

# BC Coastal Hem-Fir Initiative – 2012/13

<b>Project Title</b>	Develop Options for Margin Improvement through Log Quality and Merchandizing Practices
<b>Project Number</b>	R.02
<b>Project Leader</b>	Björn Andersson
<b>Project Team</b>	Jack MacDonald
<b>Total Budget</b>	\$190,000

## Need(s)

Generous overlength tolerances have been shown to reduce the value of logs delivered to sawmills for two reasons. Overlength logs generate waste at the sawmill since the excess volume is converted into lower-value chips instead of higher value lumber. In the woods, falling breakage means that bucked logs must fit into the stem section below the break point, and the unbroken stem section must contain the preferred log lengths plus the overlength allowances. A generous overlength allowance means that occasionally, one fewer preferred length log fits into the broken section than if a tighter tolerance was used, thus reducing the overall value. Value is reduced by the difference in log value between preferred lengths and non-preferred lengths, and has been shown to amount to \$1.80/m<sup>3</sup>. However, reducing the overlength tolerance may increase the bucking costs by more than the recovered value. Understanding the trade-off is required to maximize overall value.

Logs delivered to conversion facilities must meet the desired characteristics and dimensions, in particular, the desired combinations of quality attributes, log lengths, and minimum diameters. Bucking stems into logs on the cutblock is difficult especially in steep terrain, and bucking errors can lead to reduced log value. Recovered log value may be improved by manufacturing the logs in a sortyard under controlled conditions, but log-haul logistics restrict the areas where over-length stems can be hauled. Understanding the costs, benefits, and operating parameters of hauling long stems to a sortyard is required.

Evaluating stems to determine their best bucking pattern is complex, and may be best handled by a mechanical processor using a computer system. The current processors often have the sensors and mechanical equipment required to make computerized measurements, but lack the necessary software to determine the optimal bucking solution. Demonstration of their capability to improve log value through better bucking decisions is required.

## Objectives & Approach

Demonstrate the improved value recovery by reducing the overlength tolerance from 30 cm to 10 cm. Monitor log value from cutblocks using both standards.

Demonstrate log value increase by hauling long stems to central sortyard for processing into merchantable logs under more controlled conditions than is possible in the cutblocks.

Demonstrate increased log value through improved log-manufacturing practices for mechanical processors by using advanced computer-guided bucking decisions..

## Benefits

The BC Coastal forest industry will be able to utilize the forest resource more efficiently by providing mills with the right mix of logs in a timely and economical fashion. Log value is maximized through improved bucking practices and reduced breakage.

- The lost value due to generous overlength tolerances has been shown to amount to \$0.50/m<sup>3</sup> at the mill, and \$1.80/m<sup>3</sup> in the woods, but these savings are not applicable to all logs. Short-term gains through better log-manufacturing practices are estimated at 1% increase in overall log value. Total savings could amount to \$12M/year for the applicable log grades for the entire coastal industry.
- Additional benefits from improved log merchandizing practices through the implementation of value optimization technologies are projected at \$2–4/m<sup>3</sup> on 10% of the harvested volume, or about \$6M/year.
- Cost savings through improved productivity and value increases through improved bucking practices for mechanical processing could total to \$1.0-1.5/m<sup>3</sup>. This saving could result in a potential annual saving of \$1.5M on the coast.

## Project Tasks and Outputs – Current fiscal year

Tasks / Outputs	Expected Delivery Date
Demonstrate effect of reducing the log-length bucking tolerance on overall product value for manual bucking. Produce technical report.	September 2012
Trial of hauling long logs to sortyard followed by optimal mechanical processing. Produce technical report.	December 2012
Trial of next-generation log-bucking computer on mechanized processor. Produce technical report.	December 2012

## Status and Major Accomplishments – Previous year

Identified two strategies to potentially reduce a mill's prime-length log cost by \$0.78/m<sup>3</sup> (\$624,000 per year) through better length measuring accuracy and ensuring all bush logs are oriented butt-first through the mill's cutoff saw.

Identified potential value improvement of \$1.80/m<sup>3</sup> when bucking stems into preferred length logs by reducing overlength tolerance from 0.3 m to 0.1 m.

Identified the value difference between hemlock sawlogs manufactured with a mechanical processor under manual control and the maximum achievable value. Evaluated the opportunity to improve productivity by implementing fully automated control.

Presented overview and results of coastal program to Western Forest Products annual stewardship workshop held for its foresters and engineers.

## Performance Measures

Key Success Factor	Key Performance Indicator	Target	How the outcome of the Project supports the Program objectives
Improve the log value delivered to sawmill by reducing overlength tolerance.	Company adopts new overlength tolerance.	One division adopts reduced allowance.	Demonstrates improved corporate profit by considering the entire value chain.
Identify opportunity to haul long logs from bush to sortyard where bucking decisions can be made under more controlled conditions.	Long-log trial occurs and shows improved value recovery.	Haul at least 10 truckloads of long logs to a sortyard for processing.	Demonstrate that alternative methods for hauling and manufacturing logs can improve overall profitability compared to conventional practices.
Improve value recovery by demonstrating computerized control of mechanical log bucking when processing second-growth timber.	Cost reduction and value improvement on second-growth logs.	Reduce value losses by 50% while maintaining or improving machine productivity.	Increasing productivity and competitiveness through application of new technologies and approaches

## Communication Strategy for Information Dissemination

Results will be published in three technical reports plus articles in the coastal bulletin. The reports will be described on the coastal web site, and are available for download upon request. Results will be presented at the joint Operational Issues forum (industry and BC Ministry of Forests, Lands, and Natural Resource Operations), and to industry-sponsored workshops.

## Collaboration – Research Partners

- Western Forest Products Ltd.
- Timberwest Forest Corp.