

BC Coastal Forest Sector Hem-Fir Initiative

PROGRAM: HARVESTING AND CONVERSION PROGRAM  
PROJECT #: H.04  
PROJECT TITLE: Resource Conversion Valuation Tools  
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### Abstract

Optitek® has been designed to model North American dimension lumber sawmills. However, it cannot currently be used to model BC coastal sawmills processing Pacific Coast Hemlock into a variety of products for off-shore markets. To do so requires consideration of internal defects and quality characteristics as well as the unique way in which sawing decisions are made in coastal sawmills. This report outlines the actions necessary to enhance Optitek® to enable its use for modeling sawmill operations in coastal British Columbia.

Key defects/characteristics that must be considered include two types of knots (firm and tight; not firmly fixed), shake (ring and radial), rot, the heartwood/sapwood border, and pith (heart centre). Concepts for modeling these are outlined in the report.

New product grading software needs to be added to Optitek® to grade the main products manufactured for off-shore markets, taking the above defects/characteristics into account. In addition, Optitek should incorporate both sawing around and live sawing techniques for larger logs and canter-quad (or twin) breakdown methods for small logs, using grade-dependent sawing decision points. These are described in detail in this report.

**Keywords:** Sawmill simulation, Optitek®, internal log defects and their models, simulation of grade dependent sawing decisions during primary log breakdown.

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