

Gap Analysis of Research in the Gwich'in Settlement Area

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Introduction:

Objectives and Goals

The Gwich'in Renewable Resource Board (GRRB) was established under the guidance of the Gwich'in Comprehensive Land Claim Agreement (GCLCA) to be the main instrument for wildlife, fish and forest management in the Gwich'in Settlement Area (GSA). To effectively manage resources in the GSA, it is imperative to have adequate baseline data and ongoing monitoring of these resources. There are many organizations that conduct research in the GSA and surrounding areas that add to existing resource knowledge and much of this information is openly available and shared. However, there is no one source that keeps a complete record of all the outcomes of this research and considerable effort is needed to obtain a comprehensive inventory making it difficult for the GRRB to recognize research gaps and set suitable research priorities. These priorities should be identified using a proactive approach instead of on a reactive basis when issues arise.

The GRRB hired a research auditor to compile renewable resource research studies on fish, wildlife or forestry (both of a scientific nature and of traditional knowledge) that have been conducted in the GSA. This research was entered into database format and will be made accessible to resource managers, researchers and the public through the GRRB website or information requests to the GRRB. The research auditor then reviewed the compiled research to identify areas where increased resource knowledge is needed to enhance management capability and efficacy as well to identify areas where community monitoring programs would help to meet this need. These identified research and monitoring gaps and recommendations for setting research and monitoring priorities were described in a comprehensive report to the GRRB.

Personnel involved

The project was conducted entirely by Ken Weagle from Cochrane Ecological Institute. Mr. Weagle has extensive experience in the Gwich'in Settlement Area (GSA) and with environmental information management. From 1997 to 1999 he was Executive Director for the Gwich'in Land and Water Board and as such brought the Board into existence. During the tenure in that position he worked closely with the GTC, GRRB, and the

community RRCs. He has also designed and delivered community information and consultation meetings in all of the Gwich'in Communities. Mr. Weagle's experience with the scientific literature and research from the GSA comes from 20 years direct working experience in the Canadian North, and the accumulation and digitizing of environmental information for the GLWB, Geographic Information System. In previous positions he was also responsible for the creation and management of several water quality and aquatic monitoring information databases (Saskatchewan, Yukon and Alberta).

Similar work that has been done, taking place or expected to take place in the future

GartnerLee Ltd (2004) completed a gap analysis to identify biophysical information and research gaps associated with hydrocarbon exploration, development and transmission in the Mackenzie Valley. This gap analysis mirrors our intentions in that we wanted to proactively identify any research gaps in renewable resource knowledge. This analysis will help us to be better prepared to avoid deleterious change to these resources that could result from impacts of human activity and development in the region.

Methods

The GRRB advertised a call for proposals for a Research Auditor. Staff and the Chair of the GRRB reviewed the proposals received and awarded the contract to Mr. Weagle of Cochrane Ecological Institute. Mr. Weagle completed the project according to the following detailed work plan:

- TASK 1: Compile Renewable Resource Research in the GSA
- TASK 2: Develop a reference database
- TASK 3: Gap Analysis
- TASK 4: Recommendations to the GRRB

TASK 1: Compile Renewable Resource Research in the GSA

Under territorial legislation, all research in the NWT requires a licence or permit. Mr. Weagle contacted all the relevant regulatory agencies in the Gwich'in Settlement Area to request copies of all research licenses and permits issued which was then collated into a research database.

The Research Database for this project contains all renewable resource research licensed or permitted by the following:

1. Aurora Research Institute (ARI) 1996 to 2009
2. Department of Fisheries and Oceans 1996 to 2008
3. Environment and Natural Resources, GNWT (formerly RWED) 1999 to 2009
4. GRRB 1992 to 2009 (includes research funded by the GRRB's Wildlife Studies Fund)

In the case of the ARI the database includes licenses that covered projects relating to climate change and geological processes relating to river bank stability.

The Research Database contains a total of 578 entries.

TASK 2: Develop a reference database

One of the objectives of the project was to accumulate all reference material into the GRRB library. Mr. Weagle compiled all the available research, management and monitoring reports and publications into a reference database. Material for the Reference database for the GSA came from the following sources:

1. GRRB Library Database
2. GRRB One Note Fisheries Database
3. DFO database for fisheries information for the Mackenzie Valley
4. ENR reports and papers (published scientific papers, manuscript reports, file reports)
5. ARI library

All references were converted to a format that was importable to FileMaker Pro and combined into one database. Wherever possible, electronic links to reports were inserted into the reference database. It should be noted that this reference database is very comprehensive (4,795 references) but it may not include all research conducted in the Gwich'in Settlement Area.

TASK 3: Gap Analysis

To conduct the analysis of research and monitoring gaps, a matrix was developed with the species or disciplines of interest along the horizontal axis and actions or locations along the vertical axis. To do the actual analysis, four matrices were developed, one for each of Aquatics, Birds, Mammals and Forestry. The content of the axes of each of these matrices were reviewed by the GRRB staff before the analysis was conducted to ensure they captured the research relevant to the GSA.

To populate the matrices in order to show where research had been conducted, searches were done of both the Research Database and the Reference Database for the key species or groups on the horizontal axis of the matrices. The research projects and reports found were then assigned to an action on the vertical axis of the matrix.

Each report or project was assigned equal weight and no attempt was made to determine the quality of the information contained in the reports or produced by the research project. The results are a measure of the research and reporting effort in each of the categories in the matrices. To judge the quality of the research was beyond the scope of this project.

TASK 4: Recommendations to the GRRB

Once populated, each matrix was analyzed for gaps in research and reporting effort. The gaps for each of the four matrices are described in the accompanying Gap Analysis

report. This analysis led to the development of specific recommendations to the GRRB. These are summarized in the discussion section below.

Community and organization involvement

As noted in the work plan listed above, DFO, ARI, ENR, DFO and GRRB all provided copies of their databases of research and their staff also provided assistance to our research auditor during the database and research compilation process. This project's results will improve resource management and cooperation of all the organizations that have responsibility for the resources in the Mackenzie Delta including members of the community and of Renewable Resource Councils (RRCs). The gap analysis report strategically identifies research and monitoring priorities and also includes recommendations for involving communities in setting priorities in the future. Ideally, we would have liked to have the Research Auditor conduct community workshops with communities to help identify community research priorities for the gap analysis. Limitations in funding prevented this from occurring for this contract. However, the GRRB staff will present the recommendations from the gap analysis report to communities once it is finalized. This will help the community RRCs to consider strategic action plans for resource management.

Traditional Knowledge component

Information (both scientific and traditional knowledge) in existing research documents and reports was used to develop the analysis of research and monitoring gaps and setting of research priorities in the GSA. Gaps in traditional knowledge were specifically examined during this process. No elder interviews were conducted.

Results

This project falls under both CIMP categories. Literature was collected, summarized, and analyzed to identify research and monitoring gaps and research priorities. Therefore, all valued components were assessed. It included the collection of scientific and traditional knowledge reports and the formation of a Reference Database and a Research Database.

The gap analysis is a strategic method that ensures effective resource management. This will be beneficial for all persons and organizations concerned with managing resources in the GSA and Mackenzie Delta region, including community RRCs in the GSA. It will help build capacity by increasing and disseminating our knowledge of where research and monitoring needs to be focused. Developmental impacts were considered when compiling the gap analysis matrices. The gap analysis final report includes a list of references from the matrices. These references will be useful to investigate the quality of research and monitoring projects.

The gap analysis report is currently in draft form. It will be reviewed by GRRB staff and revised to include any relevant comments. We expect to have a final draft to CIMP by May 2009.

Discussion / Conclusions

This analysis enhanced the knowledge of research and monitoring gaps in the Gwich'in Settlement Area and recommendations were provided for future research and monitoring efforts. Impacts of development to species and disciplines of interest were included in each of the four matrices created although cumulative impacts were not addressed further in this project. The information resulting from this project will be very useful for all organizations with resource management responsibilities. It will help identify and prioritize future research and monitoring work in the GSA.

Recommendations Summary from the Gap Analysis Report:

Recommendations for Research Database

- Regulatory agencies in the GSA that have similar mandates should maintain and report similar information in their company databases, in particular in the area of research summaries.
- GRRB should initiate a system for numbering research projects so that the resulting information can be better tracked.
- Regulatory agencies should maintain a web accessible list of reports linked to downloadable research reports/summaries for each specific license/permit.

Recommendations for Reference Database

- GRRB should investigate the possibility of partnering with the Aurora Research Institute so that the professional library staff of the ARI could maintain the library for the GRRB.

Renewable Resources Recommendations

- For aquatic resources, fish species were grouped by priority and recommendations were assigned accordingly. Included in the recommendations were suggestions for species specific management plans, community-based monitoring programs, harvest monitoring programs and water quality monitoring programs. Biology and life history studies were also recommended for some of the lower priority fish species.
- For forestry resources, recommendations included the following:
 - Determining the status of the ecosystem classification for the GSA;
 - Completion and implementation of the Gwich'in Forest Management Plan for the GSA;
 - In collaboration with co-management partners and community Renewable Resource Councils, develop and implement a system to quantify the timber harvest for all purposes in the GSA; and

In collaboration with the Gwich'in Social and Cultural Institute, develop and implement a plan to inventory and monitor the locations for berry picking and medicinal plant collection in the GSA.

- Recommendations for birds in the GSA included:
 - Continued support of co-management partners and outside agencies in the development and implementation of waterfowl monitoring programs
 - In collaboration with co-management partners, consider the establishment of a songbird and shorebird monitoring program.
 - Consider surveying contaminant levels in waterfowl and grouse in the GSA
- Recommendations for wildlife resources in the GSA included:
 - Maintain the current level of research effort and participation in caribou management in the GSA
 - Work with co-management partners to implement Woodland and Barren Ground caribou management plans in the GSA
 - Ensure management plans are in place and implemented for Moose, Dall's sheep, Grizzly and Black bears in the GSA
 - Work with Co-management partners to develop a contaminates monitoring program for the mammal species most commonly used as food items by the Gwich'in people.
 - Develop an environmental health monitoring plan for the Mackenzie Delta based on an indicator species, such as muskrat.

The gap analysis also included methodological recommendations for developing research priorities for the GRRB as well as methods for involving RRCs and community members in the priority setting process.

The results of this project will be presented to the communities and co-management organizations in the form of a Gap Analysis report. Further communication will occur between the community Renewable Resource Councils and the GRRB staff when prioritizing research priorities.

Appendix

Weagle, K. 2009. Gap analysis of research in the Gwich'in Settlement Area. Prepared by Cochrane Ecological Institute for the Gwich'in Renewable Resource Board.