships that you want with your wife or your children may be difficult. (SH5)	Unstable relationships			
So the stress also, if they've got any family, life, financial stress, that all will, family and financial stress all effects the lower back, I find as well. That's just sort of an aside. Yeah, I notice that. When they come in, if they're really struggling, it's because, there's, it's not usually just of work, physical stress it's usually … from whoever or wherever. Sometimes it is just the boss. They're not meeting quota or you know, there's a lot ... there's a lot put on them (HP2)	Stress	Stress		

Quote	Code	Category	Subtheme	Theme
We know we've had people who have had depression but they seem to have managed it quite well. They obviously had medical support. It's the ones you don't know about - and we haven't had it in our company - but since I've been here I know three suicides in, of young men in the area here. So clearly there's an issue in some places. (IM8) And so many times you hear stories about people being quite fine and then going on a boat and after 10 days or 2 weeks or 3 weeks, like losing it. Yeah, kind of losing it a bit and suffering from some anxiety or psychological condition that maybe didn't know they had or it wasn't obvious to others until they were put in that particular environment. And depression and anger are probably the two most prevalent. (SH5)	Mental health issues	Mental health issues	Mental health issues	
Drug and alcohol is a problem. Most of the boats now have a no-drug, no-alcohol policy. [...] The big problem of course they get their pay check and they go... certainly a lot of drug use in Lincoln. There's no question to that, but I think it's a bit everywhere. (HP4) Figures have gone up despite having a very efficient mental health service here… the burden is… I remember workers will have sick days and everything due to mental health issues. It's incredible and that seems to be related to the fish industry more than other industries. (HP5, 10:44) With the 40, 50 people… they... all these guys do drug tests and shit here and if you know six, seven of them have got a drug problem, whether it's a major one or it's just bloody dope and smoking, in the end it affects the other guys on the boats. Unless you sort out and try and do something about it and then get them back on track, it does become an issue, because they then end up with frigging money problems and all sorts of shit. (IM2)	Drug and alcohol abuse	Drug and alcohol abuse		

Example Quotes and Main Findings for all Themes

Theme 1: Perceived pressures and risks impacting on workers' health and well-being		
Subtheme	**Typical Example**	**Main Findings**
Risk of injury / disease	*As health risks fishing just by its nature... working to the weather, Mother Nature and weather is always going to pose a risk to your health and safety out on the water. That's one of the risks that you accept when you work in the industry. And it is, it can be, a lot more taxing on your body. You've got moving platforms that you're working from, and it's not like an office environment. You can take every measure. I mean, you can try to make it as safely as possible, and everyone does. 'Cause no one likes to get injured or hurt, die, or lose friends, but there are those jobs that, when you're exposed to the elements, I would say, do pose a higher risk to your health and safety. (IM7, 09:21)*	• High level of risk of suffering a workplace injury due to physical work and environmental hazards. • Acceptance of these risks as nature of the work within the fishing industry. • Risk of physical injuries and acceptance of these mainly stated by industry managers and stakeholders.
Workplace pressures	*Because there's a lot of pressure to harvest, it's very important. The weather can be rough, but they really want the fish, so stress levels are quite high. And they're big days, harvest days for me, I'll start at 5:30 in the morning and finish at 6 o'clock at night and you would do that every day for a couple of months. [...] That's very stressful. That's probably the most stressful week out of the whole year, I think. Because one little error can cost you millions of dollars. (IM6, 07:03)*	• Workplace pressures such as long working hours and work at irregular times arising from market demands and work with live product. • Long working hours mentioned by almost all industry managers. • Working with limited resources (cutting costs) mentioned by stakeholders and health providers.
Psychosocial pressures	*So the stress also, if they've got any family, life, financial stress, that all will... Family and financial stress all effects the lower back [...] Yeah, I notice that. When they come in, they're really struggling. It's because there's... it's not usually just of work, physical stress it's usually from whoever or wherever. [...] There's a lot... there's a lot put on them. (HP2, 09:10)*	• Pressures workers of the fishing industry face, impacting on their psychological health and well-being. These include financial stress and family stress. • Often arising from being isolated and out at sea for extended periods of time and resulting in lack of access to adequate health care. • Mentioned by all participants, but mainly by health providers.

Theme 1: Perceived pressures and risks impacting on workers' health and well-being		
Subtheme	**Typical Example**	**Main Findings**
Mental health issues	*I think that the psychological health of fishermen is really important because when they're at sea for long periods of time, you have to… I always say, you have to have a special soul for it. Like there's often quite a lot of loneliness involved. You have to be allowed to able to get along with others…in almost a big brother kind of environment, where you're in each other's face all the time [...] And so many times you hear stories about people being quite fine and then going on a boat and after 10 days or 2 weeks or 3 weeks, like losing it. Yeah, kind of losing it a bit and suffering from some anxiety or psychological condition that maybe didn't know they had or it wasn't obvious to others until they were put in that particular environment. And depression and anger are probably the two most prevalent. (SH5, 19:16)*	• Perceived mental health issues as well as issues of drug and alcohol abuse within the workforce. • Mental health issues often arising from workplace and psychosocial pressures the workers face. • Drugs mentioned in almost every interview and equally throughout all three participant groups.

Theme 2: Understanding of workplace health promotion		
Subtheme	**Typical Example**	**Main Findings**
Reinforcing safety regulations	*I think that… [...] I know that there's signs on the deck saying, "Wear your hard hat" and all that sort of stuff. So I guess that's promotion, in a sense. What else would be a work health promotion? (IM5, 07:52)*	• Equating workplace health promotion with safety practices and legislative requirements. Referring to SafeWork SA and their tasks regarding workplace health. • Regulation of responsibility through legislation viewed as opposing by outsiders to the industry and industry managers.
Raising awareness and educating	*It's quite a good idea. If you can… because you get people talking about their health. If it's epidemics in things like type 2 diabetes and other things associated. I know myself I've developed type 2 diabetes and when you think back about it, if you'd been more aware, more conscious of it earlier on, it was probably preventable. You don't really know, but just maybe, if you can raise that awareness. (IM8, 27:16)*	• Referring to initiatives of awareness raising and health education that are found in community settings. • Identification of possibilities for health education for various health issues within the fishing industry.
Caring for and looking after workers	*So, you've got to take a little bit of notice, but in saying that, that's a hard thing to do I suppose for those big guys, 'cause you're paid to run a company, not go and bloody mollycoddle these people that can't stop bloody drinking or smoking or whatever. So, all those little things [...] In the end, you've got to realise your workforce bloody... it runs your company. Without it you bloody... you can't do nothing so… you do have to look after them in the end. (IM2, 11:25)*	• Supporting workers' health through personal involvement and care. • Concept of socialising to motivate workers. • Described by industry managers.
Empowering workers	*I think the best thing we can do is equip our people that we work with, with as much leadership skills as possible, so that they have the ability to say 'Look, I don't know' or 'No, I don't want to do that', or have strategies to look after themselves. I think that's the best way [...] if you can develop leadership skills in people then you improve their whole well-being and their whole health generally, and managing stress isn't a day to day conflict. (SH2, 23:20)*	• Approach of empowering workers through training and equipping them with leadership skills to ultimately improve their health. • Increasing the self-responsibility of workers. • Understanding of health promotion least referred to.
Aligning environmental and cultural factors	*I think they need to have… I think they need to change their whole culture at the executive level or corporate level within that business. And that is, not all of them even employ an occ. health and safety manager, or if they do, they just employ someone with no skills or qualifications and it's like a token gesture. [...] I think, it's gotta start at the corporate level or the executive level. If it doesn't, if they're not interested there, well it's not going to flow on. (SH3, 26:47)*	• Management approaches such as flattened hierarchy as factor towards supporting workers. • Valuing of workers questioned by outsiders to the industry, mainly by health providers.

Theme 3: Factors impeding implementation of workplace health promotion		
Subtheme	**Typical Example**	**Main Findings**
Structural issues	*And you know the demographics of where I work is work as well. You know, they're on the boats at 5 o'clock or 6 in the morning and they sometimes get back late at night [...] People are in different times and different areas, all the time, so it's really difficult to bring them all together, in that sort of environment. (IM9, 12:29)*	• Structural barriers arising through self-operated companies with small number of workers, as well as a transient workforce and high numbers of casual staff. • Unpredictable working hours and varying working environments, as well as inhomogeneous working practices and no common ground.
Cost and unknown benefits	*Hard to say 'cause I don't ... Everything in this industry is cost. It's a very tight. It's not a highly lucrative business all the time. It can be. You can lose money some years. Cost is always… seems to be… I mean, health and safety is number one, but then cost is number two. And then value for money. So it's [...] the next decision about, 'Will people use it?' And sort of 'What benefit will the company get out of it?' (IM6, 17:39)*	• Uncertainty of investing in health promotion, due to the unknown benefits. • Barrier of cost mentioned by most participants.
Distrust towards outsiders	*So I mean it'll be a… you have to fill out a heap of paper work and I think the way those WorkSafe organisations work it just… they need someone to blame, someone to sue. So they'll find a hole in the whole process and that will be: 'Alright, it's your fault'. Which is, yeah, I don't think it's the right way to go about it, but anyway. (IM7, 08:41)*	• Issues of distrust towards governmental organisations and other outsiders to industry. • Difficulty of cooperation with outsiders to offer service to the industry because of distrust issues. • Mentioned by industry insiders (industry managers, some stakeholders).
Image of workers	*So yeah there might be an issue with adopting it from the employees' sake, because of the type of industry they are in. Not necessarily because they don't want to do it, but because it is a bit macho sort of thing, yeah. (HP1, 30:42)*	• Perception of workers not accepting, but disregarding offers of health support. • Workers perceived as narrow-minded and 'blokey' and therefore uninterested in health promotion offers. • Mainly referred to by health providers.

Theme 4: Possibilities of utilising workplace health promotion		
Subtheme	**Typical Example**	**Main Findings**
Health promotion topics	*Certainly sun, probably a good one because they all work outside all the time. We have policies on wearing hats and shirts and sunscreen, but it only goes so far, so… But we don't have anything like that in place. But I think it's quite a good idea. And certainly something worth considering. (IM8, 14:45)*	• Areas of concern that could be supported by workplace health promotion offers. • Mainly industry managers pointing to workplace health promotion offers of interest.
Company benefits	*Well the cost and the time and things like that to the employer when there is a workplace injury would definitely be probably the main selling point. [...] So it would be time and resources and money down the track that you would be putting your money up front for. And also, I mean I am sure the productivity of the employees is better when they feel they are getting, yeah, well looked after… like looked at as people, not just employees. So providing those assistive services often goes a long way to workplace morale, which goes a long way to workplace productivity and things. So yeah, in a roundabout way to get to there. (HP1, 29:09)*	• Perceived benefits of workplace health promotion.
Opportunities for implementation	*They only travel at one knot so it can take three weeks to bring a cage of tuna back. And in that three weeks, the fish just need to be checked and the nets need to be checked and they may need to be fed. But other than that, there's not a lot else to do. And I think that it's a real… the workers are getting paid really good money to go out and do this and I've always thought that it would be a real opportunity to… if you've got the boys there and you've got… they've got time on their hands to up skill to train to get something constructive out of them. (SH5, 04:45)*	• Identified possibilities and opportunities of implementing and utilising workplace health promotion strategies within the fishing industry.
Staff retention	*Ah, it's gonna have to change dramatically. There's an exodus for the mining and as the mining becomes more prominent around here, why would you go out and risk your life bouncing around on a ring for19 or 20 bucks an hour when you can go up there and earn 60, but work long hours? They're gonna have to come out with something that's gonna give people the incentive to stay. And I think that's not only improve wages, but improve conditions. (HP3, 10:49)*	• Perceived need of the fishing industry to be competitive and offer incentives to retain workers. • Discussion of retaining workers and tying them to the industry through offers of health support

Appendix IX - Survey Questionnaire (FISHP)

THE UNIVERSITY *of* **ADELAIDE**

PhD research project by Andrea Barclay

Health at work – in Port Lincoln fishing and aquaculture businesses

Thank you for your time to participate in this research project! It contributes towards my studies of a PhD at the University of Adelaide. The aim of my work is to explore how workers' health might be supported at the workplace.

Your participation is strictly confidential. You will not be asked for any personally identifying information. No one will have access to the data collected apart from myself. Your employer has agreed for this questionnaire to be distributed, but will not be informed who participates. **Participation is voluntary.** If you do not wish to take part, you do not have to.

The questionnaire will take about **10 minutes to complete**. Please answer the questions by crossing all appropriate boxes or filling in the blank spaces. **Should you have any questions don't hesitate to ask.**

Once you are finished please hand the questionnaire back to me!

Section 1 - The following questions refer to your personal information

1) **What is your age?** _____ years

2) **What is your gender?** ☐ Male ☐ Female

3) **What is the highest qualification you have completed?** *(Please tick the appropriate box)*
   ☐ No formal qualifications ☐ Trade qualification or Apprenticeship or Certificate
   ☐ Year 10 or school certificate ☐ University degree or higher degree
   ☐ Year 12 or leaving certificate ☐ Other *(please specify)*:_____

Section 2 - The following questions refer to your current work

4) **What is your current job/role in your company?** *(Please tick the appropriate box)*
   ☐ Deckhand/Fishing hand ☐ Skipper ☐ Diver
   ☐ Engineer/Mechanic ☐ Fish or seafood process worker ☐ Packer/Driver
   ☐ Accountant/Receptionist ☐ Administrator/Manager
   ☐ Other *(please specify)*: _____

5) **How long have you been employed in your current position?** _____ years _____ months

6) **How many days of the year do you work in this position?** Approximately _____ days per year

7) **What describes your work status best?** *(Please tick **all** the appropriate boxes)*
   ☐ Self-employed ☐ Permanent staff ☐ Hired, casual or seasonal staff
   ☐ Paid by share in catch ☐ Family member of family business ☐ Other *(please specify)*: _____

8) **I see my work as...** *(Please tick **all** the appropriate boxes)*
   ☐ More than a job to me/I love doing it ☐ Something I am stuck with/I have to do it
   ☐ Undecided ☐ Other *(please specify)*: _____

9) How many times in the past year have you thought about leaving your job?
(Please tick the appropriate box)

☐ Never   ☐ Yes, once or twice   ☐ Yes, several times

10) If yes, what were reasons that made you think of leaving? *(Please tick __all__ the appropriate boxes)*

☐ Financial aspects   ☐ Physically demanding tasks
☐ Long working hours   ☐ Time away from family/friends
☐ No up-skilling/qualification available   ☐ Health and well-being factors
☐ None of the above   ☐ Other *(please specify):* _____

Section 3 - The following questions refer to your personal health

11) How would you rate your overall health? *(Please tick the box most suitable for you)*

☐ Very good   ☐ Good   ☐ Average   ☐ Poor   ☐ Very poor

12) How often do you see a doctor or health professional when you have a health problem?
(Please tick the box most applicable)

☐ Regularly   ☐ Only if there's a severe problem
☐ I don't have time to do so   ☐ I can't get an appointment/the health services aren't offered
☐ I try to sort myself out   ☐ Other *(please specify):* _____

13) Do you regularly have health check-ups (at least once a year)? *(Please tick the box most applicable to you)*

☐ Yes, it's a company requirement   ☐ Yes, I regularly go voluntarily   ☐ Sometimes   ☐ No

14) How much do you feel you can influence your staying healthy? *(Please tick the box most applicable)*

☐ Very much   ☐ Some   ☐ Moderately   ☐ Hardly   ☐ Not at all

15) What do you do to stay healthy? *(Please tick __all__ the boxes that apply to you)*

☐ Eat healthy   ☐ Sports/Physical activity   ☐ Relaxation
☐ Social activities   ☐ Regular medical check-ups   ☐ Not drink as much
☐ Avoid drugs   ☐ None of the above
☐ Other *(please specify):* _____

16) I would like to gain more control over my own health and learn more skills to stay healthy.
(Please tick the appropriate box)

☐ Yes   ☐ Undecided   ☐ No

Section 4 - The following questions refer to your health at work

17) Does your job involve any of the following risks *(Please tick __all__ relevant boxes)*

☐ Particular dangers and **injury risks** (e.g. moving objects, machinery, diving)
☐ Exposure to extreme **weather conditions** (e.g. hot/cold, wind, rain)
☐ **Physically demanding** work (e.g. repeated twisting and bending, lifting heavy objects)
☐ Working under **time pressure** (e.g. meeting deadlines)
☐ Irregular or **long working hours** (e.g. work at anti-social times, work on demand, night shifts)
☐ Monotonous or **repetitive tasks** (e.g. assembly line)
☐ None of the above
☐ Other *(please comment):* _____

18) **Do you feel you are at risk of having any of the following injuries/diseases as result of your work?**
*(Please tick **all** boxes applicable to you)*

☐ Bone injuries (fractures) ☐ Sprains and strains ☐ Cuts/Bruises
☐ Chronic back/neck pain ☐ Migraine/Headaches ☐ Asthma/Allergies
☐ Hearing or sight loss ☐ Skin problems ☐ Heart disease
☐ Stress-related symptoms (i.e. burn-out, sleeplessness) ☐ None of the above
☐ Mental health issue (i.e. anxiety, depression) ☐ Other *(please specify)*:_____

19) **Have you ever been injured during your current employment?** *(Please tick the applicable box)*

☐ Never ☐ Yes, once ☐ Yes, twice ☐ Yes, more than twice

20) **Have you ever witnessed an injury during your current employment?** *(Please tick the applicable box)*

☐ Never ☐ Yes, once ☐ Yes, twice ☐ Yes, more than twice

21) **How much does your everyday work influence your health and well-being?**
(Please tick the box most applicable to you)

☐ It makes me stay healthy ☐ It doesn't really have an influence
☐ It restricts me from maintaining a healthy lifestyle ☐ It makes me unhealthy
(Space for comments): _____

22) **In your opinion, who do you think should be responsible for your health at work?**
(Please tick the box most applicable to you)

☐ Myself ☐ Mainly myself, but also my employer
☐ Mainly my employer, but also myself ☐ My employer
☐ Both at same rates ☐ Other *(please specify)*: _____

23) **In what way does your workplace provide you with a healthy and work safe environment?**
*(Please tick **all** boxes that apply to you)*

☐ I have received suitable **training** to work safely
☐ I **know how** I can avoid injuries at work
☐ I have the **equipment** I need to work safely and prevent injuries
☐ I have the **time** to work according to the safety measures
☐ I have **health support** by my manager/supervisor
☐ I know where I can get **information and support** at work concerning health and safety issues
☐ I feel my company/employer generally ascribes **large importance** to workers' health
☐ None of the above
☐ Other *(please specify)*: _____

24) **Are you satisfied with the amount of health support at your workplace?** *(Please tick the box most suitable)*

☐ Yes ☐ Somewhat ☐ No
(Space for comments): _____

25) **Who would you ask if you needed information on issues related to your health at the workplace?**
*(Please tick **all** boxes that apply to you)*

☐ Supervisor ☐ OHS manager ☐ Work mates
☐ Local health providers ☐ Friends/Family ☐ Internet
☐ None of the above ☐ Other *(please specify)*: _____

26) **Have you ever heard of the term "workplace health promotion" before?**

☐ Yes ☐ No ☐ Don't know

Please turn over

Section 5 - The following questions refer to workplace health promotion

27) **What do you think "workplace health promotion" involves?**
*(Please tick **all** boxes that seem appropriate to you)*

- ☐ Ensure worker **safety**
- ☐ Educational strategies to change workers' **healthy behaviours**
- ☐ Creating a health supportive **environment** (i.e. healthy food, break room)
- ☐ Offering organisational **health support** (i.e. free medical check-ups)
- ☐ Strengthening **personal competence** and self-management of workers regarding health
- ☐ Including health in the mission statement and **management strategies** of the company
- ☐ I don't know
- ☐ Other *(please specify):* _____

28) **If (from tomorrow on) your workplace offered the following <u>free</u> health services, which would you like to use/participate in?** *(Please tick **all** boxes that seem appropriate to you)*

Education/Information
- ☐ Back safety training (correct lifting of weights)
- ☐ Course/workshop on disease prevention (e.g. heart disease, diabetes, cancer)
- ☐ Healthy eating course/workshop
- ☐ Pick-up health materials (i.e. brochures)

Assistance Programs
- ☐ Quit smoking program
- ☐ Drug and alcohol issues support
- ☐ Mental health support (e.g. for depression, anger management)
- ☐ Job stress management
- ☐ On-site healthy food
- ☐ Weight management training

Medical check-ups
- ☐ Hearing or eyesight test
- ☐ Blood pressure check
- ☐ Skin cancer check

Medical check-ups - continued
- ☐ Immunisation programs (flu shots, vaccines)
- ☐ Diabetes check
- ☐ Visiting medical practitioner (for general health questions)

Fitness Programs
- ☐ Corporate fitness membership rates
- ☐ Running/cycling/rowing/... groups
- ☐ Stretching/relaxation programs

Work organisation
- ☐ Private health insurance at special rates
- ☐ Time off work to visit doctor/specialist
- ☐ Flexible working hours

- ☐ None of the above

- ☐ Other *(please specify):* _____

29) **If your workplace offered the health support listed above, what might reasons be for you not to participate?** *(Please tick **all** boxes that apply to you)*

- ☐ I don't have enough time/a too tight work schedule to be able to participate
- ☐ I cannot leave my work space to attend health promotion activities
- ☐ I don't want my employer involved in my personal health
- ☐ I have concerns about others knowing of my personal health
- ☐ I am overall satisfied with my health and don't need support
- ☐ I have enough other information/support/etc. and do not need health support at my workplace
- ☐ My manager does not/will probably not support participation
- ☐ I am not interested
- ☐ Other *(please specify):* _____

30) **Is there anything else you would like to add regarding your work and how it affects your health?**
_____
_____

Please hand the questionnaire back to me! If you are not able to complete it today, please put it into the provided envelope and drop it with _____ once finished.

Thank you very much for your support by completing this questionnaire! *Andrea*