In the past, the Newfoundland mussel industry focused almost exclusively on the primary production of mussels for the fresh, live market. However, within the last few years, the industry has shifted its marketing strategy more towards secondary processing and value-added products. This change in strategy has come at a cost to the industry through increased competition and tighter market specifications for product quality. This change has resulted in inconsistencies in product expectations between producers and processors, which has forced the industry into variable harvest schedules and caused lower-than-expected product yields for both producers and processors. In this project, the Newfoundland Aquaculture Industry Association (NAIA), in conjunction with the Fisheries and Marine Institute of Memorial University of Newfoundland and Labrador (MI), have attempted to address these inconsistencies through the development of quality assurance guidelines. The guidelines were based on a technical study conducted by the MI which focused on mussel quality. The study was designed to provide a scientific investigation into mussel quality issues so that strategies for mitigating their impact could be identified and implemented.

Methodology

Technical Study
The technical component of this project, which was completed at the MI facility and several blue mussel grow-out and processing facilities across the province, assessed five principal goals related to mussel quality. These goals were: to address the influence of stress on the shelf life and quality of cultured mussels; to evaluate thin shell condition as a function of site, season, species and farming conditions; to determine meat yields for a given size range of mussels; to determine yields of marketable product from ‘standard’ size tote pans for different size ranges during different seasons; and to conduct temperature profiling comparisons of different methods used for transportation and storage of harvested product.
Quality Assurance Guidelines
A series of workshops and one-on-one interviews, organized by the NAIA with representatives from the mussel industry (i.e., producers and processors), were held throughout the term of the project.

Results

Technical Study
Stress responses were found to be directly associated with mussel shelf life and mortality. Storage methods during harvest and post-processing can greatly affect the shelf life of the final product. Thin shell condition was deemed to be site specific with a possible seasonal influence. Evidence presented supports a variation in meat yields for different size classes with an apparent geographic influence. Yields of marketable product from ‘standard’ size tote pans as a function of different size ranges and seasons resulted in no discernable patterns. Temperature profiles for product that was iced during post-harvest transportation demonstrated an effective cooling to 40C within 45 minutes.

Quality Assurance Guide
The guide presents an overview of mussel quality, the conditions that constitute quality, and the relationship between product quality and food safety. A resulting series of recommendations are offered as guidelines for the growing, harvesting, and processing of blue mussels.

Conclusion

These results indicate that growers should continually monitor their site characteristics and have an understanding of how their daily activities can impact upon their product's final quality. Quality starts at the farm level. A key point of interest was the inconclusive results of the study relating to the establishment of a standard, marketable yield per tote pan. If conclusive results had been obtained, it would have given credence to guidelines associated with culling rates throughout the processing phase of production, a key problem currently faced by the industry.

The primary intent of this project was to develop a document that both blue mussel producers and processors could reference for ensuring that the best methods for maintaining the quality of farmed, Newfoundland mussels were followed. The scientific approach to the technical study clearly quantifies the interactions between stress and product shelf life; thin shell condition and meat yields with geographic location; and the necessity of ice for effectively cooling product under transport and storage conditions. The guide serves as an important first step for the Newfoundland mussel industry in providing a consistent, quality product to the marketplace.

Department of Fisheries and Aquaculture
Government of Newfoundland and Labrador
P.O. Box 8700, St. John’s, NF, A1B 4J6
Call: 709 729-3732 / Fax: 709 729-6082
Web: http://www.gov.nf.ca/fishaq/FDP
(Or a DFA Regional Office near you)

The $10 million Fisheries Diversification Program is part of the $81.5 million Canada-Newfoundland Agreement Respecting the Economic Development Component of the Canadian Fisheries Adjustment and Restructuring Initiative.