

Ecological Benchmarks and the Sahtu Land Use Plan

March 12, 2008

1. Purpose:

The Sahtu Land Use Planning Board has had a presentation on core representative areas. These areas can also be used as **ecological benchmarks** for long-term monitoring – to measure natural change, and to collect baseline information that can be used to measure change in other areas.

The purpose of this letter is to introduce the concept of identifying some areas as ecological benchmarks in the Sahtu Land Use Plan.

2. What are 'ecological benchmarks'?

An ecological benchmark is an area with no development where biodiversity and natural processes are maintained and monitored.

Some areas make better benchmarks than other areas. A benchmark should be:

- 1) **Intact** (no development)
- 2) **Representative** (include samples of both common and unique landscapes and living things). We suggest having a benchmark in each ecoregion.
- 3) **Large** enough to maintain key ecological processes (e.g. flow of water, species interactions, natural disturbances such as fire). Benchmark areas serve as good sites for monitoring only those ecological processes, natural systems or populations that are fully contained within that area.
- 4) **Long-term** or permanent, to allow for long-term monitoring

Benchmark sites could be established and managed within Sahtu conservation zones or in legislated protected areas, as long as they meet these establishment and management criteria.

3. Why are benchmarks important?

It is *monitoring* that sets benchmarks apart from other intact, representative, large protected areas. Purposes for monitoring include:

- 1) **'Reference sites'** for development activity
 - to compare to similar areas that do have development, to see what the impacts of development are – including cumulative impacts (i.e. act as 'controls' in an experiment)
 - to help measure the effectiveness of mitigation measures, which is necessary for adaptive management
- 2) Collecting **'baseline'** information
 - to see how well conservation areas meet their goals
 - to learn about effects of natural change and climate change
 - to increase our understanding of natural systems (ecological processes, species movement, species life cycles etc.)

Monitoring should be set up co-operatively with communities. Co-operation is needed to carefully consider what to monitor (e.g., which ecological processes? which species?), and how the monitoring should be done (e.g., set up through Cumulative Impacts Monitoring Program (CIMP)).

4. Benchmarks can help the Sahtu Land Use Planning Board meet its goals:

Benchmarks will help the Sahtu Land Use Planning Board with its implementation responsibilities:

- Reviewing the effectiveness of the Land Use Plan in meeting its goals and objectives
- Reviewing and considering requests for exceptions and amendments to the Land Use Plan

Because benchmarks help measure the effectiveness of mitigation measures, they will also enable developers and permitting agencies to actively consider adaptive management to avoid or minimize wildlife habitat impacts, as required under the Land Use Plan.

Benchmarks will also:

- help land managers to monitor the impacts of activities
- help land managers to assess the effectiveness of conservation, thresholds, and best management practices
- help land managers to understand the complex and cumulative effects that industrial development and natural change have on the environment
- enable adaptive management (see note above)
- help to conserve the wildlife and environment of the Sahtu Settlement Area

CIMP could be used as a source of funding for the Sahtu Land Use Planning Board to establish monitoring actions in benchmark areas.

The Great Bear Lake Watershed Management Plan (2005), which is incorporated in the current Draft Sahtu Land Use Plan, acknowledges the importance of benchmarks and states that conservation zones should be used as reference sites for research and monitoring.

In addition, appropriate benchmarks can help put the land management practices in the Sahtu in a territorial context.

5. How can the Protected Areas Strategy help?

Potential benchmark areas have been identified through land use planning processes (conservation zones) and the PAS process (community identified areas and other potential core representative areas identified by the Science Team). This information, along with information specific to benchmarks (such as

size) will be used to help identify and rank areas as benchmarks throughout the NWT. In addition, the PAS has partner agencies that do monitoring, and input on what type of monitoring they want will be included as part of the benchmark analysis. Information from the Sahtu Land Use Planning Board on your monitoring priorities would be welcome, to make this process as useful as possible to the Board and to fit regional priorities into a territorial framework.

The PAS Science Team is available to provide technical support and expertise to help the Sahtu Land Use Planning Board determine and evaluate benchmark area options.

6. Suggestions for additions to the Sahtu Land Use Plan:

- the important role of monitoring in achieving the vision of the Land Use Plan
- a definition of benchmarks and description of their importance (see sections 2-4 above for possible wording). This could be included under the heading 'Conservation Zones', as part of the vision for conservation zones.
- potential benchmark areas (the Protected Areas Strategy can help to identify these).