

## **Carpal Tunnel Syndrome: The Lobsterman's Painful Reality**

Lobstermen are part of an industry in which they're exposed to harsh elements and heavy workloads all while being isolated on the water, miles from the shore, during the typical work day. Commercial lobster fishing is not an industry for the "faint-hearted." Repetitive tasks such as hauling up traps from the bottom of the ocean over the boat railing and manually applying rubber bands to lobster claws hundreds of times a day over the course of years cause significant wear and tear on the body of a lobsterman. Targeted medical studies have narrowed down the factors which lead to the largest occurrences of acute injury. Some of these studies have even gone so far as to suggest areas within the lobster fishing industry where changes in equipment and handling practices could have a substantial ergonomic impact on lobstermen and their long-term health.

A group of scientists, in partnership with the University of Massachusetts Lowell, interviewed a total of 395 lobstermen within three different age groups (Less than 35-years-of-age, 35-50 years-of-age, and Over 50 years-of-age) over a period of two years. It was also taken into account whether the lobstermen were classified as captain or sternman. The findings were quite significant. As you can see in the chart below, fifty percent of the individuals reported pain in the lower back in the past 3 months, and thirty-five percent specifically indicated it was a result of their work. The next areas which showed the highest reports of pain were shoulders (38%), and hands/wrists (30%).<sup>[1]</sup>



Furthermore, the team at UMass Lowell found something else present in the data. There was a higher percentage of sternmen<sup>[2]</sup> experiencing hand/wrist pain than captains. The team correlates this phenomenon directly to the repetitive motions of manual lobster banding, a task mostly carried out by sternmen.

On top of the pain and discomfort they regularly experience, when the sternmen on lobster boats cannot complete their work due to acute or chronic injuries, their quality of life suffers as well. These workers are often told by their doctors to leave the industry altogether or undertake invasive and costly medical procedures, such as open surgery on the wrists and palm, surgery to cut the ligaments in the arm, or shoulder replacement surgery<sup>[3]</sup>. However, these drastic options only address the symptom of a much larger problem: non-standardized boats with outdated equipment. These injuries, and the wear and tear they're experiencing are occurring because the design of their equipment requires that they awkwardly twist their bodies into uncomfortable postures to complete many of the tasks of their job<sup>[4]</sup>. In a similar way, the repetitive squeezing

of manual banding pliers often inflames the muscles, tendons, and carpal tunnel wrist area leaving the operator in significant pain and ultimately causing the chronic disorder carpal tunnel syndrome. Simply put, improved ergonomics and practical safety innovations would have a positive impact on the lives of all lobstermen.

The team at UMass made their recommendations public in 2016. The official conclusion read:

*“Equipment or technology to assist material handling should be a priority...”*

In the future, the team plans to undergo another study to measure the difference in musculoskeletal risk factor exposure between the traditional lobster banding tool and two experimental tools that complete the same task. They will also be looking at the comfort and productivity of the new tools, because any changes which result in a decrease in productivity simply wouldn't be feasible. Each lobsterman is unique, and has a unique set of challenges to optimize the processes on their own boat.

There is an overall feeling of optimism among everyone involved in this campaign, as they all agree that lobstermen are a resourceful and independent work force who are, arguably, some of the most capable “do-it-yourselfers” on the planet. They are “interested, experienced, creative problem solvers who seek out ways to reduce risk in their independent operations.” The issue is not that boat operators refuse to comply with safer or more ergonomic devices, it's a combination of issues preventing the implementation of certain changes.

On one hand, it is merely that the information is not readily available on any potential alternatives. For this reason, the Northeast Center for Occupational Health and Safety (NEC) is proposing an investigation to evaluate the changes in ergonomics of lobster boats and the capacity of lobstering communities to respond to the challenges of exposures to risk for musculoskeletal disorders<sup>[5]</sup>. Their specific aims are to:

1. Organize a steering community to guide development and implementation of a participatory ergonomics approach to reduce exposures for musculoskeletal disorders in lobstering.
2. Through this participatory ergonomics approach, generate ideas, translate ideas into action, and implement interventions to reduce exposure to risk factors for musculoskeletal disorders.
3. Evaluate the participatory process and the efficacy and effectiveness of the implemented ergonomic interventions.
4. Develop the shore-based infrastructure for translation of ergonomic ideas into practice in the lobstering industry.

On the other hand, another reason lobstermen might refrain from implementing new technology could be the unknown costs associated with such. In 2019, the looming regulations related to the endangered North Atlantic right whale have been a major concern. Apprehension stemming from unknown costs, in conjunction with a drastic cut to herring quotas, is impacting the bait supply. Together, this could mean less traps lobstermen can use, and less bait supplies available which will require them to use much more expensive bait to get the job done <sup>[6]</sup>. Knowing that there could be potential hardship on the horizon, it's understandable that many operators might feel as

though now is not the time to take on any new expenditures to update equipment. This is why the work that the teams at UMass and the NEC are doing is so very important. It is hoped that increased awareness and networking will lead to grants and financial-assistance in the long run.

An example of the long road to financial assistance is seen in the campaign to promote life jacket use among Maine lobstermen. In 2019, the National Institute of Occupational Safety and Health published findings about lobster fishing deaths in East Coast fisheries from 2010-2014. The highest number of occupational fatalities in the region were related to lobster fishing.

Specifically, these deaths were a result of either falling overboard or due to a vessel disaster. Based on the fatality reports, none of the recovered victims were wearing a lifejacket. After those findings were published nationally, researchers at the local division of Occupational Health and Safety (coincidentally the same division involved in the ergonomics research) began working with lobstermen in Maine and Massachusetts to understand why lifejacket use has been relatively uncommon among fishermen in their sector. They used that feedback and partnered with the Maine Lobstermen's Association (and others) to create a "Lifejackets for Lobstermen" campaign. In this campaign, two lifejacket vans drove to ports in Maine and Massachusetts to provide lifejacket options at a one-time discount. They also used that time to educate fishermen on the various options available and additional technology that can improve chances of recover and survival in the event of a fall overboard <sup>[7]</sup>. Now that there is an increased awareness of the need for more ergonomically correct tools in the fight against carpal tunnel syndrome in lobstermen, we have a greater chance of seeing public funding, awareness campaigns on compliance, and industry changes.

To conclude, the occupationally-related health concerns specifically within the lobster industry include a high prevalence of chronic pain (such as carpal tunnel syndrome) and acute pain in the lower back. This is directly related to the equipment being used to complete the daily, repetitive tasks of a lobsterman. There is a substantial need for improved ergonomics of equipment before the industry will see a decrease in the prevalence of pain and suffering among lobster fishermen. Working together with local government organizations and various lobster fishing associations will, most likely, be the fastest, and most efficient route to implement the necessary changes. Then, and only then, will we begin to see improvements in the quality of life of a lobsterman.

References:

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