



**CST-EBMWG DS03- Operational  
Costs and Benefits:**

**Phase 1: Documenting EBM Pilot Projects**

**SUMMARY REPORT**

**DRAFT**

**For:** The Ecosystem Based Management Working  
Group

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## Disclaimer

This report was commissioned by the Ecosystem-Based Management Working Group (EBM WG) to provide information to support full implementation of EBM. The conclusions and recommendations in this report are exclusively the authors', and may not reflect the values and opinions of EBM WG members.



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## Overview

There have been several attempts (EBM Pilots) by Forest Licensees and First Nations to “operationalize” aspects of EBM. More recent efforts have been guided by the EBM Handbook. The purpose of this project is to document these efforts in terms of the objectives, implementation actions, results, monitoring provisions and associated documentation so they can contribute to information resources in an adaptive management context as well as to the selection of areas for ongoing Adaptive Management (AM) planning.

## Objectives

1. Identify and catalogue efforts to explore and pilot implementation of EBM at the territorial, landscape, watershed and stand level.
2. Describe the pilot projects in terms of the degree of EBM implementation (with reference to the EBM handbook), monitoring efforts, and results / outputs where this information is available.
3. Consider how documentation of EBM is occurring in other initiatives and capitalize on any opportunities to link.

## Methods

A detailed list of nineteen potential EBM pilots was designed by the EBM Working Group with contact information to guide data collection. Next, a questionnaire was designed, approved by the EBMWG, and forwarded to the contacts for each potential EBM pilot (Appendix 1). These initial contacts were followed with telephone discussions or additional emails. In some cases a number of contacts were required to fully understand the pilot project.

For most projects enough information was gathered through the questionnaire and subsequent phone calls to adequately describe the project. For three projects this was not the case. For two projects (Fraser Reach 1 and 2) information was not yet received in time for this report.

Seven of the 19 pilots investigated were dropped as EBM pilots for the purposes of this summary due to either a lack of available information (Fraser Reach 1, Fraser Reach 2, Kitasoo Trial) or due to a lack of rigor with which EBM was applied (Tuck Inlet, Paril River, Timfor NRFL). For these reasons, of the 19 potential EBM pilots investigated, results for 13 were summarized in the associated spreadsheet *EBM Summary of questionnaires April 14 2008.xls*. This spreadsheet is the best source for the detail collected on this project, including contact information for maps and other data. The spreadsheet also provides additional detail on why prospective projects were dropped from this project. It should be noted that the Kowesas River project was almost dropped from this list since it was initiated as an EBM project and evolved into a Sustainable Resource Management Plan (SRMP) over time. However, it still may hold some lessons for EBM and so is included here.

# Results

## *Location, Partners and Timing*

For the 13 projects summarized in this report, all were conducted by Major Licensees, occasionally (2 of 12) with other partners (First Nations or Rainforest Solutions). Two pilots were undertaken on the South Central Coast and two CFCI pilots were conducted in part on the South Central Coast. Seven pilots were conducted on the North or North Central Coast with the two CFCI project conducted in part in that area as well. Two projects were conducted by BCTS on Haida Gwaii (Table 1).

Seven of the 13 pilots were initiated in March 2007 or afterwards. The rest of the pilots were primarily conducted prior to 2007. Only one pilot was initiated prior to the December 2003 Agreement in Principle (AIP) when the transitional elements were established (Cedar Creek – IFP).

## *The Focus of the EBM Pilots*

Of the thirteen EBM pilots, 62% (8 of 13) were modeling exercises, in part to test the economic impacts of implementation relative to short-term available harvestable volume or long term timber supply. Five of these pilots are relatively recent, established last year and ongoing, using the *Patchworks*<sup>1</sup> model to assess impacts and effectiveness over time. These five Patchworks pilots, considered both the EBM handbook and the appropriate Ministerial Order (North/ North Central, or South Central Coast) to test default and alternative risk scenarios at multiple spatial scales over time. As integrated strategic and tactical scenario modeling exercises, these pilots are currently attempting to explore ecological and economic sensitivities over time to inform TSR and other future planning (WFP – Roderick and Stafford, CFCI Johnston and Sim Creek, and BCTS – Nootum / Koeye). Because they model development and harvesting opportunities over time and consider the fixed costs associated with those activities, they provide insights on the impact of harvesting less volume under EBM, spread over the infrastructure required.

One of the modeling pilots was targeted at testing terrestrial ecosystem mapping (TEM) against the use of the Site Series Surrogate (SSS) approach for meeting representation targets across a landscape unit (Thurlow LU – Timberwest). The focus was the impact on timber supply, and to a degree implementation effectiveness questions (related to changing species compositions on managed site series).

Five pilots, Fraser Reach 3 (Triumph - North Coast), Cedar Creek (IFP), Monkey Beach (BCTS – North Coast), Kowesas River (West Fraser/Haisla – North Coast) and Mosquito / Skidegate (BCTS - Haida Gwaii) focussed on operational effectiveness testing of EBM implementation. In these pilots, design of effective implementation approaches was the focus. Harvesting was only conducted on two of these pilots (Fraser Reach 3, and Cedar Creek), with the others scheduled for harvesting.

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<sup>1</sup> Patchworks, the flagship product of Spatial Planning Systems (an Ontario company), is a sustainable forest management optimization model that incorporates real world operational considerations into the strategic planning framework. The flexible interactive approach is unique in several respects: Patchworks provides a convenient visual mechanism to analyze trade-off's between competing sustainability goals; Patchworks integrates operational-scale decision-making within a strategic-analysis environment: spatially explicit harvest allocations can be developed over long-term planning horizons.

Table 1. Overview of EBM Pilots which provided adequate information for this analysis. For more information see the spreadsheet *EBM Summary of questionnaires April 14 2008.xls*

Pilot Sponsor – Location (subregion)	Date	Harvest under pilot	Type of Pilot	General Objectives	EBM Guidance Used
Triumph/Gitga'at - Fraser Reach 3 (NC)	2005	60% harvested	Operational Implementation	Test EBM approaches with GIS planning.	EBM Handbook
IFP/ Rainforest Solutions/ Forest Ethics – Cedar Creek (NC)	2003-04	80,000 m <sup>3</sup>	Operational Implementation	Operationally test the EBM Handbook	EBM Handbook
BCTS – Tlell LU (QCI) – incomplete (phase 1 only)	2006	NA	Modelling	Test EBM principles – cost impacts etc	Haida Gwaii Land Use Plan
BCTS – Mosquito / Skidegate Lakes (QCI)	2008	NA	Operational Implementation	To test effectiveness of SLUPA – impacts etc.	Haida Gwaii Land Use Plan
CFCI - Johnston Creek (NCC, SCC)	2008	NA	Modelling (Patchworks)	TSR impacts	Both Ministerial Orders plus consider Handbook
CFCI - Sim Creek (NCC, SCC)	2008	NA	Modelling (Patchworks)	TSR Impacts	Both Ministerial Orders plus consider Handbook
BCTS - Nootum / Koeye (NCC)	2007	NA	Modelling (Patchworks)	TSR Impacts	EBM Handbook
Timberwest – Thurlow LU (SCC)	2005	NA	Modelling	TSR impacts of using TEM vs SSS	2003 AIP
WFP- Roderick2 (NCC)	2008	NA	Modelling (Patchworks)	Scenario analysis for economic and ecological sensitivities	EBM Handbook
WFP- Stafford (SCC)	2008	NA	Modelling (Patchworks)	Scenario analysis for economic and ecological sensitivities	EBM Handbook
BCTS- Monkey Beach (NC)	2007	None yet – layout	Operational Implementation	Test operational efficiencies at CP level.	2003 AIP (CFCI 05-06) plus consider Handbook
W.Fraser/Haisla - Kowesas River (NC)	2005	NA	Operational Implementation	Test General EBM Planning Principles	EBM Handbook
IFP/FERIC – Quatlana (NCC)	2006	NA	Modelling	TSR and cost impact analysis	2003 AIP & Handbook



Two of these pilots (Fraser Reach 3 and Cedar Creek) were multi-scale pilots (landscape level to site level), two pilots (Kowesas River, and Mosquito / Skidegate) were watershed-level studies, and one of these pilots (Monkey Beach) was a cutting permit level study to determine economically viable layout approaches at that level.

### ***General EBM Guidance Used***

Six of the pilots (three of the Patchworks modeling projects), the Cedar Creek and Kowesas River operational pilots, and the Fraser Reach multi-spatial pilot appear to use the entire EBM Handbook for guidance. Three of the pilots considered the handbook but focused on the transitional elements from the 2003 Agreement in Principle. The patchworks modeling projects also considered the relevant 2007-2008 Ministerial Orders (North Central, or South Central Coast), while the two Haida Gwaii pilots focused on the EBM direction in the Haida Gwaii Land Use Plan.

### ***EBM Features Addressed by the Pilot***

Two of the pilots were conducted on Haida Gwaii, and focused on the Haida Gwaii Land Use Plan Requirements. Of the Central and North Coast Pilots, one pilot was focused on representation (Timberwest -Thurlow) as it was testing TEM against the SSS approach (Table 2). One North Coast Pilot (Kowesas River) seemed focussed on stand level retention, although this was clearly an EBM pilot that evolved away from EBM into a SRMP.

The remaining nine pilots on the North and Central Coast reported addressing the following features according to the general guidance documents discussed in the previous section:

- Representation – Note: one pilot specified addressing this through inblock retention (BCTS – Monkey Beach).
- Red and Blue listed ecosystems - one pilot suggested that this was addressed by locating reserves in areas with a high likelihood of red and blue ecosystems (IFP-Quatlena).
- Hydroriparian Features – Presumably these were not fully addressed (ground-truthed) by the modelling pilots that focussed on timber supply and other economic impacts. However, all four of these pilots reported addressing hydroriparian features to a degree. **One (IFP- Quatlena) described specific features and was the only pilot to identify high value fish habitat.**
- Identified Wildlife Habitat – Only one pilot indicated which identified wildlife habitat was addressed (deer, goat and tailed frog habitat in IFP-Quatlena).
- First Nations Traditional Forest and Heritage Resources – All suggested that these were addressed (at least to the level required by the guidance being followed) but were not specific about exactly what was addressed.
- Stand Level Retention – Most appear to address stand level retention to the degree required by the guidance followed.

Table 2. The EBM features managed for by the EBM Pilots. For more information see the spreadsheet *EBM Summary of questionnaires April 14 2008.xls*.

Pilot Sponsor – Location (subregion)	Representation	Red-listed Site Series	Blue-listed Site Series	Other Rare Ecosystem	Hydro-riparian features	ID'd Wildlife Habitat Areas	Stand Level Retention	F.Nations Trad For Res	F.Nations Trad Her. Res
Triumph/Gitga'at - Fraser Reach 3 (NC)	✓	✓	✓		✓		✓	✓	✓
IFP/ Rainforest Solutions/ Forest Ethics – Cedar Creek (NC)	✓	✓	✓		✓			✓	✓
BCTS – Tlell LU (QCI) – incomplete (phase 1 only)	✓				✓				
BCTS – Mosquito / Skidegate Lakes (QCI)	✓				✓				
CFCI - Johnston Creek (NCC, SCC)	✓	✓	✓		✓		✓	✓	✓
CFCI - Sim Creek (NCC, SCC)	✓	✓	✓		✓		✓	✓	✓
BCTS - Noodum / Kooeye (NCC)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Twist – Thurlow LU (SCC)	✓								
WFP- Roderick2 (NCC)	✓	✓	✓	✓	✓	✓	✓	✓	✓
WFP- Stafford (SCC)	✓	✓	✓	✓	✓	✓	✓	✓	✓
BCTS- Monkey Beach (NC)	✓	✓	✓		✓	✓	✓	✓	✓
West Fraser/Haisla - Kowesas River (NC)	✓	✓	✓	✓	✓	✓	✓	✓	✓
IFP/FERIC – Quatlena (NCC)	✓	✓	✓	✓	✓	✓	✓	✓	✓

## ***Monitoring***

Only one project attempted some monitoring (Triumph – Fraser Reach 3) by installing a waterflow/quality monitoring station that was destroyed by high water in the first storm. Six of the pilots identified that monitoring was not applicable, presumably because they were pure modeling exercises. One pilot suggested that modeling will be best conducted after harvesting is completed. Three pilots suggested monitoring would be beneficial (two of which were on Haida Gwaii).

## ***Conclusions***

The degree to which these pilots will be useful for future adaptive management projects is highly dependant on the individual pilot, and the intent of the AM project. The modeling projects are useful for future planning direction, and may be useful to AM projects that are interested in broad multi-spatial questions over time. The eight modeling pilot projects may be beneficial for operational AM questions at the stand or watershed scale if they have more detailed inventories and interpretive data at more appropriate scales than other areas within the region. Additionally, these projects may be useful if the conclusions regarding economic or ecological sensitivities in specific landscape units or watersheds are considered useful to identify specific conditions sought for an AM project. As these projects are not yet complete, those conclusions are not yet known.

The operational pilots were intended to find efficient and effective ways to plan and implement EBM harvesting and management practices while in the learning phase of EBM. This was done at a time when new targets, approaches and ideas were emerging. As the AM program for EBM progresses, the pilots that most closely followed the requirements of the EBM handbook may be useful as comparison areas against those strictly using requirements from the Ministerial Orders, or the 2003 AIP. Operational pilots may also be useful where, like the modelling pilots, they have more useful background inventory and interpretive data. Otherwise, pilots that focussed on earlier EBM guidelines (the 2003 transitional elements) may not be as useful, if requirements or approaches to implementation have changed.

Because few pilot areas specifically identified hydroriparian or other special habitats of interest, the usefulness of the pilot areas will be limited for AM related projects for those features. If future AM monitoring or research projects are interested in such features at an operational level, it may be useful to go beyond the pilot areas to identify all cutblocks, watersheds or subwatershed units with such EBM features. This information has not been consistently recorded by licensees up to this point. Where licensees have not recorded all specific aspects or features of EBM management, funding should be pursued to bring those records up to date with current harvesting. This may be more useful over the long term to adaptive management than the EBM pilot areas.