



Taiga Environmental Training Program
Final Report

Submitted to:

The Northwest Territories Cumulative Impact and Monitoring Program and
Audit Committee

David Livingstone,
Director of Renewable Resources and Environment

Laurie McEachern
NWT CIMP and Audit Coordinator

By

The Taiga Environmental Laboratory

Teresa Joudrie,
Laboratory Manager

Judy Mah
Training Coordinator

On:
April 20, 2005

Executive Summary

The Taiga Environmental Training Program was developed in response to the need for training programs to direct aboriginals into the field of environmental monitoring. Thanks to funding through the Northwest Territories (NWT) Cumulative Impact and Monitoring Program (CIMP) and Audit this training program was offered to eight aboriginals from various locations in the Northwest Territories as well as two non-aboriginals from Yellowknife who work closely with aboriginal groups.

The Taiga Environmental Training Program consisted of a one-week intense study program that incorporated the following fundamentals:

- Quality Assurance and Quality Control in the Lab
- Sample Classification and Types
- Objectives and Purpose as a Sampling Program
- Quality Control in the Field
- How to take Good Field Notes
- Sample Submission and Shipment
- Data Interpretation and Data Comparison
- Understanding and Reviewing Lab Reports
- Using and Understanding Guidelines

With these fundamentals, the students were exposed to a wide gamut of environmental knowledge. The focus of the training program was to show students from beginning to end the steps involved in environmental sampling protocols.

Throughout the entire training program, students were encouraged to actively participate in all aspects of the course. Students were eager to learn and provided unique feedback regarding environmental sampling. During each step of the program, students were shown proper techniques and then were given the opportunity to repeat the technique.

Overall the program was very successful. Based on discussion and questions, participants understood the material and were able to explain basic sampling concepts and interpretation of data. Of the eight participants, six are currently working in the environmental field; three accounting for up to seven years of combined experience. The remaining two expressed an interest in working in the environmental field as a change from typical work currently available to them and would probably seek employment in the field if available. The three participants whom had several years of sampling experience, expressed they took away information useful to their work.

Taiga Environmental Laboratory would like to thank all involved in the successful implementation of this project. We would particularly like to thank the NWT CIMP and Audit committee for their moral as well as financial support throughout this project. Thanks also to Jamie Romano (of Taiga Lab) who assisted on the field days and in teaching the second group of participants. Also to all Taiga staff who offered their time and assistance.



Introduction

The Taiga Environmental Training Program was developed in response to the need for training programs to direct aboriginals into the field of environmental monitoring. Thanks to funding through the Northwest Territories (NWT) Cumulative Impact and Monitoring Program (CIMP) and Audit this training program was offered to eight aboriginals from various locations in the Northwest Territories as well as two non-aboriginals from Yellowknife who work closely with aboriginal groups.

Capacity building is fundamental to the success of the NWT CIMP and Audit. Community residents need training in a range of environmental management techniques if the program is to be truly community based. Exposure to scientific methodology as it relates to sampling, analysis and interpretation of results is a key component of the overall training program.

The program incorporated classroom as well as hands-on forms of learning. Students were exposed to a wide range of environmental techniques. These techniques included following a sample protocol, preparing equipment, sample bottles and preservative for field sampling, submitting and shipping samples, understanding lab reports, and using guidelines to interpret data. Only the basics were taught with the ultimate goal of providing a wide base of knowledge. It was hoped that students would continue training in specific areas that were an interest to them.

Course Description

The Taiga Environmental Training Program consisted of a one-week intense study program that incorporated the following fundamentals:

- Quality Assurance and Quality Control in the Lab
- Sample Classification and Types
- Objectives and Purpose as a Sampling Program
- Quality Control in the Field
- How to take Good Field Notes
- Sample Submission and Shipment
- Data Interpretation and Data Comparison
- Understanding and Reviewing Lab Reports
- Using and Understanding Guidelines


With these fundamentals, the students were exposed to a wide gamut of environmental knowledge. The focus of the training program was to show students from beginning to end the steps involved in environmental sampling protocols.

The course began with three days of classroom studies. These studies provided the necessary background prior to field collection and sample analysis. Students learned sample collection types (grab vs. composite), field quality control samples, choosing sample bottles and preservatives, rinsing technique, and taking good field notes. Background information regarding sampling such as purpose and objectives of a sampling program, sampling considerations such as time of year, type of water body, and sample location within a water body, and common sampling equipment were also provided. Through each step of the classroom training, an effort to use real-life examples was made.



To provide field experience, the students were taken to Walsh Lake. Walsh Lake is located approximately 20 minutes northwest of Yellowknife off the Ingram Trail. In the winter it is accessed by an ice road across Vee Lake. The lake is used for recreational activities such as fishing and boating during the summer months and snowmobiling and ice fishing in the winter months by local residents. Walsh Lake is also used to access surrounding lakes and is a popular location for year-round and seasonal cabin owners.

Students learned how to sample in winter conditions (as sampling took place in the months of March and April). Students chose an arbitrary location off the ice road to collect their samples. After augering and clearing a sample site, samples were collected just below the lake surface. Proper field preservation as well as handling and shipping



techniques were also taught. An open discussion was initiated to allow students to discuss their experience and offer their suggestions to others in the class.

On arrival back to the laboratory, students were shown how to properly fill out field sheets and chain of custody forms. Students also learned what parameters are commonly tested for under various sampling programs (drinking water, sewage lagoons) and why they are important.

On the last day of the course, students viewed lab reports with ‘real’ results and taught how to read the different parts of the report. This included method detection limits, units of measurement, and method used for analysis. Students then learned how to interpret the lab results based on the sampling objective and comparison to established guidelines. An emphasis was placed on the proper use of guidelines and it was stressed that clients are ultimately responsible for proper interpretation of results.

Student Participation

Throughout the entire training program, students were encouraged to participate in all aspects of the course. Students seemed eager to learn and provided unique feedback regarding environmental sampling. During each step of the program, students were shown proper techniques then were given the opportunity to repeat the technique.





Conclusion

Overall the program was very successful. Based on class exercises, and open discussions during the week, students understood the material learned and were able to explain basic scientific principles, sampling concepts, and interpretation of data.

During the one-week session, the students learned various fields of knowledge within environmental science. Student learning ran the gamut from selecting the correct bottles to interpreting lab results. A large amount of general knowledge was delivered and learned by the students.



Further Suggestions

Extending the program with more sessions would be advised. Some minor modifications can be made based on student interests of industry considerations. Due to facility problems (i.e. lack of space) the training program would normally be offered during the winter months (Taiga's slower period). Additional funding or cost recovery is required to sustain this program.

More specific training programs could be developed using the latest technologies. Remote training *via* the Internet is another possibility. Modular training is also an interesting possibility that allows the instructor to travel to the client and present the course over a 1-2 day period therefore reducing traveling expenses.

Taiga Environment Laboratory is also actively investigating the development of a Sampling Training Video series. These videos have some major advantages over traditional classroom learning. With video, the student can learn at home at their own leisure and can review the training anytime thereafter. Video also helps to eliminate any language barriers. Visual learning has been shown to be more efficient than lecture or reading scenarios.



Summary

Taiga Environmental Laboratory would like to thank all involved in the successful implementation of this project. We would particularly like to thank the NWT CIMP and Audit committee for their moral as well as financial support throughout this project.