

Introduction

The Fisheries Technology and New Opportunities Program provided assistance in 2009 to the Centre for Aquaculture and Seafood Development (CASD) of the Fisheries and Marine Institute, Memorial University to modify a 2005-designed, whelk size-sorting system to resolve issues relating to damaging of undersized whelk and exclusion of marketable products.

Background

Over the past three years, CASD has worked with the Department of Fisheries and Aquaculture, the Canadian Centre for Fisheries Innovation, and the whelk fishing industry to develop a system to mechanically remove undersized whelk landed onboard fishing vessels. CASD also worked with Fab Tech Ltd. to develop a flat bed whelk size-sorting system for smaller vessels. Over time, the sorting table has undergone several modifications to improve the system. Additional adjustments are required to more effectively remove undersized whelk and reduce the time it takes to return the small animals to the ocean.



Methodology

The current sorting table design was tested for system effectiveness, with frozen product used for the initial tests. Adjustments to the size-sorting system included:

- Modifications to the sorting system to allow for adjusting bar spacing. Spacing guides were fabricated.
- Modifications to the infeed table. A vibrating motor was installed to more effectively move product toward the sorting table. Legs were installed to increase the angle of the infeed table.
- Design and fabrication of an infeed conveyor system.

The upgraded whelk size-sorting system was installed on a vessel for testing, allowing for space to harvest and bag graded product. A member of the CASD team accompanied the crew on the sea trial, where several issues were identified. It was recommended that the following modifications be made:

- Install a hopper area on the infeed conveyor.
- Install a brush system to evenly distribute product over the belt.
- Lower conveyor to minimize damage to whelk.
- Remove and raise bagging area to allow for inspection and bagging.
- Install a larger volume hydraulic system.

All of the CASD recommendations were undertaken by the harvester, and the system was completed.

Results

CASD conducted a review of the effectiveness of the modified whelk size-sorting system at the close of the whelk fishery. Based on harvester information, the system significantly improved the whelk harvesting operations. The benefits of the system were:

- Significant reduction in harvesting time, enabling the fisher to fish a larger area.
- Effective removal of undersized whelk with minimal loss of marketable product.

The harvester decided to install a chute to allow undersized product to be returned to the ocean immediately.

Conclusion

The removal of undersized whelk during harvesting is critical to ensure the sustainability of the resource. With the final modifications completed, the flat bed whelk sorting system has proven to be very efficient and is currently being used full time on a 45' vessel.

The Fisheries Technology and New Opportunities Program (created under the Fishing Industry Renewal Strategy) provides support for innovative and competitive harvesting, processing, and marketing initiatives to increase the overall viability of the Newfoundland and Labrador seafood industry to be a major economic contributor to the provincial economy. For more information please contact us.

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