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# **Babine Watershed Monitoring Trust**

## **2006 Annual Monitoring Plan**

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## **1.0 Introduction**

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The Babine Watershed Monitoring Trust (BWMT) is responsible for effectiveness monitoring of government land-use plans in the Babine River Watershed in north-central British Columbia. Effectiveness monitoring assesses whether following planned management strategies achieve desired objectives.

This document constitutes the 2006 Annual Monitoring Plan (AMP) for the Babine Watershed Monitoring Trust, which the Trustees are required to produce under Section 10.2 and Schedule C of the BWMT Agreement. The first Annual Monitoring Plan was approved by the BWMT in July of 2005. The 2005 AMP had a budget of \$39,000 and identified six projects. At the time of developing the 2006 AMP, one project was complete, four were due to be complete in the next six weeks, and one project was awarded and scheduled to be complete by July of 2006. Activities identified in the 2005 AMP, which are not yet complete, will continue until they are complete. The 2006 plan builds on the projects that were undertaken in 2005.

The 2006 AMP sets out the year's budget, lists high-priority monitoring projects, describes projects approved for direct funding, and identifies topics requiring additional funding. The plan provides a synopsis and rationale for each approved project. The BWMT allocates funds to monitoring projects using the process for determining priorities and costs prescribed in the BWMT Agreement and described in the Babine Watershed Monitoring Framework (see [www.babinetrust.ca](http://www.babinetrust.ca)).

## **2.0 Budget**

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The funds available from the Babine Watershed Monitoring Trust Revenue Trust Account (BWMT Agreement, Section 3.1.3) are set out in Table 1. As of March 15, 2006, the BWMT had received two major donations with a total value of \$32,800. These funds are available to directly support the 2006 AMP, and are matched by the provincial government funds under the 2:1 private/public ratio rule.

In 2005, funding from the BWMT for Project 2005-4 was matched by \$5832 in funding from the Real Estate Foundation Partnering Fund. The funds generated by this partnership also contribute to the 2:1 private public ratio rule

Table 1. Budget for 2006

	Contributed	Available under the 2:1 private/public ratio rule	Unavailable in 2006 (banked)
<b>Revenue Trust Account</b>			
Donations: non-government	32,800	32,800	
Levered funds: 2005	5,832		
BC gov't (Banked)	59,600	19,316	40,284
			52,116
<b>Expenses</b>			
Administration and planning			10,000
2006 Monitoring Projects			42,000

### 3.0 Monitoring Priorities for 2006

The Trust supports monitoring projects, maintains the Babine Watershed Monitoring Framework and administers the monitoring program. The allocation of available funds for this year is shown in Table 2.

Table 2. Allocation of available monitoring program funds.

Activity	Projected Allocation
<b>Contract Management and Planning</b>	
Financial administration	\$2,500
Contract management	2,000
Communications	500
Prepare Annual Monitoring Plan	1,000
Meeting support	3,500
Miscellaneous expenses	500
<b>New Projects</b>	42,000
<b>Total</b>	<b>\$52,000</b>

The priority for maintaining the Monitoring Framework increases with the time elapsed since the last revision. The Knowledge Base and Monitoring Priority Tables, found in the Monitoring Framework, were created in 2004. Elapsed time and new information do not warrant a review or update of the Knowledge Base and Monitoring Priority Tables this year.

The Monitoring Priority Tables generated by the Monitoring Framework show priorities and associated costs for the following types of monitoring:

- collecting indicator data,
- monitoring to improve knowledge and reduce uncertainty,

- monitoring to detect negative consequences.

Tables 5 to 7 of this document summarise funding decisions for high-priority monitoring topics in each of the three types. The order within each list indicates relative priority assigned by the Monitoring Framework. The tables also provide a brief rationale for each funding decision. Not all topics can be funded. Higher-priority topics will usually be funded preferentially. When a lower-priority topic is selected for funding, a rationale is provided as to why the higher-priority topics were not chosen. All non-funded topics lower on ranked lists are not funded because of insufficient funds.

## 4.0 Approved Projects

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Four projects are approved for funding by the BWMT Trustees in 2006 (Table 3).

**Table 3.** Approved projects, 2006.

<b>Project Number</b>	<b>Title</b>	<b>Funding</b>
2006-1	Stream Crossing Quality	\$15,000
2006-2	Water Quality in Relation to Stream Crossings	5,000
2006-3	Wilderness Value of Babine River Corridor	15,000
<b>2006-4</b>	<b>Partnership and Proposal Development</b>	<b>7,000</b>
<b>Total</b>		<b>\$42,000</b>

Each project is described in the following Synopses.

In future Annual Monitoring Plans, the Synopses section will record results of ongoing or completed monitoring projects until the results have been incorporated into the Knowledge Base and included in other processes (e.g. BWMT Plan Amendment Process and Criteria). In particular, the subsections listing consequences for the Knowledge Base and consequences for management will summarise actions precipitated by each project.

## 5.0 Project Synopses

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### Project 2006-1: Stream Crossing Quality

**Objectives listed in land-use plans:** The Kispiox SRMP includes an objective to maintain water quality within its natural range, and presents specific targets relating to sediment introduction at stream crossings within the Nichyeskwa, Shelagyote and Babine mainstem watersheds. The Bulkley LRMP includes an objective to maintain existing levels of water quality.

**Type of monitoring:** Collecting indicator data; Improving Knowledge and Reducing Uncertainty

**Possible leaders:** Pierre Beaudry.

**Possible partners:** none

**Status:** A Stream Crossing Quality Index survey was undertaken by the BWMT for the Nichyeskwa Watershed in the summer of 2005. The study was successfully completed by Pierre Beaudry and Associates, but only covered a small sample of the total Babine Watershed. The size of the 2005 study was limited by funding. In 2006, the survey will be undertaken in a different watershed in the Babine which is representative of different conditions than the 2005 survey.

**Funding:** \$15,000.

**Abstract:** With this project, the quality of stream crossings in the Nichyeskwa Watershed will be examined, using the Stream Crossing Quality Index developed by Pierre Beaudry. Project 2005-1 and 2005-2 are intended to result in a preliminary risk curve for water quality and stream crossings. Development of that curve is scheduled to be complete within two months of completing this plan. The results of the new survey will allow the preliminary risk curve to be refined and/or revised at the conclusion of the project.

**Consequence for knowledge base:** This project will allow for assessment of current risk and associated uncertainty to water quality in relation to stream crossings. In collaboration with project 2006-2, it will help to refine the currently undefined risk curve relating stream crossings to water quality.

**Consequence for management:** This project will assess each crossing for its potential to produce sedimentation, and rank them into risk groups (High, Medium and Low). This will support management decisions, through appropriate processes which are separate from the BWMT, by showing the level of risk and uncertainty associated with stream crossings. It may increase confidence in current activities, suggest further monitoring projects or lead to initiation of a plan-amendment process.

## **Project 2006-2: Water Quality in Relation to Stream Crossings**

**Objectives listed in land-use plans:** The Kispiox SRMP includes an objective to maintain water quality within its natural range, and presents specific targets relating to sediment introduction at stream crossings within Nichyeskwa, Shelagyote and Babine mainstem watersheds. The Bulkley LRMP includes an objective to maintain existing levels of water quality.

**Type of monitoring:** Collecting indicator data.

**Leader;** Ian Sharpe, Ministry of Environment.

**Possible partners:** Forest Sciences Program: the BWMT contribution is part of a larger, multi-year research project that is funded by the BC Forest Sciences Program. The BWMT contribution allows more sample sites to be located in the Babine Watershed than would otherwise be done.

**Status:** Initiated 2005.

**Funding:** \$5,000.

**Abstract:** The goal of this project is to investigate the relationship between stream crossings and water quality by using a multi-variate index to describe current stream quality in reference streams in the Nichyeskwa Watershed and below the stream crossings examined in project 2006-1 (Stream Crossing Quality). If funds allow, further reference streams may be included within the Shelagyote Watershed. Renewal of this project depends on successful completion of the 2005 project, which is anticipated in April of 2006, and upon a joint meeting between the project leaders of project 2005-1 and project 2005-2 to determine that the two survey methods can be compared and produce meaningful results.

**Consequence for knowledge base:** This project will assist in definition of the risk curve relating stream crossings to water quality (currently not defined). In addition, the project will allow for improved assessment of current risk and associated uncertainty to water quality in relation to stream crossings.

**Consequence for management:** This project will support management decisions, through appropriate processes which are separate from the BWMT, by showing the level of risk and uncertainty associated with stream crossings. It may increase confidence in current activities, suggest further monitoring projects or lead to initiation of a plan-amendment process.

### **Project 2006-3: Wilderness Value of Babine River Corridor**

**Objectives listed in land-use plans:** The Babine River Corridor Park MDS (Management Direction Statement) includes an objective to maintain a wilderness experience in the corridor, including a sustainable level of recreation. The Kispiox SRMP includes an objective to maintain the aesthetic quality (visual and auditory) of the Babine River Corridor (BRC).

**Type of monitoring:** Detecting negative consequences (sustainable use); reducing uncertainty (auditory disturbance).

**Possible leaders:** John Shultis, University of Northern BC.

**Possible partners:** Real Estate Foundation Partnering Fund.

**Status:** Project 2005-4 was partial funding for the development of a problem analysis and research design. The funding from the Babine Watershed Monitoring Trust was matched by a grant of \$5,932 from the Real Estate Foundation of BC Partnering Fund. The results of project 2005-4 are scheduled to be complete in April of 2006, and will be reviewed at a meeting of public stakeholders. If the lead researcher is satisfied that the research proposal meets the required level of buy-in, then there is a basis to initiate a longer term research project that is based on the proposed methods. .

**Funding:** \$15,000 .

**Abstract:** The aim of this project is to investigate perceptions of wilderness value in the Babine River Corridor. It will consider socially acceptable levels of sustainable use, with particular focus on the Natural Environment Zone of the Park. Secondly, it will investigate perceptions of auditory disturbance throughout the Park, and sustainable use in the Wilderness Recreation Zone.

**Consequence for knowledge base:** This project will seek to detect negative consequences to sustainable use and wilderness value of the Babine River Corridor.

**Consequence for management:** This project will provide information to assist with the development of targets through a Management Plan process that may be undertaken by the Ministry of Environment.



## **Project 2006-4: Partnership and Proposal Development**

**Objectives listed in land-use plans:** This project encompasses any of the High Priority projects listed in Tables 6, 7, or 8.

**Type of monitoring:** Collecting indicator data (stand structure); reducing uncertainty (tree species composition), or monitoring to detect negative consequences.

**Possible leaders:** To be identified through a request for expressions of interest.

**Possible partners:** Forest Sciences Program, Real Estate Foundation of BC, Habitat Conservation Trust Fund, NSERC, Ministry of Forests, forest companies, University of Northern BC, others to be identified.

**Status:** To be initiated in 2006.

**Funding:** - Proposal Development Stipend: \$2,000  
-Partnership contribution: \$5,000

**Abstract:** There are twenty different High Priorities identified in the AMP. Due to limited funding, only three of these can be directly funded this year by the BWMT. To increase the potential scope of monitoring work, the BWMT seeks to develop partnerships or proposals that would encourage other organizations to fund monitoring on the High Priority topics. This will be accomplished in two ways: First, by paying a small stipend of \$1,000 to two researchers who will prepare research proposals on behalf of the BWMT. These proposals may be submitted to external research funding organizations whose program is consistent with the type of monitoring required.

The second way is to provide a small fund that the BWMT can contribute as matching funds to research proposals developed by researchers for the BWMT. Many funding programs, such as NSERC, have specific requirements to have matching funds for any proposal. Others, such as the Forest Sciences Program, provide increased probability of success if there are non-government contributions to a project.

**Implementation:** The BWMT will prepare a list of potential projects for partnership development that will be drawn from the High Priorities in the AMP. Then a call for expressions of interest will be issued to interested researchers. The call will briefly outline the purpose of the BWMT, explain the monitoring framework and plan, and will invite researchers who wish to develop a proposal on behalf of the BWMT to submit a brief proposal that outlines the proposed funding source, lead researcher, and any specific information about how the proposal would fulfill the monitoring priority in the AMP.

Table 4. Funding decisions for high priority topics for collecting indicator data. Topics are ordered by relative priority as determined by Monitoring Framework<sup>4</sup>. Topics below the dashed lines have a low priority for funding within the next 5 years.

Objective	Indicator	Decision	Project #	Project name	Funding	Project length	Status and Rationale
Stand structure	% of natural	Proposal submitted in 2005.	2005-5P <sup>5</sup>	Stand-level biodiversity		1 – 3 years	Project underway in 2006, funded by the Forest Sciences Program
Fish habitat	% of natural riparian habitat	Fund in 2005	2005-1	Riparian ecosystems		1 year	Project 2005-1 underway between April and July 2006. Results of 2005-1 may lead to recommendations for more research.
Riparian biodiversity	% of natural riparian habitat	Fund in 2005	2005-1	Riparian ecosystems		1 year	—
Rare ecosystems	% of natural	Re-assess in 2006	—	—		—	Requires PEM – Unlikely to be complete in the near future.
Human/bear interaction	Road density	Proposal submitted to Habitat Conservation Trust Fund in 2005	2005-6P	Human/bear interaction and open road density		1 year	Proposal not approved. Consider alternate funding sources in 2006.
Human/bear interaction	Screening		2005-6P	Human/bear interaction and open road density		1 year	Modifies above study
Human/bear interaction	Education	Not funded	—	—	—	—	Uncertainty not resolvable within the Babine
Water quality	Stream crossing	Fund in 2005	2005-2, 2006-1, 2006-2	Water quality and stream crossings	\$15,000	1 year	Projects 2006-1 and 2006-2 to be undertaken in a complementary manner
Water quality	Landslides	Re-assess in 2006	—	—	—	—	Some data already collected and analysis in progress - re-assess status before pursuing

<sup>4</sup> Ordered by secondary score (all topics have high priority for data collection; see Monitoring Framework for methods [www.babinetrust.ca](http://www.babinetrust.ca)).

<sup>5</sup> Project numbers followed by a “P”: proposals will be prepared to seek funding (i.e. no operational budget in 2005).

Objective	Indicator	Decision	Project #	Project name	Funding	Project length	Status and Rationale
Water quality	Planning	Not funded	—	—	—	—	—
Bull trout	Bridge location	Not funded	—	—	—	—	—
Bull trout	Protected habitat	Not funded	—	—	—	—	—
Steelhead	Repeated capture	Not funded	—	—	—	—	—
Deciduous stands	% of natural	Not funded	—	—	—	—	—
Wildlife	% of wildlife areas in ETDs	Not funded	—	—	—	—	—
Water quantity	ECA	Not funded	—	—	—	—	—
Connectivity	Winter logging	Not funded	—	—	—	—	—
Timber salvage	% susceptible	Not funded	—	—	—	—	—
Timber salvage	% controlled	Not funded	—	—	—	—	—
Timber salvage	% salvaged	Not funded	—	—	—	—	—
Backcountry recreation	Amount primitive	Not funded	—	—	—	—	—
Gunanoot Lake	Visual quality	Not funded	—	—	—	—	—
Pine mushroom habitat	% mature sites	Not funded	—	—	—	—	—
Huckleberries	% sunlight in cutblocks	Not funded	—	—	—	—	—
Huckleberries	% soil disturbance	Not funded	—	—	—	—	—
Access to recreation	Inaccessible destinations	Not funded	—	—	—	—	—

**Table 5.** Funding decisions for high-priority topics for monitoring to improve knowledge and reduce uncertainty. Topics are ordered by relative priority as determined by Monitoring Framework<sup>6</sup>. Topics below the dashed lines have a low priority for funding within the next 5 years.

Objective	Indicator	Decision	Project #	Project name	Funding	Project length	Status and Rationale
Natural seral	% of natural old and old + mature	Develop Proposal in 2005	2005-5P	—	—	—	Project underway in 2006, funded by the Forest Sciences Program
Tree species	% of natural	Proposal submitted to FSP in 2005	2005-5P	Stand-level biodiversity	—	1 – 3 years	Project underway in 2006, funded by the Forest Sciences Program
Pattern	% of natural (biggest patch)	Not funded	—	—	—	—	Overlapping uncertainties mean that reducing resolvable uncertainty would not appreciably reduce total uncertainty
Connectivity	% of mature and old	Seek funding	—	—	—	—	Low priority within biodiversity
Grizzly habitat	% high-value	Seek funding	—	—	—	—	Low priority within grizzly bears
Goat habitat	% unmodified nearby	Seek funding	—	—	—	—	Analysis in progress - re-assess status before pursuing
Goat habitat	Harvest during natal period	Seek funding	—	—	—	—	Analysis in progress - re-assess status before pursuing
Wilderness value of BRC	Auditory disturbance	Fund in 2005 and 2006	2005-4 2006-3	Wilderness value of BRC	\$15,000	2 – 3 years	Research Method developed in 2005/6. Implementation may be undertaken in 2006/7
Wilderness value of BRC	Visual quality	Not funded	—	—	—	—	—
Grizzly bear habitat	% critical habitat	Not funded	—	—	—	—	—
Goat habitat	Kotsine connector	Not funded	—	—	—	—	—
Goat population	Road density	Not funded	—	—	—	—	—

<sup>6</sup> Ordered by priority to reduce uncertainty and then by secondary score (see Monitoring Framework for methods [www.babinetrust.ca](http://www.babinetrust.ca)).

**Table 5 (Continued).** Funding decisions for high-priority topics for monitoring to improve knowledge and reduce uncertainty.

Objective	Indicator	Decision	Project #	Project name	Funding	Project length	Status and Rationale
Timber growth	% old	Not funded	—	—	—	—	—
Grizzly bear disruption	Forest harvesting	Not funded	—	—	—	—	—
Grizzly bear disruption	Other activities	Not funded	—	—	—	—	—
Sustainable use	Campsites	Not funded	—	—	—	—	—
Timber salvage	% susceptible	Not funded	—	—	—	—	—

**Table 6.** Funding decisions for high-priority topics for monitoring to detect negative consequences. Topics are ordered by relative priority as determined by Monitoring Framework<sup>7</sup>. Topics below the dashed lines have a low priority for funding within the next 5 years.

Objective	Indicator	Decision	Project #	Project name	Funding (2006)	Project length	Status and Rationale
Sustainable use	Encounters in Natural Environment Zone	Fund initial study; pursue additional funding	2005-4 2006-3	Wilderness value of BRC	\$15,000	2 – 3 years	Research Method developed in 2005/6. Implementation may be undertaken in 2006/7
Natural seral	% of natural old and old + mature	Not funded	—	—	—	—	Requires PEM—
Tree species	% of natural	Not funded	—	—	—	—	Difficult to detect
Pattern	% of natural (biggest patch)	Not funded	—	—	—	—	Difficult to detect
Connectivity	% of mature and old	Not funded	—	—	—	—	Very difficult to detect
Goat habitat	% unmodified nearby	Not funded	—	—	—	—	Very difficult to detect
Goat habitat	Harvest during natal period	Not funded	—	—	—	—	Very difficult to detect
Timber salvage	% susceptible	Not funded	—	—	—	—	Data already collected
Wilderness value of BRC	Auditory disturbance	Fund in 2005 and 2006	2005-4 2006-3	Wilderness value of BRC	\$15,000	2 – 3 years	Research Method developed in 2005/6. Implementation may be undertaken in 2006/7
Sustainable use	Floatcraft encounters	Fund in 2005 and 2006	2005-4 2006-3	Wilderness value of BRC	\$15,000	2 – 3 years	Research Method developed in 2005/6. Implementation may be undertaken in 2006/7
Wilderness value of BRC	Visual quality	Not funded	—	—	—	—	—

<sup>7</sup> Ordered by priority to detect consequences and then by secondary score (see Monitoring Framework for methods [www.babinetrust.ca](http://www.babinetrust.ca)).

## Abbreviations

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BRC	Babine River Corridor
BWMT	Babine Watershed Monitoring Trust
ECA	Equivalent Clearcut Area
ETD	Enhanced Timber Development Zones
FRPA	The British Columbia Forest and Range Practices Act
GIS	Geographic Information System
LRMP	Land and Resource Management Plan
LUP	Landscape Unit Plan
MoE	Ministry of Environment
MDS	Management Direction Statement
PEM	Predictive Ecosystem Mapping
SFM Network	Sustainable Forest Management Network
SRMP	Sustainable Resource Management Plan