OCCUPATIONAL HEALTH AND SAFETY IN THE NEW ZEALAND FISHING INDUSTRY: PRELIMINARY FINDING OF THE KEY ISSUES

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Abstract

In 2008 there were approximately 3,500 registered commercial fishing vessels in New Zealand and 2,500 full-time employees working in the industry, a fraction of New Zealand's two million plus labour force. However, in the Maritime New Zealand's Annual Report 2000-2001 it was reported that New Zealand's commercial fishing sector represented a disproportionately high number of maritime fatalities. With the exception of the 2007 fatality figures, the rate of Maritime New Zealand reported fatalities and accidents within the commercial fishing sector have remained fairly static. As a result, there have been a variety of initiatives implemented in this hazardous industry, for example, FishSAFE, and a number of reviews undertaken. However, unlike other sectors, implementing OHS interventions in the fishing industry has to account for a number of unique features such as the employment strata, geographical isolation of job, precariousness of employment, increasingly a diverse workforce and social issues such as substance abuse, and.

This paper reports on preliminary findings based on interview data of employers and employees in the New Zealand fishing industry. In particular, it exposes a number of barriers to implementing and maintaining OHS measures, for example, increasingly tight profit margins, time pressures, and confusion around regulatory requirements. The initial findings also indicate that the command and control structure of managing staff in the fishing industry can influence individual and group perception and acceptance of risk. Finally, the paper highlights areas requiring further investigation.

Introduction

The New Zealand seafood industry is fourth largest industry behind dairy, meat and forestry, contributing $1.7 billion to the GDP, employing 26,620 full-time equivalents (Ministry of Fisheries, 2007). In the commercial fishing industry, there are approximately 3,500 registered commercial fishing vessels and 2,500 full-time employees working in the industry. While the seafood industry makes a significant contribution to New Zealand's GDP, the commercial fishing industry it is small and fragmented in its makeup. Moreover, those employed in the fishing are also poorly paid compared to employees in other occupations (Statistics NZ, 2008). While it has been predicted that the industry will grow substantially over the next decade, underpinning this growth are a number of critical issues, such as the changing nature and skill capacity of the workforce, impact of new technology and resource sustainability.

In Maritime New Zealand's1 Annual Report, 2000-2001 (Maritime Safety Authority, 2002) it was noted that New Zealand's commercial fishing sector represented a disproportionately high number of maritime fatalities. With the exception of the 2007 fatality figures, the rate of Maritime New Zealand reported fatalities and accidents within the commercial fishing sector have remained fairly static, (outlined in Figures 1 and 2). As a consequence of the high level of fatalities and injuries, a number of reviews have been undertaken since 2000 and resultant initiatives implemented. For example, one of the first reviews undertaken in 2000 was by the Fishing Industry Safety and Health Group (FISHGroup). This group had representatives from the commercial fish catching sector, ACC and the Injury Prevention Research Unit of the University of Otago, and was convened by the Maritime Safety Authority (now Maritime New Zealand) with the

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[1] Maritime New Zealand is the new name for Maritime Safety Authority. The name change came into effect on 1st July 2005.

objective of identifying possible initiatives for improving the safety performance of the fishing industry.

The commercial fishing industry is one of the most complex in terms of variety of working environments, high rate of mobile workers, tight margins and significant health and safety issues (Driscoll, et al, 2002). In response to the high rate to OSH concerns in this industry, Maritime NZ and ACC developed several initiatives, with the overarching programme the Safe Ship Management Programme. Although there have been no comprehensive evaluations of the FishSAFE initiative, it appears to have fewer problems than the Safe Ship Management programme. According to the interviewees the use of training, mentors and guidance material are all effective mechanisms in getting the safety message out to those operating in the industry.

Figure 1. Fatalities within the commercial fishing Sector

(Source: Maritime New Zealand, 2006, 2008)

Figure 2. Accidents within the commercial fishing sector
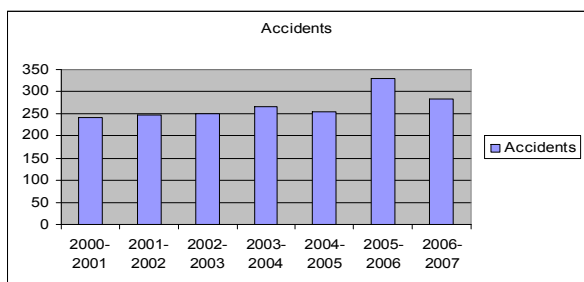
(Source: Maritime New Zealand, 2006, 2008)

The main OHS initiatives administered and/or supported by Maritime New Zealand over the past decade are outlined below. However, there have been a number of serious concerns about aspects of these initiatives.

Safe Ship Management

Introduced in 1998, Safe Ship Management programme covers New Zealand-owned commercial vessels operating in New Zealand waters, such as small domestic cargo, passenger and fishing vessels, to improve their day-to-day safety. Safe Ship Management replaced the earlier system of annual surveys, and aimed to make ship owners and operators responsible for daily maintenance and operation of their vessels throughout the year. Operating under the umbrella of

Safe Ship Management, there are a number of sub-initiatives, the two main ones being Safe Operational Plans and the Safety Profile Assessment Number (SPAN). Safe Operational Plans was introduced in 1999. It is a scaled-down version of Safe Ship Management and is designed to provide a practical and affordable set of safety requirements for smaller commercial operators, such as commercial jet boat and river rafting operators.

Safety Profiling (the Safety Profile Assessment Number (SPAN)) scheme was introduced in July 2001. The scheme covers over 3,000 vessels in Safe Ship Management systems, allocates a number indicating the level of risk a vessel poses to safety and in the marine environment. It became apparent during the year that certain operational details within the scheme were neither fully understood nor endorsed by some in the industry. Consequently, SPAN was further refined to include a provision that the human factor aspects did not stay with the vessel if it was sold, a source of particular concern to the industry. The Safe Ship Management requires inspections and audits to supplement the daily obligation on owners and operators to maintain and operate their vessels safely. Audits and inspections are to be carried out by approved service providers (SSM companies). In the case of the Safe Operational Plans system, Authorised Persons carried out inspections and audits (Maritime New Zealand, 2004).

Review of Safe Ship Management Development Programme

Since its introduction, the Safe Ship Management programme has been under continuous scrutiny and subjected to both internal reviews by Maritime New Zealand and external reviews by the Auditor General's Office and Transport Safety Investigation Commission as well as independent consultants (such as Thompson Clarke Shipping Pty Ltd).

Maritime New Zealand acknowledged that the introduction of Safe Ship Management and Safe Operational Plans was not without problems, and by 2000 significant issues with the programmes were identified. A report commissioned in 2000 by the Maritime Safety Authority Board (conducted by Pacific Marine Management Limited) expressed concern at evidence of growing risks associated with the new systems. The report identified problems including a lack of consistency, overcharging, and reluctance by some owners and operators to undergo audit. In March 2002, the Maritime Safety Authority Board initiated another independent review of Safe Ship Management and Safe Operational Plans, conducted by Thompson Clarke Shipping Pty Limited– an Australian company with internationally recognised expertise in the maritime field. The Board received Thompson Clarke's comprehensive Review of Safe Ship Management Systems (the SSM Review) in September 2002. In December 2002, the Maritime Safety Authority Board approved implementation of 11 of the SSM Review's 29 recommendations, and noted the remaining 18. The changes resulting from the 11 recommendations represent a major shift from the initial Safe Ship Management system

of self-regulation and the delegated monitoring and enforcement of safety standards towards direct MSA regulation of, and involvement in, the administration and monitoring of the system (Controller & Auditor-General Office, 2005).

The Controller and Auditor-General Office (2005) noted that by 2005 the most significant change resulting from the Safe Ship Management Review was the introduction of the New Zealand Code of Practice for Safe Ship Management (the new Code of Practice). The Code of Practice is the main way the Maritime Safety Authority has implemented the Safe Ship Management Review's recommendations. It requires vessel owners, operators, and SSM companies to keep extensive safety management documentation, and – on request – to either display it or make it available to the Maritime Safety Authority. The Code of Practice also has inbuilt performance indicators for SSM companies (Controller and Auditor-General Office, 2005).

In spite of the numerous reviews and numerous recommendations to improve the Safe Ship Management Programme, there continue to be significant problems with the programme. In their 2007 Annual Report, the Transport Accident Investigation Commission (TAIC) (2007: 25), noted:

'A common theme to come out of recent marine investigations is the functionality of the safety management system and the legislation surrounding it. A number of incidents have revealed that the safety management system ought to have identified and corrected deficiencies that were subsequently proved to be factors in occurrences. The problem appears to be systematic, with incidents involving restricted limit passenger vessels, fishing vessels and barges, all affected by Maritime Rule part 21, Safe Ship Management Systems'

TAIC (2007: 26) also added:

'A secondary but associated issue that features in many investigations is inconsistencies within the Maritime Rules that make compliance and monitoring difficult. Such inconsistencies often occur in relation to the manning and qualification requirements for differing areas of operations; such as inshore, coastal, offshore and unlimited, and the type of activity; fishing, passenger and non-passenger.'

FishSAFE

Launched in 2004, FishSAFE is a health and safety programme for small commercial fishing vessels, designed to reduce the high rate of injuries in the sector (Department of Labour (DoL), 2007). This programme evolved from the work undertaken by FishGroup, (a group that was originally convened by a Maritime NZ), which focused on identifying the causes of work-related near misses, injuries, and fatalities. The work was successfully completed in 2003 and a final report produced, consisting of 46 recommendations in the areas of communications and safety awareness, streamlining of compliance, training and development, human factors, design, construction and equipment. The key recommendation among these was the formation of an ongoing industry-led body focussing on the promotion of safety within the fishing industry. The aim was to improve safety outcomes within the commercial fishing industry by developing and supporting industry and government partnerships, and facilitating industry-led initiatives. This body was given oversight of the implementation of the recommendations contained in the final report, and became known as FishSAFE.

The priorities set out in FishSAFE are: 1) development of the Safety Guidelines for Small Commercial Fishing Vessels; and 2) development of associated injury prevention training (refer www.fishsafe.org.nz/guide-lines/). The target audience are owners, operators and crew of fishing vessels under 24 metres in length. This is because this category of vessel makes up the large majority of the New Zealand fishing fleet in terms of both vessel numbers and people employed (Dyson, 2006; DoL, 2007).

Although supported by Maritime NZ and ACC, the FishSAFE programme is driven primarily by commercial fishermen. Membership of FishSAFE is open to all individual fishermen and representative organisations, as well as government agencies with an interest in health and safety in the commercial fishing industry. The FishSAFE programme also comprises of a number of elements: safety guidelines; hazard management training workshops for inshore fishermen; and, a mentoring programme, with Mentors co-ordinate local workshop training and provide one-on-one follow-up and support and generally champion the programme (DoL, 2007). Mentors were chosen because they were respected, had good communication skills and an in-depth knowledge of the industry. Most of these mentors were no longer operational but were still were involved in the fishing industry in some capacity (FishSAFE interview data 11 April 2008). While mentoring programme has been credited with the success of the FishSafe, it is very resource intensive. Nonetheless, it has suited the industry well for a number of reasons. First, employing well-respected mentors has overcome the industry's culture of command-and-control in which the skipper's word is law often disregards authorities and government agencies (DoL interview data, 4 June 2008). Second, those working in the fishing industry are essentially mobile workers, working long and continuous hours. Thus, trying to get fishermen to come together for community meetings over health and safety is not practical strategy (DoL interview data, 4 June 2008)

Training is a major component of the FishSAFE programme. The health and safety workshops are facilitated by the Seafood Industry Training Organisation. An added incentive for those who undertake the training is an ACC levy discount of 10% off their current levy (WSDS). The success of the training workshops was attributed to employing trainers with industry knowledge and inviting speakers from the industry who had suffered a workplace injury to talk about the impact that their injury has had on their lives (FishSAFE Interview data 11 April 2008). While there is no doubt that the training associated

with FishSAFE has increased the level of OHS awareness, unfortunately it is difficult to ascertain how effective the programme has been in the medium- and long-term as there are no publically available evaluations of the programme

Safety Initiatives in the Fishing Industry

One of the major concerns in the fishing industry is the use of alcohol and other drugs, where anecdotal and accident investigation data indicate the substance abuse is a significant safety issue (Transport Accident Investigation Commission, 2007). Overseas research also suggests that the use of alcohol and other drugs among seafarers is prevalent and have been cited as root causes for many of the workplace injuries in the industry (Romeri et al., 2007). In response to the issue of substance abuse, in 2002 Maritime New Zealand brought together a group widely representative of maritime employers and employees to consider the difficult and complex matter of the use by seafarers of alcohol and other drugs.

Method and Participants

Method

The main objectives of this paper were to investigate barriers to implementing and maintaining OSH measures and to explore the integration of health and safety in the New Zealand fishing industry. To accomplish these objectives two primary techniques were used in this study. Firstly, an extensive literature review was undertaken to identity themes for further investigation and to develop the interview questionnaire. Secondly, a series of interviews with owners and operators of commercial fishing ventures were carried out to identify key themes found in the related literature.

Interviews were performed with five representatives from the New Zealand fishing industry: three captains of in-shore and off-shore fishing vessels and two operators of fish processing facilities. All operations are based in the Bay of Plenty region, small businesses supplying fish for distribution to local and export markets. In-shore fishing activities are performed throughout the year in close proximity to the New Zealand coastline. Off-shore fishing operations are generally performed during the tuna season (December - March), no more than 200 miles from the New Zealand coastline.

Participant Characteristics

All of the respondents had at least ten years experience in the fishing industry. Two of the skippers (captains of their respective vessels) had over 20 years experience, skippering both in-shore trawlers and off-shore tuna operations. The third skipper had been operating off-shore tuna operations for eight years. Key responsibilities include the daily management of the

business and the vessels; administration; quota management; staffing (both fishing and unloading staff); safety; and maintenance. Two of the respondents are previous skippers who currently own and operate fish processing facilities and have nearly fifty years experience between them in the maritime industry in New Zealand and overseas.

The owners and operators of the businesses not only had a wealth of practical experience, but they also have extensive industry specific qualifications. For instance, all of the skippers had a net making apprenticeship, deck-hand certificate, skipper's ticket, Diploma in Fishing Technology, and one had received a scholarship to attend a European maritime institute. All of the respondents considered continued training and education an essential part of being a responsible maritime operator. Furthermore, all of the operators believed they had a committed focus on safety and quota management related issues.

Findings and Discussion

Commercial fishing is known to be a dangerous occupation (Driscoll, 1994; Hasselback, 1994; Roberts, 2002) and all of the participants appear to be very aware of the health and safety issues and potential hazards. The operators stated that there are numerous health and safety hazards connected with the fishing industry in which fatalities and injuries range from drowning, lacerations (often as a result of breaking cables), injuries as a result of crushing between boats and cuts and abrasions in the processing plant, all of which are considered part of the "risks of the job". Consequently, boat maintenance and staff safety training are key considerations in the running of their businesses. As part of the managing health and safety on the vessel there are notified inspections as well as spot-inspections carried out by maritime officials, especially when unloading at different ports. The following typifies the attitudes of respondents:

"*Spot inspections of our boat are just a part of commercial fishing, but this is not the main reason we see health and safety as essential for our business"... I am responsible for my crew and the last thing I want is for them to be injured on the job*". (Skipper off-shore tuna vessel, 56 years old)

Health and safety is a priority for all the businesses and is comprehensively integrated into daily operations. This process begins when recruiting potential employees for the processing facilities and crew for the vessels. Because it is essential that employees be reliable and trustworthy, recruitment is generally through word of mouth within the industry. When a new crew member is hired they receive specific instruction and training on health and safety from experienced staff (generally the skipper). This includes instructions on boat rules and safety procedures, for example what to do when a man goes overboard; if there is a fire or the boat capsizes; and where to stand when carrying out specific boat duties. The content of the staff training is supported not only by written information on maritime safety but are also backed up by the skipper's experience of near misses and past accidents. Although the

skippers conduct regular inspections and generally keep a close eye on all crew to in order to maintain safety standards and operate 'a tight ship''' team work is important and is used to aid the integration of health and safety measures.

While there are hazards specific to each vessel, there are a number of universal maritime safety procedures that are integral to the welfare of the crew (Maritime NZ, 2010). For example, two crew members must be on deck at all times and each vessel is fitted with lights for safety. In addition, personal protective equipment is typically supplied by the companies, although many crew members like to use their own equipment (waterproof boots, gloves, etc). Gloves and overalls provide protection from fish fins as this can be an issue with some methods of fishing and fish processing. This salient statement was made by one participant:

"I am continually reminding the boys about safety, they take control of this too, these guys are mostly experienced crew who know this boat inside and out"..."safety involves all the crew and they take it seriously." (Tuna long-line skipper, 43 years old)

Preventing harm to the crew, minimising the risk of the skipper being personally liable, and reducing lost time through injury all help to motivate the operators to manage the health and safety throughout their businesses. One owner stressed, however, that there are financial costs associated with maintaining high safety standards in an industry that is experiencing increasingly tight operating margins (e.g. increasing fuel prices, compliance costs, etc., see below). Experienced colleagues and industry experts are used to provide general advice and specific recommendations relating to health and safety. Information and advice is also sought from government fisheries officials and the company vessel inspection provider. Two of the operators noted that information from the maritime safety authorities is sometimes inconsistent and often small businesses are unaware of changes to inspection guidelines and standards, resulting in unnecessary and expensive maintenance being performed. Nonetheless, the advice relating to health and safety received from government departments in general is very useful. One participant summed up the general attitude of operators:

"There are not the margins that there used to be in fishing and being committed to high safety standards costs!"... Government initiatives and information have been useful but we rely on anyone we can for safety advice. Inspectors, senior employees, suppliers and industry experts are often sought for advice". (Skipper in-shore/off-shore operations, 59 years old)

Legislation and regulations have a direct impact on the operations of all the businesses where participants were interviewed. First, quota management requirements stipulated by the Ministry of Fisheries control how much fish can be caught and ipso facto how much profit will be made. Second, there are significant costs associated with complying with the guidelines relating to boat standards and manufacturing requirements

provided by maritime authorities. Third, there are also substantial compliance costs and resources associated with the Maritime New Zealand's Safe Ship Management programme. Finally, administrating ACC legislation and levy payments entails significant resources, including time. It should be noted that while the two of the operators had utilised the FishSAFE programme, the remaining three owners were aware of the programme and had read information regarding the ACC initiative, but had not participated in any of the training programmes.

As a result of accident investigations safety and hazard control measures have also been implemented in all of the operations as per HSE Act requirements of hazard identification and management. In one particular business, two work-related injuries have been reported in the past five years. One injury was a cut hand requiring hospital treatment. The second incident occurred when a crew member jammed his toe between two vessels during a fishing operation. The accident was formally recorded and reported to the Maritime New Zealand and ACC. However, the owner felt the way the incident was managed by maritime authorities placed unnecessary pressure and undue stress in terms of the time it took to resolve the issue on the young skipper. Consequently, this skipper is now reconsidering new career options as the process took a mental and physical toll on him and his family. The owner of the business believes that it would be most unfortunate if this young skipper leaves the industry as he is one of the most trusted reliable employees in the organisation and had an unblemished safety record before the incident. Both these injuries resulted in changes to the way certain operations were performed and new safety measures developed. A formal safety register is kept and regularly updated according to changes to regulations or new information received from maritime organisations.

There was a general consensus expressed from the participants that increasing operational expenses (specifically fuel) are eroding profit margins and this has an impact on safety related issues. Indeed, one owner cites "a love of the ocean" as the most positive feature of working in the fishing industry, but feels that the pressure of "personal liability" for human error is the greatest limitation and has become increasing stressful for crew.

"...to be personally liable for someone else's mistake or human error is something I spend more time thinking and stressing about when I should be focusing on my business operations". (Skipper and fish processing operator, 63 years old)

Summary of the Main Issues

Occupational injury statistics both in New Zealand and overseas highlight the fact that the fishing industry is an inherently dangerous profession. Those operating in the fishing industry also share similar issues with other industries operating in the transport sector, such as managing the health and safety of mobile workers, stress and fatigue as a result of working long hours in a physically demanding position, high operating costs with

reduced profits. The main OSH issues identified by the operators of the fishing businesses are summarised below:

1. *Drivers and Barriers*: The industry is characterised by tight operating margins generated by increasing fuel, compliance and wages costs, as well as diminishing fishing stocks, all of which have contributed to reduced profits. Reduced profits in turn have a flow-on effect on the ability of employer to fund health and safety improvements. Another barrier to introducing OHS measures is the inconsistent communication and standards that emanate from the various maritime safety authorities and their inspectorate (a perennial complaint that has also been registered by TAIC in its reports), thus making it difficult to know what to do and when. Moreover, there is a perception that when an accident does occur, the maritime safety authorities are more concerned with attributing blame instead of investigating what occurred and how situation can be improved. There is also an underlying concern that more law-abiding employers, who readily notify the authorities when an accident occurs, are a more visible and thus easier target compared to their less compliant counterparts. In spite of these barriers, the employers in these case studies were driven by a sense of responsibility towards their crew (a so-called "pastoral care" approach identified by Massey et al, 2007) and the fact that being a skipper made them personally liable for their staff.

2. *Knowledge of Health and Safety, Legislation, and OSH Programmes*: as a result of the participant's years of training and industry expertise, they were cognisant of the numerous health and safety regulations pursuant under the different statutes. Although they utilised industry experts, colleagues and government agencies to obtain additional OHS information and advice, three of the operators had not actively participated in the FishSAFE programme, which also employs similar methods.

3. *Integrating health and safety throughout the workplace*: One of the main issues facing not only these businesses but also a number of the other businesses is the tension between the preventative and reactive approaches to health and safety (see Quinlan, et al, 2010 for a more in-depth discussion). That is, flaws in the management of workplace health and safety are only exposed when there is an incident. Moreover, unforeseen incidences are a constant concern for skippers as such incidences can have a detrimental impact on the personal 'liability' of skippers and the company's ACC levies. In order to overcome both the anticipated and unanticipated incidences, the employers interviewed in this study stated that they introduced comprehensive health and safety measures in the form of training and supervision and written OHS manuals, as well as ensuring that the system is continuously reviewed. However, it should be noted that under the Health and Safety in

Employment Act, 1992, such measures are mandatory.

Conclusion

As outlined in this paper, Maritime NZ and ACC developed several initiatives in response to the high rate of work-related fatalities and injuries in this industry. However, as we have argued introducing and maintaining such programmes in the commercial fishing industry is difficult as it is probably one of the most complex in terms of the variety of working environments, the high rate of mobile workers, tight margins and significant health and safety issues. Moreover, as stated earlier, there have been a number of serious criticisms regarding Safety Ship Management from its conception. What is more disturbing is that many of these problems were still unresolved by the beginning of 2008, as highlighted in the Transport Accident Investigation Commission's report into the capsizing of the "Kotuku". In response to these concerns, the Service and Food Workers Union Nga Ringa Tota launched a petition in 2010 demanding a full inquiry into all aspects of the industry and in particular the relationship with foreign fishing companies, foreign crewing of Joint Ventures, chartered and New Zealand fishing vessels, and its effects on sustainable fishing practices, employment, and the relevant communities within New Zealand. It is clear, therefore, that a great deal more research is required.

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