

# Working Conditions, Occupational Injuries, and Health Among Filipino Fish Processing Workers in Dutch Harbor, Alaska

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**Abstract:** This study explored how unique environmental conditions in Alaska influenced occupational health and safety for Filipino fish processing workers, many of whom migrated from warm locations (e.g., the Philippines, California, and Nevada). In-depth interviews were conducted with 26 Filipino workers in one commercial fish processing company in Dutch Harbor. Results indicated that cold weather interferes with workers' job performance, increasing their risk for injury and illness, whereas the community's isolation and rural nature causes loneliness and boredom, resulting in more high-risk behaviors. Other non-environmental factors affecting worker health include roommate and supervisor concerns and culture-specific practices. Findings suggest the importance of job rotation to avoid long exposures to cold temperatures, the value of a designated individual to inform workers about company and community resources that promote healthy lifestyles, and the possible utility of a joint worker-management safety committee.

**Keywords:** occupational injuries, immigrant, workforce, Filipino, working conditions, health

The Unalaska/Dutch Harbor region of Alaska's Aleutian Islands has the largest commercial fishing port in the United States in terms of volume of seafood caught (National Oceanic and Atmospheric Administration [NOAA], 2012). More than 90% of jobs in this region are based in commercial fishing, including harvest and processing sectors and fishing-related services such as fuel, vessel maintenance, trade, and transportation (Sepez, Tilt, Package, Lazarus, & Vaccar, 2005). Approximately 4,000 residents live in Unalaska/Dutch Harbor, with the three largest racial/ethnic groups being White (39%), Filipino (28%), and Latino (15%; U.S. Census

Bureau, 2010). Thousands more immigrants temporarily reside in this area for work, with a significant number of Filipinos working in fish processing. Two major on-shore fish processing companies in Dutch Harbor estimate that Filipinos compose nearly three quarters of their workforce (F. Lopez, personal communication, February 4, 2014).

Non-fatal injuries are a major concern among fish processing workers. From 2007 to 2008, 366 non-fatal injuries were reported among fishermen and offshore fish processing workers in Dutch Harbor based on medical record review (Anderson, 2010). Among those working in processing, the major cause of injury was handling frozen products (Anderson, 2010). Studies of on-shore fish processing workers have shown that they are at high risk for lacerations from using sharp knives (Harker, Matheson, Ross, & Seaton, 1992; Saha, Kulkarni, Chaudhuri, & Saiyed, 2003; Saha, Nag, & Nag, 2006), as well as other morbidities such as respiratory irritation, headache, and blanching of hands due to working in cold temperature environments and being in frequent contact with ice cold chlorinated water (Jeebhay, Robins, Lehrer, & Lopata, 2001; Olafsdottir & Rafnsson, 2000; Saha, Nag, & Nag, 2006).

In addition, immigrants or migrant workers in this industry are at risk for other health-related problems. Literature on migrant farm workers, for example, show that, because of language and cultural barriers, little formal education, and low-income status, these workers are less likely to access health care, thereby limiting screening for undiagnosed health conditions or management of chronic diseases (Arcury & Quandt, 2007; Hansen & Donohoe, 2003; White-Means, 1992). Immigrant workers often report work-related stress (e.g., discrimination and job dissatisfaction), further threatening both physical and mental health (de Castro, Gee, & Takeuchi, 2008a, 2008b, 2008c).

Many Filipino fish processing workers in Dutch Harbor have recently migrated from the Philippines by way of U.S. states

### Applying Research to Practice

To address the issue of exposure to cold weather for long periods of time and repetitive strain injuries, routine job rotation could be adopted. This approach serves to reduce exposure to cold temperatures or performing the same tasks for long periods of time. To address boredom and promote healthy lifestyle, workers (especially new recruits) must be made aware of company and community resources, such as fitness center, library with Internet access and cable television, free DVD rentals, and billiards table. Finally, concerns related to supervisor issues could be addressed by creating a joint worker-management committee tasked with identifying problems and finding solutions in the workplace. To minimize *hiya* among workers when voicing their concerns about management and other work issues, perhaps workers could designate trusted worker representatives to serve on this committee. Similarly, representatives from management and administration should endorse more explicitly an open and honest conversation during committee meetings.

other than Alaska (e.g., California and Nevada; F. Lopez, personal communication, February 4, 2014). Migrating from the tropical climate of the Philippines and warmer states such as California and Nevada to work on an isolated, subarctic island like Dutch Harbor can pose stressors in addition to those already encountered in high-hazard fish processing. Long periods of light during summer and darkness in winter, and consistently cold and rainy weather conditions in the region can adversely affect migrants' sleep patterns (Bratlid & Wahlund, 2003), cognitive performance (Palinkas et al., 2005), and mental health (Germain & Kupfer, 2008). These circumstances can potentially affect work quality, productivity, occupational injury risk, and overall health and well-being.

Using one fish processing plant at Dutch Harbor as a case study, this study explored the types of problems Filipino fish processing workers encounter in and around the workplace in this unique Alaskan community. The work lives of this population have been understudied despite the profound risks they encounter.

### Method

As an exploratory study, qualitative research methods and an inductive approach were used by the researchers. Semi-structured, in-depth interviews were conducted with Filipino fish processing workers using a cross-sectional study design.

### Sampling

A convenience sample of participants from a fish processing company in Dutch Harbor, Alaska was recruited. To be eligible

for the study, participants had to be at least 18 years of age, self-identified as Filipino, and currently employed in fish processing. For qualitative studies, sample size is determined when data saturation is reached or when no new information or themes have emerged from the interviews. Bernard (2013) suggested that interviewing 10 to 20 knowledgeable informants serves to uncover and understand core concepts of the study. The goal for this study was to reach at least 20 participants.

Prior to participant recruitment, contact was established with formal and informal leaders in one fish processing plant and a local Filipino community organization to facilitate entry into workplaces and the community as well as to secure assistance posting recruitment flyers throughout both locations. Flyers about the study were posted in high-traffic areas in the workplace (e.g., human resources office, cafeteria, and common areas in the dormitories). Outside the workplace, flyers were posted in two major area grocery stores and two Filipino specialty stores. When the principal investigator arrived at Dutch Harbor, he also conducted verbal recruitment in the workplace cafeteria during lunch and dinner times.

### Data Collection

Consenting study participants were interviewed in a private room in the recreation area of the fish processing plant. Participants were given the option to be interviewed in English, Filipino (Tagalog), or both and offered a US\$25 gift card for participating. All interviews were audio recorded for later transcription. Attempts were made to recruit participants from another company. However, it was discovered that prospective participants were not frontline fish processing workers. Accordingly, this company was not included in the study. To protect participant and company confidentiality, pseudonyms were used throughout this report. This research was approved by the institutional review boards of the University of Alaska Anchorage and the University of Washington.

### Instrument

Semi-structured, open-ended interviews covered six principal topics: (a) demographic information; (b) history of migration; (c) job type and responsibilities, and working conditions; (d) nature and risk of work-related injuries; knowledge, awareness, and training related to worker rights and responsibilities; and prevention of work-related injuries; (e) changes in sleep patterns, health behaviors, and physical and mental health conditions before and during their migration to Alaska as well as during different seasons; and (f) cultural issues pertaining to work and lifestyle. These topics were developed using the socio-ecological framework as a guide, with the understanding that health conditions are influenced by environmental, social, and personal situations (Stokols, 1996). Moreover, the topic of migration and family history was specifically added based on previous qualitative research conducted by de Castro, Fujishiro, Schweitzer, and Oliva (2006) and Garcia (2011) with Asian immigrants.

## Analysis

Audio recordings of the interviews were transcribed verbatim. Transcriptions were then imported into a computer-assisted qualitative software program, Atlas.ti 6.0. Qualitative data were analyzed using thematic analysis, which involved the following process: (a) familiarization with data, (b) generating initial codes, (c) searching for themes among codes, (d) reviewing and verifying themes, and (e) defining and naming themes (Braun & Clarke, 2006). In generating codes, quotes dealing with a similar subject area were grouped together and the researchers assigned a descriptive phrase related to that specific subject area. In generating themes, each of the quotes within the code was assessed in relation to the quotes in another set of code(s). Once themes were developed, representative quotes were chosen for each of the themes. The co-investigator then reviewed the quotes within each theme to check for consistency and appropriateness of themes and quotes. An indicator that the identified themes were valid was when themes were minimally disconfirmed by the data (Miles & Huberman, 1994), meaning interview quotes were deemed related to assigned themes and little to no other interview quotes disputed the identified themes. To further strengthen the validity of the findings, the researchers returned to the study site to present results and ask workers to confirm interpretations of the data.

## Results

The principal investigator approached a total of 30 workers for the study, and 26 consented to participating (response rate of 87%). All study participants were verbally recruited. The total sample was more than planned to ensure data saturation. Twenty men and six women were recruited with a mean age of 48 years, the youngest being 22 years and the oldest 77 years. Approximately 77% of participants were from California and Nevada, and nearly 80% had lived in Dutch Harbor for less than 5 years (see Table 1).

## Themes

Seven themes were identified: four were categorized under the broad heading of “Work Environment/Job Task-Related” themes and three under the broad heading of “Non Job Task-Related” themes (see Table 2). No differences in themes were found between male and female respondents. Themes were determined after coding and reviewing transcripts from 15 respondents. As no new themes emerged from reviewing the transcripts of the other 11 interviews, the investigators deemed data saturation was met. For further validity of the themes, prior to writing this manuscript, the investigators went back to Dutch Harbor to present their preliminary findings. Workers and administrators who attended the presentation confirmed reported findings.

### Theme 1: Exposure to cold temperatures

Around 57% of participants who had not previously lived in Dutch Harbor during the winter were affected by extreme cold

Table 1. Sample Demographics,  $N = 26$

Demographic variables	%
<b>Sex</b>	
Female	23
Male	77
<b>Age<sup>a</sup></b>	
22 years to 50 years	58
>50 years	42
<b>Marital status</b>	
Single	28
Married	72
<b>Have children</b>	
Yes	76
No	24
<b>Education</b>	
≤High school diploma or equivalent	44
>High school diploma	56
<b>Number of years living in the United States<sup>b</sup></b>	
≤9 years	50
>9 years	50
<b>Number of years working at Dutch Harbor<sup>c</sup></b>	
≤5 years	77
>5 years	23
<b>Migrated to Dutch Harbor from</b>	
California	54
Nevada	23
Other states (Florida, Hawaii, Washington)	12
Another part of Alaska	11

<sup>a</sup>Mean age  $\pm$  SD, Range: 47.8  $\pm$  15.6, 22 to 77 years.

<sup>b</sup>Mean number of years living in the United States  $\pm$  SD, Range: 10.8  $\pm$  6.9, 1 to 23 years.

<sup>c</sup>Mean number of years working in Dutch Harbor  $\pm$  SD, Range: 4.4  $\pm$  5.6, 0 to 22 years.

and wind. These challenging weather conditions can adversely affect the way employees work and heighten their risk for occupational injury.

Table 2. Categories and Themes

Work environment/job-related themes	Non job-task related themes
Theme 1: Exposure to cold temperatures	Theme 5: Isolation and boredom
Theme 2: Musculoskeletal disorders and repetitive strain injuries	Theme 6: Disruption of sleep
Theme 3: Insufficient time allowances	Theme 7: Cultural factors
Theme 4: Perceived supervisory unfairness	

[Being in Alaska during the winter time] can really affect your work . . . especially if you work in the crabline, which is really in an open area . . . if you work in the giller . . . you are exposed to the outside environment, so you are always cold. Imagine being in that area for 12 hours . . . At one time I knew of an accident that happened in the area because it was so cold. It was so cold that the person didn't even feel what he was doing. So, he got his hands caught in the giller. (Pedro, male, 39 years old)

Moreover, approximately 60% of participants felt the cold temperatures in their work environment contributed to respiratory-related symptoms and illnesses.

[Since I just came from the Philippines and California], it's hard to adjust here because I get sick; I cough; I have runny nose. I feel like I have the flu. (Roger, male, 59 years old)

I have asthma, COPD . . . and allergy. I got them here at work. [That's what my doctor said]. (Ka Ernie, male, 77 years old)

*Theme 2: Musculoskeletal disorders and repetitive strain injuries*

Several areas in the plant require repetitive movements and tasks, such as filleting, removing parasites, and weighing. Exposure to repetitive job tasks for long periods can cause musculoskeletal pain.

. . . When I first trained in filleting . . . I felt that something got dislocated in my shoulder. I think that my nerve got pinched because I was trying to fillet as fast as I can . . . I went to the clinic because I couldn't lift my arm. (Manang Bella, female, 69 years old)

*Theme 3: Insufficient time allowances*

In a fish processing plant, working with heavy machinery, in wet, cold, and windy weather conditions, appropriate personal protective equipment (PPE) is essential. Personal protective equipment entails wearing a helmet and/or hairnet, goggles, ear plugs, rain boots, multiple layers of gloves, and rain coat-type overalls over several layers of clothing. Donning PPE takes at least

10 minutes, and if workers only have a 15-minute break, they do not have enough time to doff and don their gear to use the restroom, which can be located far from where they are working.

What I hate about working here is to put the raingear . . . you have to remove all of it if you need to use the restroom. You have to take them off . . . [Here] the restroom is on the fourth floor! Fourth floor! Before I can get up there, I'm [already short of breath]. I wish the restrooms were on the first floor. (Pedro, male, 39 years old)

*Theme 4: Perceived supervisory unfairness*

About 70% of participants expressed being treated unfairly by their supervisors, especially regarding work schedules. Although workers feel compelled to work more hours to earn more pay, workers believe that only those who have good relations with supervisors are given more hours.

I feel there's favoritism among our supervisors . . . especially when it comes to scheduling . . . some get scheduled to work all the time, while others not . . . I hope they would be fair to us. For example, last October . . . they scheduled me three times out of a week. I really wanted to work even for five days . . . Others got to work one time out of the week, while some got to work all seven days. (Pepe, Male, 48 years old)

In addition, workers claimed that supervisors did not treat them with respect, without regard to the situation and stress they were already feeling.

Our supervisor doesn't treat us with respect. Our boss is the worst! If we make a minor mistake, our supervisor will scream at us . . . Our supervisor is not very professional . . . I don't like how we are treated by our supervisors, especially when they are screaming at us . . . knowing that we are already tired and exhausted . . . It hurts inside. (Pedro, male, 39 years old)

The supervisors the participants referred to are Filipino themselves. Around 40% claimed that Filipino supervisors gave preferential treatment to workers from other ethnic groups.

What I don't like about working here is that our [Filipino] supervisors treat Filipinos differently from other [races] . . . [For example], I see supervisors not pursuing to give orders to Somalian workers if the Somalian workers don't like to do what they are being asked to do. But if the Filipino workers are being asked to do the same thing, and the Filipino workers don't do it, they get reported to the office right away. (Ka Ernie, male, 77 years old)

#### Theme 5: Isolation and boredom

Being in a rural community on an isolated island, far from families and having very few social outlets, many respondents experienced loneliness and boredom.

Living here, when you think of work, it's a good opportunity here, but it's boring, nothing to do 'cause you're isolated . . . I just don't like the weather. (Charo, female, 25 years old)

Moreover, this situation may lead to risky health behaviors, including alcohol use, drug abuse, and gambling.

If you understand what life is like is here, you need to set your mind to just focus at work . . . Lots have been fired here because of drinking. Others gamble . . . Many Filipinos here use drugs, and they get into fights. (Pedro, male, 39 years old)

Although workers may perceive little to do in Dutch Harbor, various resources and programs are accessible in the community. A parks and recreation center, with fitness facilities and health promotion programming, is available for workers free of charge.

We have PCR here—Parks, Cultural, and Recreation . . . There's a gym there. There's a basketball court, racket ball court. We play badminton there. We do boxing also . . . PCR visit is \$4 [per visit], but [our company] makes it free for our employees. (Nando, male, 34 years old)

Although this resource is available for workers, after working 12 hours a day for 6 or 7 days a week, workers expressed feeling overwhelmed and too tired to access and participate in recreational activities and programs.

It's up to you how you want to use your . . . available time . . . Some [employees], they just want to sleep or spend some time in the TV room. (Nando, Male, 34 years old)

[When I'm not working], I just watch TV, go to the store, rent DVD or clean my room. Sometimes, I just choose to sleep especially if I worked the night shift the day before. [After working for a long time], you just want to sleep. (Judy-Ann, female, 33 years old)

#### Theme 6: Disruption of sleep

Typically, workers stay in dormitory rooms with two or three roommates. At this particular fish processing plant, workers are assigned to two work shifts: 6:00 a.m. to 6:00 p.m. or 6:00 p.m. to 6:00 a.m. When roommates work different shifts, they potentially disturb one another.

My roommates . . . tend to wake up early, and they are loud . . . They also open our window, so you can hear the sound outside . . . [I can't sleep]. My mind is awake. I sleep late. I really lack sleep. (Juan, male, 50 years old)

#### Theme 7: Cultural factors

Filipino cultural values affect workers' day-to-day experiences at work. Two Filipino cultural values commonly observed among workers include *pakikisama* (getting along with others) and *hiya* (shame). For example, when workers are treated unfairly or with disrespect from supervisors or when they feel they may have made a mistake, they are less likely to report disrespect or mistakes or they will minimize the situation because of fear of breaking *pakikisama* with the supervisor or co-worker.

I [try] to get along (*makisama*) [with my supervisor] . . . Let's say you are my supervisor, and I don't like the way you are treating me, I just bring up my concern in a light-hearted manner . . . I try not to be direct if I don't like the way you are supervising me. I don't want to hurt your feelings. (Loly, female, 58 years old)

*Hiya* plays a role in how Filipino supervisors treat their workers. Consider the following quote:

Our shift leaders are in competition with each other [in terms of the volume of fish processed] . . . If they do not reach their goal or beat the other shift leaders, they'll feel ashamed of themselves. (Dolphy, male, 26 years old)

Because of *hiya*, the above respondent felt that shift leaders have overly high expectations of their workers' productivity to the point that workers, especially the elderly, could not meet their supervisors' demands.

## Discussion

This case study revealed the variety of hardships that Filipino fish processing workers face. From high-hazard job tasks in harshly cold weather conditions to interpersonal mistreatment, layered with ethnic cultural factors and migrant status, these workers are at significant risk for work-related injuries and illnesses, as well as consequential chronic health problems. In addition, general health and well-being can be threatened due to isolation and barriers to pursuing salutogenic activities. The following discussion summarizes the challenges these workers must endure to maintain employment.

## Environmental Challenges

Filipino fish processing workers in Dutch Harbor encounter challenges both within and beyond the work setting. Unique Alaskan environmental conditions negatively affect their work. Cold weather negatively affects their ability to perform job duties. The process of putting crabs in the gillier, for example, as this is done outdoors, becomes especially difficult when strong winds blow a mix of rain and snow onto workers, and freezing temperatures numb workers' hands and feet. Inside the plant, while workers are sheltered, the temperature remains cold, requiring workers to wear layers of clothing and gloves under their wet overalls and rubber gloves. The clothing makes it difficult for workers to complete job tasks involving their hands, particularly something as intricate as filleting and removing parasites or bones from fish. These types of tasks, when done for long periods of time, place workers at risk for injury and musculoskeletal strain (Mäkinen & Hassi, 2009).

Extra layers of clothing and PPE are essential to protect workers from cold temperatures. However, workers do not have sufficient time to doff and don PPE to use the restroom; particularly if the restroom is located at a distance. This situation is especially problematic because workers may need to walk slowly to avoid slips and falls, which are common in a cold, wet environment (Hassi, Gardner, Hendricks, & Bell, 2000). Workers were concerned about being penalized by supervisors if they took "too much" time for restroom breaks. In contrast, according to company management, workers are allowed to take the time they need for restroom breaks without penalty even if they are a few minutes late returning to work. However, workers who may be gone for too long can burden co-workers in their work area who must cover the workload while they are off the line.

Another challenge of living and working in Dutch Harbor is its isolation with respect to other Alaskan communities, the continental United States, and workers' homeland. The rural setting and subarctic environment is a harsh reality for new employees more accustomed to urban or suburban areas and warmer climates. As the findings of this study indicate, the isolation and unfamiliarity of the Dutch Harbor community have led to loneliness and even lead workers to alcohol and drug abuse and gambling.

## Non-Environmental Challenges

Although long periods of daylight in summer or darkness in winter have been shown to affect sleep patterns (Bratlid & Wahlund, 2003), workers suggest that their lack of sleep is more attributable to roommate issues. Having roommates who are loud and disruptive can significantly hinder rest and recovery. Research indicates that sleep deprivation and poor sleep quality have a bearing on occupational injury risk (Orzel-Gryglewska, 2010).

In addition, about 40% of participants reported unfair, disrespectful treatment by supervisors. In an already stressful work environment, belittling supervisor behaviors can affect worker morale and increase work stress (Minor, Wells, Lambert,

& Keller, 2014), which can hamper productivity (Halkos & Bousinakis, 2010). Interestingly, participants reported that Filipino supervisors extend preferential treatment to workers from other ethnic groups, which has been documented in other studies (de Castro et al., 2006). Possibly, this may be a manifestation of internalized racial oppression, which occurs when members of an oppressed racial group believe the stereotypes about their group, and thus dissociate themselves from that group (Pyke, 2010). This phenomenon can result from a long history of colonialism as is the case of Filipino racism (David & Nadal, 2013). From this framework, Filipino supervisors' unfair, disrespectful treatment of Filipino workers possibly allows supervisors to dissociate themselves from the Filipino group and exhibit superiority among their own group as well as other groups. However, this hypothesis needs further exploration, particularly in workplace contexts.

Culture is another factor that affects the day-to-day lives of workers both within and beyond the workplace. Not being able to voice discontent, report injuries, or address challenges with supervisors because of *hiya* and *pakikisama* can lead to injuries being repeated or possibly becoming more severe; feelings of discontent with management are kept internal, which can lead to greater stress. Outside the plant, *pakikisama* may promote risk behaviors such as alcohol consumption and gambling. It is possible that workers feel pressured to drink or gamble as a way to form *pakikisama* with their peers. One study has shown that refusing to participate in risk behaviors can lead to *pakikisama* being broken, later leading to anger within the group and breaking or preventing friendships (Garcia, 2008).

## Opportunities

Much of what has been reported in this article highlights the problems Filipino fish processing workers encounter in the environmentally unique and challenging community of Dutch Harbor. It should be noted that workers also valued the opportunity to work for the study company. About 20% of the respondents had worked for other fish processing companies, including offshore processing on another, more isolated island in Alaska, noting that this particular company is much better, including its commitment to safety and health; providing free room and board, laundry, and meals; limiting work shifts to 12 hours (as opposed to 15- to 18-hour work days in other companies); and providing resources to make their stay in Dutch Harbor more comfortable (e.g., fitness center, library with Internet access and cable television, free DVD rentals, and billiards table). Moreover, having the opportunity to work for this company has allowed many workers to remit money to family members who depend on them.

## Limitations

A re-reading of the interview transcripts and discussion of findings with company workers did not disconfirm the themes identified during this analysis, indicating that findings have internal validity. However, this study is not without limitations.

Its cross-sectional design prevents the authors from determining causal relationships among concepts, and because the information was self-reported, it was subject to recall and social desirability bias.

Another limitation concerns external validity. Because this study focused only on one fish processing company and one racial/ethnic group, the findings are not necessarily applicable to other fish processing companies or other racial/ethnic groups. As mentioned above, about 20% of the respondents who had an opportunity to work in other fish processing companies in Alaska described work and life experiences as being worse in other companies compared with this company in terms of long work hours and less desirable work and living conditions. Further examination of these differences is worth pursuit. Transferability of this study to other racial/ethnic groups is difficult to assess without documenting their respective experiences and point of view. This study does, however, capture the experiences of a significant proportion of workers in this industry. Besides culture-related issues—the challenges—both occupational and non-occupational, experienced by Filipino workers are likely to be experienced by workers in other racial/ethnic groups.

Also, because this was a qualitative study, the frequency of specific challenges identified by study participants was not assessed. These data could inform how particular problems or concerns should be prioritized.

Finally, other noteworthy areas in this study were not directly investigated. For example, the specific types of injuries and health problems or conditions that were mentioned by respondents during interviews were not explored in detail. A number of participants who had health problems or minor injuries related to their work could not recall or identify the specific name of the health condition or injury. This information would have added value to this study. Many participants, unfortunately, could only either guess at their health concern or describe symptoms. Other information that would have added value is comparing experiences between men and women, as well as between those with multiple years of experience versus new recruits. Unfortunately, the sampling design and recruitment did not allow for a sample with equal representation of such groups.

## Implications for Practice

Based on study findings, three principal considerations emerged that the company might entertain to decrease occupational injury risk and improve the health and well-being of workers. First, to address the issue of exposure to cold weather for long periods of time and repetitive strain injuries, routine job rotation could be adopted. This approach serves to reduce exposure to cold temperatures or performing the same tasks for long periods of time. Second, acknowledging the availability of company and community resources to promote healthy lifestyles and offer some degree of entertainment, workers (especially new recruits) must be

made aware of these resources. Although workers may have been informed of these resources during the recruitment and orientation process, it is worth repeating this information and perhaps providing formal encouragement and programming by a staff member trained in health education or health promotion. Finally, concerns related to supervisor issues could be addressed by creating a joint worker-management committee tasked with identifying problems and finding solutions in the workplace. To minimize *biya* among workers when voicing their concerns about management and other work issues, perhaps workers could designate trusted worker representatives to serve on this committee. Similarly, representatives from management and administration should endorse more explicitly an open and honest conversation during committee meetings.

## Conclusion

This study brought to light new issues specific to the experience of Filipino fish processing workers in Dutch Harbor, Alaska. It provided evidence that fish processing workers in this isolated, subarctic island encounter environmental and non-environmental challenges within and beyond the work setting that could be detrimental to their health and productivity. Despite these challenges, simple structural and procedural changes by the company (and others like it in the industry) can decrease the risk for work-related injuries and improve the overall well-being of the workforce.

## Conflict of Interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

## Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This work was funded by a pilot grant from Pacific Northwest Agriculture Safety and Health at the University of Washington through a cooperative agreement with the National Institute for Occupational Safety and Health, Award No. U54OH007544.

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