Occupational risks, safety, and masculinity: Newfoundland fish harvesters' experiences and understandings of fishery risks

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Abstract

There is no single, objective place from which to assess risk and the best way to assess and minimize risk is through seeking input from a variety of different knowledge agents focusing on different sources and dimensions of risk and using multiple methodologies. In this paper, I draw on Wynne's work on constructivist-realism and on the feminist literature on masculinity to examine fish harvesters' understandings and experiences of risk and safety in the province of Newfoundland and Labrador on Canada's east coast. Using data drawn from focus groups, phone interviews and particularly from individual boat tours with Newfoundland fish harvesters, I argue that their understandings and practices of risk and safety are *dynamic* and that this dynamism reflects the intersection of everyday requirements to get the job done in what are often uncertain and constrained circumstances associated with the interacting and changing regulatory, industrial and environmental contexts in which this work is done. From this perspective, while quantifying fisheries risks in terms of fatality, accident or Search and Rescue incident rates is important, the inclusion of fish harvesters' experiences and related safety knowledge in research and policy-development designed to reduce risk is imperative. The view from the deck of the vessel, fish harvesters' experiences on the water, not only informs their observations and interpretations of risk but offers potential insights into risk and into expert claims about risk that should be taken into account when trying to understand fishing risk and improve safety.

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Introduction

National fatality, injury and accident rates indicate that fishing is one of the most dangerous occupations (Petursdottir *et al.*, 2001: p. 1-4). There is a growing body of international literature describing the extent, severity and causes of occupational health and safety (OHS) risks associated with fishing work (Binkley, 1995; Guernsey, 1999; Jenson *et al*., 2005; Jensen *et al*., 1996; Jenson, 1996; McDonald & Kucera, 2007; Murray & Dolomount, 1994, 1995; Murray *et al.*, 1997; Petursdottir *et al*., 2001; Pelot, 2000; Poggie & Pollnac, 1997; Pollnac *et al*., 1995; Wiseman *et al*., 2000). Research on fishing safety spans several disciplines and is often completed in collaboration with government and industry associations. As a result, the approaches to and conceptualisations of risk found in the literature are varied. A substantial proportion treats risk as objective, unproblematic and scientifically determined. In this literature, risk is measured by counting Search and Rescue incidents, fatalities, vessel sinkings, accidents and injuries (Windle *et al*., submitted). This quantitative approach to the analysis of risk reflects the dominance of particular disciplines, especially engineering and naval architecture, and government agencies responsible for monitoring and promoting fishing safety. In this segment of the literature on fishing safety, concerns about the reliability of risk estimates tend to focus on issues related to gaps in administrative data and problems with underreporting (Bena *et al*., 2004; Jenson *et al*., 2005; Wiseman *et al*., 2000: p. 9-10). The usual measures prescribed in this

literature for reducing risk include technological and regulatory fixes aimed at the vessel or the individual and designed to reduce the effects of human error (Petursdottir *et al*., 2001; Van Noy, 1995).

Another segment of the fishing safety and risk literature largely carried out by social scientists focuses on fish harvesters' perceptions of risk and attitudes about safety (Murray & Dolomount, 1994, 1995; Murray *et al*., 1997; Poggie & Pollnac, 1997; Pollnac *et al*., 1995). In their work on commercial fish harvesters in New England, for example, Pollnac *et al*. (1995: p. 154) argue that the "psycho-cultural strategy of denial and trivialization of danger is adaptive among fishermen by reducing stress and anxiety and allowing them to make a living in a dangerous occupation ... At the same time, they are creating an unrealistic long-term mental environment for themselves in which real dangers are not being adequately addressed" (see also Poggie & Pollnac, 1997). The perceptions of risk literature draws attention to the existence of different ways of knowing and thinking about risk within fisheries – expert-scientific knowledge and lay perceptions. It tends to focus on the gap between fish harvesters' perceptions of risk and the real, objective risk identified by experts, as well as the disjuncture between what harvesters know about risk and safety and how they behave.

Other risk researchers, primarily outside of fisheries, have challenged the equation of expert knowledge with real, objective risk. Wynne, for example, argues that "[r]isk has become the form of public discourse through which public meaning is given to technology and innovation, as defined in institutional discourses such as government, media, legal and commercial, all deriving from the scientific" (2002: p. 460). In other words, there are multiple ways of understanding risk,

but expert, scientific knowledge is hegemonic among these different knowledge systems and this status, as much as its superiority over lay knowledge, underlies its acceptance as truth. As argued in research on traditional or local knowledge (see, for example, Haggan *et al*., 2007) the hegemonic status of research by safety experts may be marginalizing and masking important insights about safety and risk available from other sources including the observations and experiences of fish harvesters. From the perspective of Wynne and others, avoiding this potential pitfall requires a "de-privileging" of hegemonic knowledges and risk constructions.

This paper assumes that, like the notion of risk itself, all knowledge (lay and expert) is socially and culturally constructed (Tulloch & Lupton, 2003: p. 1; Zinn, 2004: p. 5) as well as, perhaps particularly in the cases of fisheries, being mediated by ecology. It is, in other words, a social-ecological product mediated by the history, location and experiences of the knower (Dolan *et al*., 2005: p.2). Constructionist positions are often taken to be the opposite of realist approaches. However, Wynne (2002: p.462) suggests that this is a false dualism. Rather, he calls for "constructivist-realism," an approach that opens space for more nuanced and comprehensive understandings of the "real." He argues,

> [p]hysical reality still courses through these contending and overtly less determinate representations and meanings, but different versions of reality are not only competing in the sense of claiming or denying the reality of an element of nature. They may also be making conflicting claims that a real element is more salient once one gives the issue a particular meaning. The same natural reality

> thus shows up differently, depending on the intersections it is given with human questions and commitments (Wynne, 2002: p.462).

From this perspective, expert-scientific risk knowledge does not reflect *only* an "objective" reality and is not the *only* way of getting at "the real." It is, instead, the hegemonic way of talking about, identifying and managing risk and safety used by governing agencies and reflects the social-cultural dynamics of those agencies. Using a constructivist-realist approach, we can interpret the differences between experts' and fish harvesters' ways of identifying and understanding risks as reflecting differences in when, where and how they observe their world and in the way they interpret those observations. The view from the deck of the vessel, fish harvesters' experiences on the water, not only informs their observations and interpretations of risk but offers potential insights into risk and into expert claims about risk that should be taken into account when trying to understand fishing risk and improve safety.

There is no single, objective place from which to assess risk and the best way to assess and minimize risk is through interdisciplinary and intersectoral approaches, seeking input from a variety of different knowledge agents focusing on different sources and dimensions of risk and using multiple methodologies. In this paper, I draw on Wynne's work on constructivist-realism and on the feminist literature on masculinity to examine fish harvesters' understandings and experiences of risk and safety in the province of Newfoundland and Labrador on Canada's east coast. Using data drawn from focus groups, phone interviews and particularly from individual boat tours with Newfoundland fish harvesters, I argue that their understandings and practices of risk and safety are *dynamic* and that this dynamism reflects the intersection of everyday

requirements to get the job done in what are often uncertain and constrained circumstances associated with the interacting and changing regulatory, industrial and environmental contexts in which this work is done. From this perspective, while quantifying fisheries risks in terms of fatality, accident or Search and Rescue incident rates is important, the inclusion of fish harvesters' experiences and related safety knowledge in research and policy-development designed to reduce risk is imperative. This approach is also a means to promote understanding and awareness among those including harvesters, safety experts and policy–makers with an interest in minimizing risk through co-management of safety.

I also argue that harvesters' knowledge, experience and responses to dynamic environments are mediated by the ways in which gender structures fisheries work and its cultural meanings for men. This kind of gendered approach is conspicuously absent from much of the research on occupational health and safety, including fishing safety, and risk (see Stella, 1996 for an exception). With some notable exceptions, namely recent case studies in the construction (Iacuone, 2005; Paap, 2003) and mining (Somerville & Abrahamsson, 2003) industries, the occupational health and safety literature tends to ignore gender or assume a male subject (Messing, 1998). In the wider literature on risk, where it appears, gender is treated as a variable mediating risk perceptions or preferences (see Finucane *et al*., 2000; Gustafson, 1998).

Masculinity is not only, if it is at all, simply a personality trait that causes risk-taking behaviour or shapes risk perception. The story is more complex than this. Gender is a way of ordering social practice in relation to reproduction at the individual, interactional, symbolic and institutional levels, and it does so in ways that reflect and reproduce patriarchal ideologies and

structures (Connell, 1995: p. 71-3). From this perspective, masculinities and femininities are historically- and culturally-specific places in gender relations – places that are different and unequal -- that organise divisions of labour; shape access to wealth, resources and power; inform bodily practices; and order symbolic representations, values and meanings (Connell 1995, p. 71; Kimmel, 2001, p.21). One's place within gender relations has implications for the acquisition of knowledge and for how risk is interpreted and experienced.

Methods

These findings derive from an analysis of data collected in one component of a multi-layered, multidisciplinary project on fishing safety carried out by researchers through SafetyNet.[1] The project data I present here were collected for the Perceptions of Risk component of this larger

1 This research was funded by the Canadian Institutes of Health Research Grant CAHR-43269 through SafetyNet, a Community Research Alliance on Health and Safety in Marine and Coastal Work based at Memorial University in St. John's, Newfoundland and Labrador, Canada. Funding was also provided by Memorial University, the Newfoundland and Labrador Centre for Applied Health Research, and the National Search and Rescue Secretariat New Initiatives Fund. Community collaborators George Chafe representing the Small Fishing Vessel Safety Committee, Mark Dolomount representing the Professional Fish Harvesters Certification Board, and Graham Small representing the Offshore Safety and Survival Centre, Marine Institute provided input into the design of the research and helped recruit participants. I would like to thank Dr.'s Barbara Neis and Marian Binkley for their input into the design and conduct of this research. Barbara Neis also reviewed earlier drafts of this paper and provided useful comments. Sandra Brennan, a masters student in Sociology and research assistants Nancy Leawood, Melissa Kennedy and Julie Matthews helped with data collection, data entry and data analysis. Dr. Michael Murray provided useful input during early phases of the research. Ethics clearance for this research was provided by the Human Investigations Committee at Memorial University and the Human Research Ethics Board at Dalhousie University.

project. The main objective of the Perceptions of Risk component were to document Newfoundland fish harvesters' experiences and understandings of fishery risks in a decade of environmental and industrial restructuring after the closure of Newfoundland's groundfish fisheries in the early 1990s (Dolan *et al*., 2005), including their views on the effectiveness of safety initiatives introduced as part of a professionalization program introduced in the 1990s and in an effort to reduce risk in the under 65 foot vessel sectors.[2]

The Perceptions of Risk component used a mixed methods approach including focus groups, phone interviews and boat tours. Recruitment to the focus groups began with a list of names of fish harvesters involved in the professionalization program, many of whom instructed safety courses in different areas of Newfoundland, provided by the Professional Fish Harvesters Certification Board (PFHCB). We contacted these fish harvesters and they provided names and contact information for harvesters in their areas who they thought would be interested in participating. The latter were contacted and those we were able to reach were invited to participate in a focus group in their area. The focus groups took place between March 2003 and December 2004. Sessions lasted between two and a half and three hours. Participants were asked to complete a voluntary, short, self-administered demographic questionnaire. Focus group sessions followed an agenda of discussion topics distributed to participants at the start of the focus group. Sessions were audio-taped, transcribed and transcripts were analysed using NVivo qualitative software.

[2] The report providing a general report of the findings from the overall SafeCatch project is available on the SafetyNet website http://www.safetynet.mun.ca/pdfs/POR.pdf .

A total of 17 focus groups were completed involving 94 fish harvesters (83 men and 11 women) from the island portion of the province. Participants ranged in age from 23 to 65 years and the average age was 44 years. The average age when participants had started fishing commercially was 20 years but was much higher for women at 31 years. These harvesters were predominantly from the under 35 foot and 35-65 foot sectors. Snow crab, groundfish, herring, and lobster were the most widely reported species fished by participants. Sixty-eight harvesters reported current involvement in the inshore fishery and 44 in the longliner fishery. Seventy-one respondents had taken formal fishery training courses. At least 65 were skippers, and 68 reported having core status. In terms of professionalisation designations, 64 identified as level II, five as level I, and five as apprentice. Among the 11 women participants only one had core status and only four had level II status.

The phone interview schedule was developed drawing on insights from the focus groups and on survey questionnaires used in earlier, similar research on fish harvesters' perceptions of risk. Survey questions asked harvesters about their experiences fishing in 2004. The survey instrument was pre-tested and adjusted and was shortened after each pre-test. Our original goal was to survey a random sample of 100 professional fish harvesters stratified on the basis of region and on the basis of level of professional certification. To find our sample, we asked the PFHCB to generate a stratified random sample of 600 names from its list of professional fish harvesters, which includes all registered fish harvesters in Newfoundland. In the spring of 2005, the PFHCB mailed a package of information to each of these individuals containing information about the study, a letter of support from the PFHCB, a contact reply form and a stamped, self-addressed envelope for those interested in participating. We received only 35 responses to this

initial mail-out and, from these, were able to complete 25 phone interviews. We attribute the low response rate to this initial request to turmoil in the industry that erupted in the snow crab fishery around the time of the mailout, and to the fact that the mailout took place after many harvesters were back fishing.

We attempted to increase our response rate for the survey by asking the PFHCB to send a second package of information to the same participants in September. We received 19 responses to this second mail-out and, from these, managed to complete 15 interviews. We also discussed the research during a radio interview with the host of the Canadian Broadcasting Corporation's *Fisheries Broadcast* during which we issued an invitation to harvesters to participate. This advertisement generated an additional three responses (calls to a secure, toll free line) and to the return of one more contact reply form from our original sample. In light of the overall low response rate to these multiple initiatives, we revisited the last few pre-test interviews we had conducted using a version of the survey instrument that was very close to the final version and, with the permission of three individuals, re-classified their interviews from pre-test to test interviews. Thus, our total number of completed surveys for this component is 46. This is not a large enough sample to generalize to the harvester population, but these lengthy surveys have provided a very important source of additional information for this component. The fish harvesters we interviewed by phone started fishing between the ages of 10 and 32 years (average of 16.8 years), and they ranged in age from 22 to 67 years (average of 47.4). Years fishing ranged: 4 had fished 15 years or less; 18 had fished between 15 and 29 years; and, 24 had fished for 30 years or longer. Forty-one percent of those surveyed had not graduated from high school. All 46 had received some formal training related to fishing ranging from a Basic Safety Training

course to qualifications in Marine Engineering or Marine Diesel Mechanics. Sixty-seven per cent of fish harvesters surveyed worked in the less than 35' sector and 32 had core status. Of the harvesters interviewed, 27 were skippers and the rest crew.

We also completed ten boat tours, seven on vessels under 35 feet in length and three on vessels measuring between 35 and 65 feet. The boat tours took place on harvesters' vessels, while docked, and combined qualitative interviews, with demonstrations, observation and a mapping exercise. During the boat tours harvesters were asked what they did to fish safely and to identify risky activities and their locations on the vessel. They were then asked to describe and, where possible, re-enact their strategies for dealing with them. Participants were asked to add details to a generic diagram of a vessel deck to make it match their workspace and to identify on the diagram places or tasks they perceived to be risky or dangerous. The resultant maps serve as visual representations of perceived workplace risks and were also used to illustrate steps they took to reduce risk. The mapping tool was adapted from an occupational health and safety research tool developed for industrial environments.[3]

The focus groups enabled the collection of information related to the broad theme of fishing risk. This information provides valuable insights into the safety-related aspects of changes in fishing over the decade between the groundfish moratoria and the time of the research. Focus group discussions may trigger ideas and information that might be overlooked or forgotten in one-on-one interviews but these data lack the depth of experience and information that can be derived

[3] Thanks to Dorothy Wigmore for introducing Nicole Power to this methodology and to Dwayne White for designing the generic map of a fishing vessel deck used in the boat tours.

from detailed one-on-one interviews. The semi-public nature of focus groups also, however, means some individuals will not speak openly about certain kinds of concerns or events. This is perhaps particularly true for crew members. The focus group data guided the design of the phone interview schedule. These were designed to test verbal, formal knowledge and, in this case, the generalizability of our findings by accessing more harvesters including some from regions where we were not able to hold focus groups. Neither the focus groups nor the phone interviews were, however, very good at accessing the experiential and embodied dimensions of work and risk. One of the goals of the boat tours was to move from a discussion organized mainly around perceived risks to one that included the strategies used by skippers and captains to keep themselves and their crew safe. The boat tours moved safety and risk discussions on to vessels and provided an opportunity for a small group of harvesters to act out certain activities and to map sources of risk as well as strategies for dealing with them thereby opening up new opportunities for discussion and exploration and reducing the chance of misunderstanding on the part of the researcher.

Risk Knowledges in a Context of Change

Major environmental, policy and industrial shifts are radically altering Newfoundland's fisheries with important health consequences (Dolan *et al*., 2005). With the collapse of the groundfish stocks and closure of these fisheries, there was an industrial shift in target species from cod to shellfish, especially snow crab, and from fleet with a substantial number of large-scale trawlers to one dominated almost exclusively by vessels less than 65 feet in length. Changes in fleet

structure and targeted species resulted in an increase in offshore activity in the under 65 foot sector associated with a shift from cod to snow crab and shrimp.

Fisheries management also changed in response to the groundfish collapses. There was a regulatory shift from Total Allowable Catches (TACs) and gear limitations for the smaller boat sector to Individual Quotas (IQs) that allocate quotas to individual enterprises or harvesters. At the level of practice, the owner-operator and fleet separation policies are being undermined as quotas are increasingly treated as property, bought and sold under the guise of so-called trust agreements (Praxis, 2005: p.35). Current "replacement license" policy allows the use of the license to be separated from its title, which in practice allows the purchaser – another fish harvester, a non-fish harvester or a company -- to use a license that is in a different name from that of the purchaser (Department of Fisheries and Oceans, 1996).

In 1997 the Department of Fisheries and Oceans instituted a targeted reclassification scheme that divides fish harvesters in the under 65 foot fleet into core and non-core categories. To limit capacity, there is exclusive membership in the core group, entry into which is through replacement and conditional on meeting prerequisites including having an enterprise and key licenses, and establishing attachment to and dependency on the fishery (Department of Fisheries and Oceans, 1996, 2001: p. 24). These categories are used to determine who gets what fisheries resources, with core fish harvesters having privileged access to replacement and new licenses and vessels. The core classification system is linked to the PFHCB's professional designation scheme. Together the PFHCB and the *Professional Fish Harvesters Act* have entrenched a set of criteria, including apprenticeship programs, formal training and experience requirements, to

determine fish harvesters' professionalisation status. Fish harvesters can move forward along the Board's gradient designations – from Apprentice Fish Harvester, to Level I**,** and finally to Level II – as they acquire formal training credits and sea time (PFHCB, 2007).

The PFHCB also plays an active role in the area of fishing safety. The PFHCB has an advisory role to direct safety policy. The Board also delivers a safety training course largely to its apprentices. This safety training course includes the Marine Emergency Duties A3 course, first aid and an introduction to safe fishing vessel operations and general seamanship and stability. At the federal level, Transport Canada has made mandatory for all fish harvesters the completion of a Marine Emergency Duties course by 2007. In addition to its focus on training individual fish harvesters, the regulatory response to safety has focused on mandatory safety equipment (based on vessel length and tonnage, and fishing distance from shore) and is aimed at minimising the risk of sinking, collisions, fire, and foundering. Combined the fishing safety regulations and training direct attention to survival and what to do when things go wrong with the boat.

The increased focus on safety in the <65 foot sectors in recent years is in part a response to government-funded research showing increased rates of SAR incidents and Worker Compensation claims in that sector that appear to be linked to environmental and industrial restructuring. In a review of SAR incidents between 1993 and 1999, Wiseman *et al.* (2000) identifies an increase in the annual number of incidents despite a decrease in the number of fishing vessels over the same period. He also noted a parallel trend between the number of SAR incidents and Worker Compensation claims. Pelot's (2000) longitudinal analysis of SAR incidents and fishing activity in the same period shows that while inshore fishing areas had low

and steady incident rates, offshore fishing areas had increasingly higher incident rates. Pelot links this increase to increased fishing activity in the offshore with the restructuring from cod to crab. In their review of Worker Compensation claims, Binkley *et al*. (2006) find that between 1992 and 1995 the number of claims declined considerably, and between 1996 and 2001 there was a gradual increase and then levelling off in the number of claims. Binkley *et al*. explain:

> [t]he early decline in the number of claims is probably partly due to the decline in the workforce wrought by the imposition of the Groundfish Moratoria in 1992/3 and to related reductions in hours of exposure for individual harvesters during the early years of the moratoria. But over the same period the make-up of the fishing fleet changed dramatically as well and was reflected in a change in the proportions of claims from the various sectors, notably the decline in the offshore fishery, and the relative and absolute growth in the inshore (2006: p.10).

These reports give us a good impression of the overall patterns of major risk incidents. They do not, however, provide a sense of how fish harvesters manage and negotiate risks on a day to day basis within this context of industrial and regulatory change. In the remainder of this paper, I outline some of the ways in which fish harvesters talk about risk and safety and some of the strategies they use for dealing with risk and uncertainty. The data reveal two, sometimes competing, sets of risk and safety knowledges and practices. One is grounded in the official discourses about risk and safety that emphasises formal training, vessel design and safety equipment. The other is rooted in everyday work experience; it emphasises the work platform,

experience on the water and hands-on learning. There was, on the one hand, much support for mandatory safety training and equipment among respondents who had participated in training and were actively involved in the professionalisation movement, and also among younger fish harvesters. On the other hand, there was a competing understanding of safety, one that claimed that classroom-based learning cannot replace experience and "commonsense." One possible interpretation of this is that the latter position reflects resistance to what harvesters perceive as "over-regulation" which they find threatening and feel is undermining their work autonomy, a culturally valued aspect of fishing work. Another possibility is that those who reject training are denying risk. Yet, even those fish harvesters active in professionalisation tended to support the claim that experience and commonsense were invaluable in mitigating risk. Indeed, this is reconciled in their certification process that credits both formal training and sea time. A resistance, even if partial, to the official risk knowledge may reflect that it alone is not enough to keep fish harvesters safe in the everyday work environment. To examine this tension further, I discuss the case of rope, an example of an everyday risk identified by harvesters that is not considered in the formal regulation of risk and safety, and how fish harvesters use their "commonsense knowledge" to negotiate strategies to deal with this risk. I then move to a discussion about fish harvesters' responses when this commonsense knowledge does not quite fit the new fishing context.

The Case of Rope

Over and over again in the focus groups, fish harvesters identified entanglement in gear and rope as an everyday risk. While harvesters in the under 65 foot sector must mitigate the risk of gear and rope entanglement when targeting a range of species, I will focus here on snow crab. And while working with rope is not a new phenomenon, harvesting snow crab is particularly problematic because it is a deep sea fishery, requiring high volumes of rope, and as the photos in Figures 1 and 2 illustrate, deck space is cramped. When setting, moving or retrieving crab gear, vessels often carry between four and twelve strings or fleets of crab pots with a total of between 200 and 600 pots. Each string contains between one and one and a half miles of rope. This means working with miles of rope in very cramped quarters, on vessels under 65 feet, even under 35 feet in length.

When setting pots, harvesters run the risk of becoming tangled in the rope (and potentially losing limbs) and being dragged overboard. Harvesters must negotiate moving rope underfoot while standing on a rolling, often slippery, platform in addition to carrying out their task at hand.

> I'd say for most fishermen, it's a daily occurrence. There's something going to happen, right? There's always something that can happen. You know you're standing on a boat in the middle of the ocean, if you're setting gear, you're by the gear, you're tangled up in the rope. You're holding on the gear going over the back of her. And you're hauling gear; there's rope going, pots going over your head. It's only a little slip up and your neck is broke or you're drowned. There's nobody looking out for you. One fella's doing his job, another fella doing his job. (FH013, FG03)

[Y]ou're gone out there one o'clock in the morning started off, and the wind perhaps subsided and when you're going out there, there's three men on deck, or four men on deck and there's rope pouring out. A fella turned his head for a minute and the rope comes around his ankle or whatever, you could have a man overboard, right? Pretty quick. I know with me, that's what I bes uneasy about. (FH046, FG09)

You're doing about four or five knots and that rope is just coming from all parts around you. Make sure you're clear of that. You get it turned around your foot, they gotta go with 'im. There's no breaks in the rope. (FH049, FG10)

Figure 1: Crab pots on 35 foot vessel

Figure 2: Miles of rope stored in the hold.

The POR team used the boat tours with captains and skippers to collect detailed information about risks and the ways in which fish harvesters keep themselves safe in relation to risks. During the tours, we asked the question: “How do you stay safe while fishing?” Harvesters described numerous strategies to mitigate the risk of entanglement. In terms of vessel design and construction, they have sought to maximize the deck space available but their ability to do that is limited by cost and by vessel length and volume limits outlined in the Department of Fisheries and Oceans’ vessel replacement regulations (Department of Fisheries and Oceans, 2001: p.34). Reconciling the demand for space with these constraints has included the purchase of longer vessels which are then shortened, widening and deepening their vessels, and moving the wheelhouse closer to the bow. Despite these structural modifications, they often end up with extremely limited deck space and still miles of rope to manage.

Other strategies reflect attempts to minimize the movement of the gear and rope and to control the pathways through which the rope flows. They do this by shooting pots in calm weather and during daylight hours, keeping stacks of pots low and tied down, securing moving parts with stays, applying carpet and non-skid paint to their decks to minimize the risk of slipping, and generally trying to keep their deck clean and tidy. Some control rope by manipulating their shooting speed. Harvesters also reported strategies for managing bodies in relation to rope. To avoid becoming tangled in rope, skippers or captains instruct crew to minimize the movement of their feet on the deck by bracing their legs against the deck, gunnel or railing. Crew members also tend to do the same job all the time and greenhorns are assigned to easier, safer jobs. While shooting, skippers restrict the number of crew on deck to those required to shoot the pots. Others hire crew whose job it is to watch the moving rope. One way to minimize the crew movement,

and hence risk, is to set up an assembly line for shooting pots in which one worker takes a pot from the stack, baits and ties it, rolls it to another, who then passes it to a third to shoot off the gunnel.

Figure 1 is a visual representation of some of these strategies. It is a composite of some of the work platform maps that fish harvesters participating in the boat tours used to demonstrate how they managed rope. Here the rope is pounded off behind the wheelhouse. The moving rope is kept close to the hatch as it moves towards the stern where the pots are stacked. A crew member passes or rolls the pot to the shooter who pushes it overboard. This assembly line helps control the line of rope moving from the stacks over the starboard side. In Figure 2 the rope of the buoy and main lines are stored next to the wheelhouse. The rope is kept close to the hatch as it moves towards the stern where the pots are stacked.

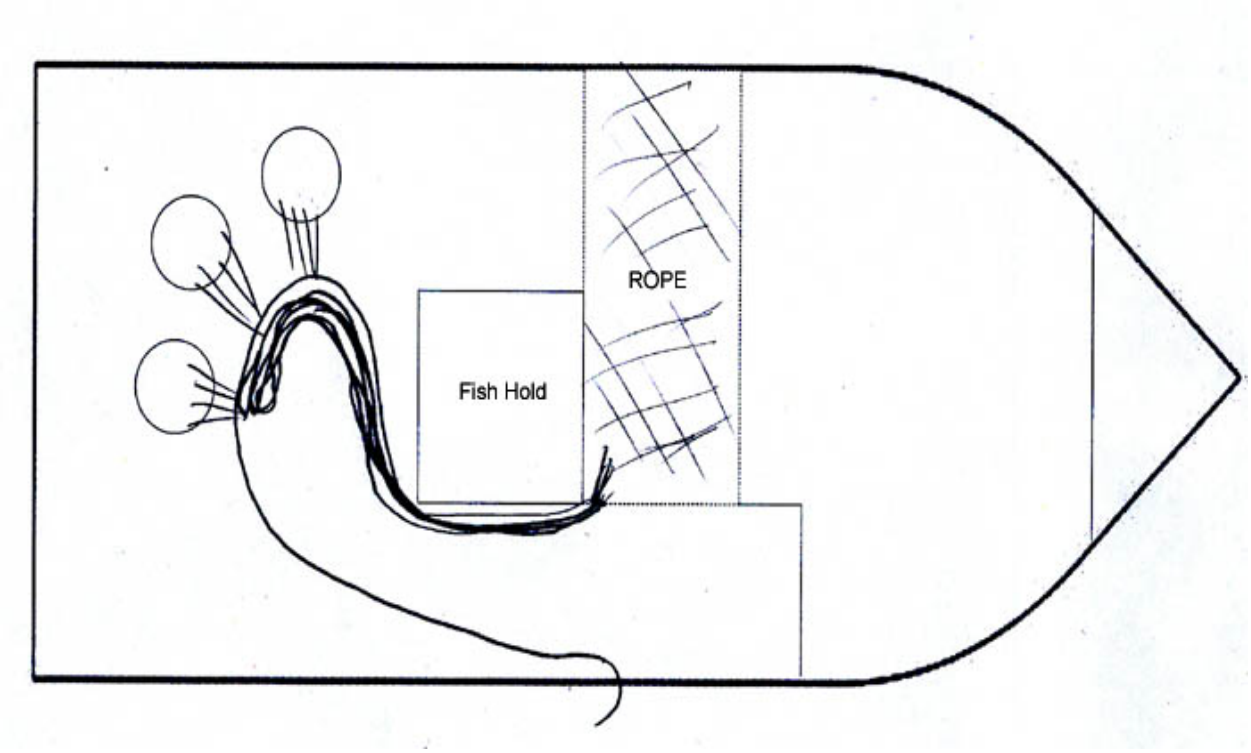

Figure 3: Work platform map: rope pounded off behind the wheelhouse

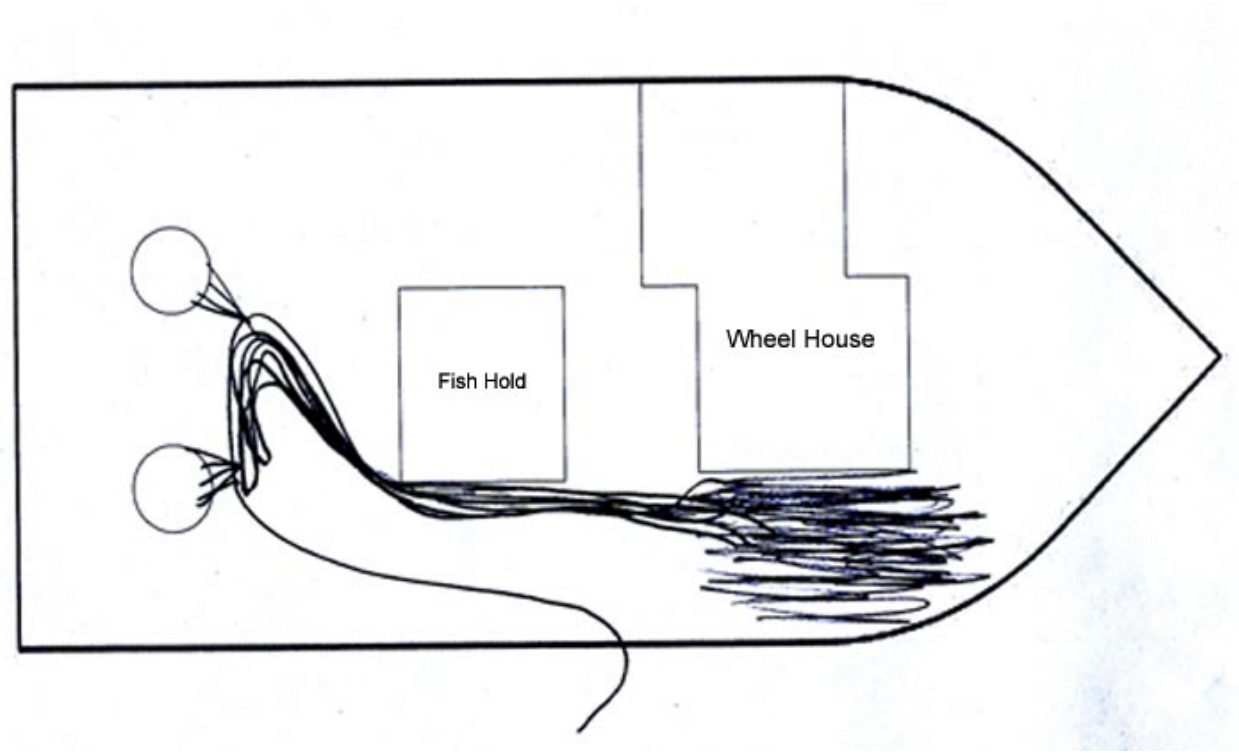

Figure 4: Work platform map: Rope stored next to wheelhouse

Commonsense, embodiment and masculinity

Fish harvesters described their practices with rope as “commonsense”. But acquiring commonsense or claiming commonsense knowledge of this kind presupposes direct and indirect experience that has been accumulated through practice, hands-on work and bodily exercise (Power, 2005: p.139). The personal work histories of “traditional” [4] fish harvesters include long careers on the water, accumulated experience and skill, and possession of inter-generational know-how. This is reflected in our survey results where 85% of fish harvesters reported learning about risk and safety by trial and error, 70% from their father, and 74% from a skipper. The everyday work of fishing requires a bodily strategy to deal with physical work in a liquid, and thus uncertain, environment. The local way of talking about fishing as “in the blood” captures this habitus (Bourdieu, 1977) or bodily capital (Wacquant, 1995) acquired through the day to day practice of mundane work routines. To quote Wacquant (1995, p.67), “[b]*odily capital and bodily labor are thus linked by a recursive relation* which makes them closely dependent on one another” (emphasis in original).

Embodied knowledge is difficult to quantify or understand without being experienced. But these experiences and claims to these local discourses are mediated by a gender structure that informs not just *any* body. Rather, it is generally the masculine body that mediates the requirements of everyday work. Women are not able to claim in the same ways that fishing is "in the blood"

[4] The word “traditional” is used in the local culture to describe ways of doing things that have an assumed local history. It is also referenced in official government documents, though the definition does not always coincide with local interpretations. See Power (2005) for a more detailed discussion.

(Power, 2005: p.98). Acquisition of commonsense, then, is a "bodily exercise" (Palsson, 2000: p.37) organised by gender and mediated by a particular version of masculinity, that has its basis in local understandings of the “traditional.”

Gender organises industrial- and community-based divisions of labour and space that delineate men’s work, including its symbolic order and meanings (Power, 2005: ch.3). Harvesters view this work as challenging, allowing them an opportunity to “be their own boss.” “Being a fisherman” -- working outdoors, independently -- has been the cultural ideal for men in rural Newfoundland. This fishing is work that must be understood in relation to the past, tradition, and a way of life. It is connected to larger narratives of hard times and survival, to a collective identity, and to a pride of place. These cultural meanings are created and recreated in many ways, one of which is through story-telling. This is increasingly done through the media, especially in the coverage of marine tragedies. Stories highlight certain risks in fishing and attempt to explain the causes of accidents, injuries and loss of life. These stories also impart meanings about what it means to be a fish harvester and a man. Discursively at least, fish harvesters become heroes when they die at sea.

This gender structure has also shaped access to wealth and resources, within larger exploitative capitalist relations. This is reflected in local patterns of patrilineal inheritance and the patriarchal state policies that support these patterns (Neis, 1993; Neis & Williams, 1997). Boys and young men have access to fishing property, inter-generational know-how and observations of the goings-on in the world of men. And current professionalisation and licensing and quota schemes uphold this “patriarchal dividend” (Connell, 1995: p.79). In Newfoundland and Labrador, access

to fishing licenses and quotas is limited through professionalization and membership in the core fishery. Here, as elsewhere, few women are eligible because they lack direct fishing capital or property, and do not own any or at least key licenses (Grzetic, 2004:p. 19-21; Munk-Madsen, 1998: p.234). The criteria developed for professional advancement in the industry assume a male entrepreneur embedded in a fishing enterprise unencumbered by family responsibilities, like domestic and child responsibilities, which constrain access to the training and mean women often have shorter or interrupted fishing careers and thus less total and annual fisheries income. The processing sector, where women tend to work, is not part of the professionalization. All of these things serve to strengthen male control of the fishery.

It is within these gendered divisions of labour, gendered access to resources, and gendered material, bodily and symbolic systems that men acquire "commonsense" related to safety. The example of injury and disability illustrates this interconnectivity. Harvesters in this study largely accepted that certain bodily injury is "normal" and part of the job. At the same time, if serious enough, work-related disability can undermine a man's ability to adhere to locally valued masculine constructions (Murray, 2005). In the absence of extensive safety regulation for vessels measuring under 35 feet in length, the gendered acquisition of commonsense has meant that, until recently, safety was regulated through informal apprenticeships and mentoring – the quality of which has been undoubtedly variable – serving to both enhance and mitigate risk. The point here is not to assess the effectiveness of strategies used by fish harvesters to deal with risk. It might be, for example, that some of the strategies to deal with the risks entailed in working with rope are, in fact, rather risky. Instead, it is to suggest that examining risk in the context of fish harvesters' everyday and gendered lives provides another lens through which to understand risk,

and in doing so, reveals the possible limitations of relying *only* on official risk knowledges, especially if the goal is indeed to reduce risk in the everyday working lives of fish harvesters.

Shifting Knowledges

The shift from cod to snow crab brings with it the challenges of fishing unfamiliar grounds for a new target species using new vessel designs and equipment. This has resulted in the creation of "inexperienced harvesters" -- harvesters who have a comprehensive knowledge of a particular fishery in particular coastal locations and of particular technologies but who now fish new grounds for new target species using newly designed or modified vessels and new technologies. These conditions make unlikely the easy transfer of traditional, commonsense knowledge and practice to the current fishing context. The shift from cod to snow crab has also meant shorter fishing seasons and if embodied "commonsense" knowledge is acquired on the job, a shorter season means less opportunity to acquire it. Shorter fishing seasons also mean longer periods of time on land, and thus bodies may not adjust to work at sea as readily as they once did.

Fish harvesters have actively responded to these new challenges, uncertainties, and even gaps in their knowledge. The particular ways in which harvesters manage rope in the snow crab fishery is one example of how harvesters have adapted existing safety practices to reflect the new risks and challenges associated with the snow crab fishery. During the early years of their involvement in this fishery, many fished in small, aging, and inappropriately designed boats. Over time, most modified their boats -- widening, deepening or moving into larger vessels where possible,

adapted gear and added safety equipment to reflect the risks and challenges of fishing further from shore including crossing and sometimes fishing in or near major shipping lanes. Because fishing trips now take longer as snow crab fishing necessitates travelling farther from shore, vessel space required to accommodate gear and sleeping quarters and storage for provisions. Such investment has resulted in a major transformation in the vessel as a site in which to do work and learn how to fish. Today's ideal "65 footers" (see Figure 5) or "super 35s"[5] are substantially different from the traditional trap skiff, an undecked boat, ranging in length from 20 to 30 feet, commonly used in the Newfoundland groundfishery in the past.

[5] These are vessels that 35 feet in length but have been widened and heightened to such a degree that they appear to be almost cubical in shape.

Figure 5: An ideal 65 footer

These vessels are much larger, and are equipped with sophisticated navigation (such as radar and Global Positioning Systems), communication (cell phones) and life-saving (life rafts and immersion suits) technologies. In some cases, certain technologies are mandatory, especially for vessels measuring over 35 feet in length. There is evidence in the focus group, survey and boat tour data that harvesters sometimes equate new, especially larger, vessels or their new technologies with safety. Some vessels are fitted with certain technologies in duplicate. Fish harvesters identified this as a safety strategy. The underlying assumption is that should something go wrong, the technologies (or the backup technologies) or the vessel will protect them. This tendency to equate safety with such technologies and with larger vessels exists alongside a recognition that technologies can both change and create as well as mitigate risk. For example, the introduction of hydraulic equipment is thought to simultaneously decrease such long-term health-risks as back problems, but increase other risks such as injury from getting caught in equipment.

In light of this context of uncertainty and change, fish harvesters largely assessed formal safety training as valuable. This assessment also likely reflects the widespread compliance in our sample with the relatively recent regulation requiring all fish harvesters to complete, by 2007, a Marine Emergency Duties course. Eighty percent of survey respondents reported learning about risk and safety in formal training. Acceptance of formal training appears to be linked to age. In the phone survey, older fish harvesters were less likely to place a lot of importance on training than younger harvesters (Figure 6). Yet, even where older harvesters were unlikely to see the value of training for themselves, they tended to accept its value for young people. This makes sense in light of recent trends that make difficult the acquisition or relevance of commonsense

knowledge through established means, including the shift in target species and fishing location, shorter fishing seasons, changes in crew recruitment and retention, new economic arrangements and the increased use of larger vessels and new technologies.

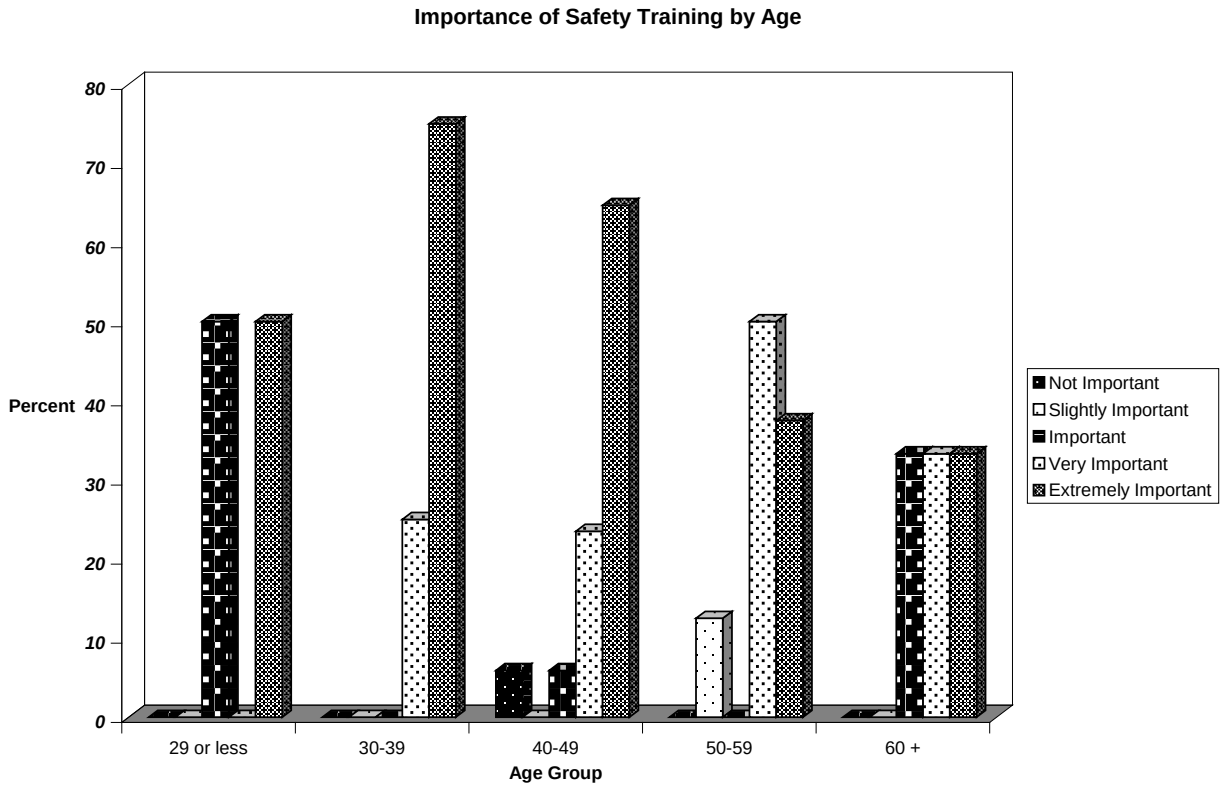

Figure 6: Importance of Safety Training as reported by participants in the POR survey (from Brennan, forthcoming).

To a large degree, the Marine Emergency Duties courses reinforce the idea that risk and safety are embedded in the vessel and its technologies. These courses focus on emergency responses, primarily on how to use safety technologies when the vessel and other technologies fail and do not directly deal with the risks of day to day fishing. The PFHCB's apprentice course though attempts to reconcile this tension by combining the Marine Emergency Duties A3 course with an introduction to safe fishing vessel operations and general seamanship and stability. While professionalisation recognises experience (as accumulated sea time), it has also institutionalised a status system that is based on quantified formal training.

Shifting masculinities

Just as acquiring commonsense takes place within gender relations, so too does the formal learning process. The fisher*man* is the presumed target of formal training. Despite the fact that the PFHCB's version of the Marine Emergency Duties A3 course in particular has been heavily subscribed to by women, there persists, even among some instructors, a widespread belief that women do not really fish.[6] This reflects the widespread yet unsubstantiated belief that women are falsely recorded as crew members on vessels to gain access to Employment Insurance benefits. In fact, provincial participation rates for women fish harvesters increased from eight per

[6] This finding is based on data from a linked project entitled, "The Fishing Safety Training Project. This project was funded by the Newfoundland and Labrador Centre for Applied Health Research.

cent in 1981 to 20 per cent by 2000 (Grzetic, 2004: p. 17). The increased participation of women in harvesting means that men, and women, must negotiate work and learning spaces that have new gender arrangements.

To illustrate, let's consider how investment in particular vessel designs and technologies may be linked to the reconfiguring of masculinity. Most fish harvesters described the snow crab fishery as dangerous, but there was also a tendency to feminise it, describing it as lacking competitiveness and requiring little skill. According to this line of thinking, the new management strategy of IQs for snow crab reduces competition – with positive consequences for safety -- at least while stocks are plentiful and there is control of the timing of the fishery. IQs mean there is no competition to catch as much snow crab before the total allowable catch is landed. Fish harvesters can therefore ideally decide when to harvest "their" snow crab and they have a general sense about how much money they will earn before leaving the wharf. This is, of course, provided they find the snow crab, which according to many respondents, is not so difficult with the latest fish-finding equipment and the limited mobility of snow crab. The underlining assumption here is that snow crab fishing does not require the same level of skill as was demanded in the hunt for cod. This perceived feminization of snow crab harvesting may also reflect the perceived reduction of physicality required to do the work associated with the introduction of hydraulics, and the increased presence of women on board vessels.

If fisheries as sites of work are interpreted as feminine, this has implications for the ways in which men perform masculinity. The changing regulatory and industrial context seems to encourage harvesters to invest in a masculinity that values professional status, business ethics

and sophisticated vessels and technologies. This direction is not lost on fish harvesters who say there is tremendous pressure to choose between "going bigger" or getting out. A common interpretation among respondents was that larger boats (measuring over 35 feet) are necessary to acquire quotas and to fish crab successfully. As fishing work and harvesters' relationship to risk and safety are increasingly mediated by sophisticated technologies and larger vessels, inexperience and gaps in knowledge may pose new risks -- risks that are not addressed in the Marine Emergency Duties courses. The tendency to for some harvesters to equate safety with owning technologies and larger vessels could contribute to a tendency to take greater risks. Also, some of the new navigation, communication and safety technologies require specialized knowledge (beyond the scope of a Marine Emergency Duties Course) to operate them. Navigational technologies, such as Global Position Systems (GPS), are very helpful when traveling to offshore grounds for gear retrieval, staying on course and reducing the risk of collision. However, over-reliance on these technologies and potential knowledge gaps related to their safe operation can undermine safety. Electronic equipment like GPS technology and laptop computers with digital charts often ceases to operate when power supplies fail and, therefore, can be useless when engines fail. GPS technologies can help plot a course and make it easy to return to particular grounds and gear but may not distinguish between water and land. Thus reliance on GPS technology has been associated with fishing vessel groundings.

Conclusion

Fish harvesters' understandings and practices of risk and safety are complex and dynamic. A focus on everyday fisheries risks and practices shifts the discussion away from incident rates and

directs attention to day to day work routines and fish harvesters' culturally specific "commonsense" knowledge about risk and safety. In so doing, it demonstrates how official agencies and models that rely on quantifying incidents may miss entirely such mundane risks as working with rope. A focus on the everyday lives of fish harvesters also points to their agency in their attempts to manage and negotiate new fisheries risks associated with snow crab harvesting. And, contrary to the assumption in Beck's risk society thesis (2005) that traditional social structures are no longer important, this case study makes clear that more nuanced considerations of fisheries risks must consider how risk is mediated by and mediates gender and others structures of inequality. Risk and safety are not isolated "things" out there to be revealed, counted, and neatly governed. Risk and safety are negotiated in specific, gendered contexts.

Over the past decade, we have been witnessing a shift in the local meanings of safety and risk and in what it means to be a fisherman. This shift is not complete nor has it been linear. It seems clear however that a convergence of sorts is occurring – with the state and industry supporting a masculine entrepreneurial and vessel-oriented approach to OHS. This convergence has implications for safety but the connections are sometimes not clear because they are mediated by gender – often an invisible or assumed masculinity. This study on the Newfoundland fisheries demonstrates the important contributions feminist sociology can make to risk and OHS research. Feminist sociology helps reveal tensions and competing constructions of safety as well as the wider social structures, particularly gender, that mediate understandings of safety and practices.

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