RESULTS FROM THE AKLAVIK COMMUNITY MARINE ECOSYSTEM HEALTH (MEH) WORKSHOP

MARCH 6-7, 2000

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PREFACE

Fisheries and Oceans Canada, Oceans Program Division, thanks everyone who contributed to the Aklavik Community Marine Ecosystem Health Workshop.

Special thanks to Louis Goose for his valuable help in facilitating and taking notes. Thanks also to Brad Duffet and Billy Archie for all their assistance in preparing for the workshop.

EXECUTIVE SUMMARY

A community-based marine monitoring program has been proposed for the Inuvialuit Settlement Region (ISR) by Fisheries and Oceans Canada (DFO). Both the Fisheries Joint Management Committee (FJMC) and the Inuvialuit Game Council (IGC) are supportive of this proposed program. Community members would be involved in all aspects of the monitoring program, from the selection of indicators to the dissemination of information back to the community. Support for the program would come from the *Oceans Act* (1997) Marine Environmental Quality (MEQ) Program [formerly the Marine Ecosystem Health (MEH) Program].

As a step towards the development of this community-based monitoring program, a workshop was held in Tuktoyaktuk, Northwest Territories January 25-26, 2000 and a second workshop in Aklavik, NWT March 6-7, 2000. The objectives of the workshops were: (1) to provide information to the community on the proposed MEH monitoring program, (2) to seek community support for a community-based monitoring program, (3) to identify community concerns, (4) set marine ecosystem health goals and objectives for the community, and (5) to begin discussions on potential indicators to be monitored in Tuktoyaktuk and Aklavik. A wide range of community organizations, government agencies, students and the general public were invited to, and participated in, the workshop.

This report provides the results of the Aklavik Community MEH Workshop. Workshop participants endorsed the concept of a community-based monitoring program. A series of marine ecosystem health goals and objectives were drafted for the community of Aklavik. These goals and objectives will be finalized at a second workshop. The name of the community-based monitoring program will be the Tariuq (Ocean) Monitoring Program.

Community concerns were identified and prioritized by the workshop participants in order to establish a starting point for the monitoring program. The greatest concerns were related to contaminant issues, training for community monitors and communication between agencies. Information requirements for the ten highest ranked concerns were identified and included as action items within this report. Types of indicators were discussed.

The structure for an Aklavik MEH community working group was established. The working group will assist with the development of the monitoring program for the community. Representatives from each of the following organizations will comprise the working group's membership: Fisheries and Oceans Canada, an Inuvialuit Elder, a Gwich'in elder, an Inuvialuit youth, a Gwich'in youth, Aklavik Hunters and Trappers Committee and Aklavik Renewable Resource Council. Potential tasks of the working group include the design of a communications strategy, the establishment guidelines for use and collection of traditional knowledge and the development a framework for resource management training of community youth.

RESUME

Un programme communautaire de surveillance du milieu marin visant la région désignée des Inuvialuit (RDI) a été proposé par Pêches et Océans Canada (MPO). Le Comité mixte de gestion de la pêche (CMGP) et le Conseil de gestion du gibier (CGG) sont en faveur du programme proposé. Des membres de la collectivité participeraient à tous les aspects du programme de surveillance, de la sélection des indicateurs à la diffusion de l'information dans la collectivité. Le programme sera appuyé dans le cadre du Programme sur la qualité du milieu marin (PQMM) [anciennement appelé Programme de santé de l'écosystème marin (PSÉM)] de la *Loi sur les océans* (1997).

En vue de l'élaboration de ce programme de surveillance communautaire, un atelier s'est tenu à Tuktoyaktuk (Territoires du Nord-Ouest) les 25 et 26 janvier 2000. Un second atelier a eu lieu à Aklavik (T.N.-O) les 6 et 7 mars 2000. Les objectifs des ateliers étaient les suivants : (1) renseigner la collectivité sur la proposition de programme de surveillance de la santé de l'écosystème marin; (2) chercher à obtenir l'appui de la collectivité pour un programme de surveillance communautaire; (3) cerner les préoccupations communautaires; (4) fixer des objectifs en matière de santé de l'écosystème marin pour la collectivité et (5) entamer des discussions sur les indicateurs potentiels à surveiller à Tuktoyaktuk et Aklavik. Une vaste gamme d'organisations communautaires et d'agences gouvernementales de même que des étudiants et le grand public ont été invités aux ateliers et y ont effectivement assisté.

Le présent rapport contient les résultats de l'atelier sur la santé de l'écosystème marin de la collectivité d'Aklavik. Les participants à l'atelier ont approuvé le concept de programme de surveillance communautaire. Une série d'objectifs relatifs à la santé de l'écosystème marin ont été ébauchés pour la collectivité d'Aklavik. Ces objectifs seront peaufinés lors d'un second atelier. Le programme communautaire de surveillance sera appelé « Programme de surveillance Tariuq (océan) ».

Des préoccupations des résidents de la collectivité ont été cernées et classées par ordre de priorité par les participants à l'atelier afin d'établir un point de départ pour le programme de surveillance. Les plus grandes préoccupations avaient trait à la contamination, à la formation des surveillants communautaires et à la communication entre les agences. Les exigences en matière d'information pour les dix préoccupations jugées les plus importantes ont été établies et incluses en tant que points prioritaires demandant un suivi dans le rapport. Certains types d'indicateurs ont été discutés.

La structure d'un groupe de travail communautaire en santé de l'écosystème marin pour Aklavik a été établie. Le groupe de travail contribuera à l'élaboration du programme de surveillance pour la collectivité. Des représentants de chacune des organisations suivantes feront partie du groupe de travail : Pêches et Océans Canada, comité des chasseurs et des trappeurs d'Aklavik et conseil des ressources renouvelables d'Aklavik. Un aîné inuvialuit, un aîné gwich'in, un jeune Inuvialuit et un jeune Gwich'in compléteront la liste des membres. Parmi les tâches auxquelles pourrait s'atteler le groupe du travail, mentionnons la conception d'une stratégie de communication, l'établissement de lignes directrices pour l'utilisation et la cueillette des connaissances traditionnelles et l'élaboration d'un cadre pour la formation en gestion des ressources des jeunes de la collectivité.

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1. INTRODUCTION

1.1. The *Oceans Act*

The *Oceans Act* came into force in January 1997 as federal legislation. The Act is proactive by encouraging Fisheries and Oceans Canada (DFO) to collaborate and consult with interested parties on planning initiatives. This means working together with such diverse interests as land claims organizations, government agencies, industry, communities, and non-governmental organizations, as well as other affected or interested groups and individuals. An ecosystem approach is to be used in planning. All elements of an ecosystem, including biological, chemical and physical features, must be considered to in order to come to an understanding of how an ecosystem operates. The Act also encourages adopting the precautionary approach; that is, to err on the side of caution. Finally, the *Oceans Act* directs DFO to be the lead agency with regards to federal oceans responsibilities. To facilitate DFO taking on this leadership role, the Act directs that a national Oceans Management Strategy be developed.

Three new program initiatives have been introduced by the *Oceans Act*:

1. Integrated Management (IM)
2. Marine Protected Areas (MPA)
3. Marine Ecosystem Health (MEH), now referred to as Marine Environmental Quality (MEQ)

Integrated Management (IM) is in many ways similar to land use planning, but for marine and coastal environments. IM planning provides a means by which to plan for multiple uses of the marine environment and its resources to ensure healthy marine ecosystems and communities are maintained.

Marine Protected Areas (MPA) are areas of the marine environment that have been provided a greater level of protection through regulation under the *Oceans Act*. These areas are often selected through an integrated management planning process. Marine Protected Areas under the *Oceans Act* are not parks. DFO, in collaboration with the Inuvialuit, is currently conducting research and planning towards a possible MPA for the Zone 1a's of the Beaufort Sea Beluga Management Plan. The Beaufort Sea Beluga Management Plan recommends that these areas be granted additional protection. Under the *Oceans Act*, the Inuvialuit would maintain their traditional harvesting rights within the MPA. Guidelines in the Beaufort Sea Beluga Management Plan for the Zone 1a's could be turned into regulations, thereby providing enforcement capabilities within these zones that did not previously exist. An MPA would not replace the Beaufort Sea Beluga Management Plan, but rather would build upon its foundation.

Since the Aklavik Community MEH Workshop was held, the name of the Marine Ecosystem Health (MEH) Program has been changed to Marine Environmental Quality (MEQ) Program to reflect the terminology of the *Oceans Act*. This report will refer to the program as Marine Ecosystem Health, in keeping with the workshop.

1.2. What is the Marine Ecosystem Health Program?

The Marine Ecosystem Health program contributes to environmental assessments for integrated management and marine protected areas. The MEH Program can be divided into two major components:

1. Marine Environmental Quality (MEQ)
    - MEH guidelines
    - MEH standards
2. Marine monitoring of marine ecosystem health

1. MEH Guidelines and Standards

Guidelines and standards generally focus on environmental components that can be quantified (measured accurately), such as chemical compounds. A guideline may be developed to recommend that a specific chemical compound should not exceed a certain limit within marine waters or sediments, as it may cause harm to the marine environment over that limit. Guidelines are just that, a guide as to what level a chemical compound might be acceptable at in the marine environment. Guidelines are not enforceable.

Standards are made through regulation and are therefore enforceable. For example: A chemical compound is found to be above the standard level as set out in the regulations, and the source of that chemical is known to have originated from Company X. Company X can be charged under the regulation and, if convicted, a penalty, such as a fine or restoration of the area, can be imposed.

2. Marine Monitoring

Virtually everyone at sometime has done monitoring. It may be watching the progress of something cooking on the stove or observing the timing of break-up every spring. Monitoring is simply the testing, checking and observing of an event or environment over time and the recording of that information, whether it be recorded or remembered. Marine monitoring is essentially the same, focusing on the marine environment.

The main elements of the community-based marine monitoring program that DFO is proposing are:

1. Long-term monitoring;
2. Follow an ecosystem approach;
3. Include environmental, social and economic components;
4. Act as an early warning system;
5. Incorporate community and agency components; and
6. Have a strong communication emphasis with information sharing at all levels.

1.3. Marine Monitoring Objectives

The objectives of the proposed marine monitoring program are very broad:

1. Monitor the health of the ecosystem.
2. Monitor the health of coastal communities as related to the marine environment.
3. Contribute to testing the effectiveness of Integrated Management and Marine Protected Areas.
4. Contributes to Health of the Oceans reporting process.
5. Take action, when feasible, on recommendations and concerns brought forth from the National Program of Action (NPA) for the Protection of the Marine Environment from Land Based Activities.

1.4. Agency-based Monitoring

Government agencies, such as Fisheries and Oceans Canada and Environment Canada, are routinely engaged in monitoring activities. However, many of these monitoring activities are related to specific issues or are of limited duration. It is important that an ecosystem-based monitoring program captures existing monitoring activities as well as developing new monitoring activities. It is also important that duplication be avoided whenever possible so that resources can be better utilized within the monitoring program.

The agency component of the community-based monitoring program includes:

- Monitoring done by DFO; and
- Monitoring through linkages with other agencies and other monitoring programs.

1.5. Community-based Monitoring

A community-based monitoring program should reflect the needs and concerns of the community. The community should feel a sense of ownership over the program, and the willingness to participate and continue with the program in the years to come. In order to achieve this community support and participation, the following approach to community-based monitoring is proposed.

The community-based marine monitoring component of the program includes:

- Community-based objectives and goals;
- Community selected indicators;
- Community monitors;
- Information sharing; and
- Respect for traditional lifestyles.

1.6. Linkages

To avoid duplication of resources, both financial and human, it is important to have strong linkages with other monitoring programs in the region. Linkages to other programs may provide a means of extending both the scope and geographic range of the MEH monitoring program. For example, the Mackenzie Valley Cumulative Impact Monitoring Program (MVCIMP) will focus on cumulative impacts in the Mackenzie Valley, except for the area within the Inuvialuit Settlement Region. By linking the MEH monitoring program with the MVCIMP, both programs benefit by having the ability to access data from areas adjacent to their respective jurisdictions. The MVCIMP program could provide monitoring information upstream of the Mackenzie River delta (possibly providing early warning of negative impacts), while the MEH program would provide information on the Beaufort Sea, which is the end point of the Mackenzie River's outflow. Both programs would benefit from such a linkage.

There are a number of existing and developing monitoring programs in the area that could provide beneficial linkages to the MEH program. A partial list of monitoring programs in which the MEH program could link with are as follows:

1. Mackenzie Valley Cumulative Impact Monitoring Program (MVCIMP)
2. Ecological Monitoring and Assessment Network (EMAN)
3. Arctic Borderland Ecological Knowledge Co-op
4. Global Ocean Observation System (GOOS)
5. Northern Contaminants Program (NCP)
6. FJMC Harvest Study
7. Charr and beluga monitoring programs
8. Monitoring through water licenses, permits, etc.
9. National Program of Action (NPA)

1.7. What has been done so far?

DFO has proposed the establishment of a community-based marine monitoring program for the Inuvialuit Settlement Region as a component of a broader marine monitoring program. A proposal has been presented to the Fisheries Joint Management Committee and the Inuvialuit Game Council, both of which support the concept. Four of the six community Hunter and Trapper Committee's (Tuktoyaktuk, Aklavik, Paulatuk and Sachs Harbour) have received short presentations on the proposed monitoring program and have provided their support in continuing with the development of the program. The two remaining Hunter and Trapper Committees (Inuvik and Holman) will be presented with this proposal during the upcoming year. It is proposed that the monitoring program would start with Aklavik and Tuktoyaktuk, expanding at a later date to the other communities. One of the first steps in the development of this community-based marine monitoring program was this workshop. A similar workshop has taken place in Tuktoyaktuk.

1.8. Workshop Objectives:

The objectives of the workshop were:

1. To provide information to the community of Aklavik on the proposed Marine Environmental Health Program (MEH) marine monitoring program;
2. To seek community support in developing a community-based monitoring program;
3. To identify community concerns;
4. To identify MEH goals and objectives for Aklavik; and
5. To begin discussions on indicators to be monitored.

2. MONITORING PROGRAM NAME: TARIUQ (OCEAN) MONITORING PROGRAM

In order to give the monitoring program an identity that will clearly reflect the region in which it is operating and Inuvialuit community involvement, an Inuvialuit name for the program was desired. Suggestions were requested on from some elders on an informal basis. Billy Day, an elder, and member of the Inuvialuit Game Council and Fisheries Joint Management Committee, suggested the word "tariuq" which means salty water or ocean. Day also suggested that we place the English word "ocean" in brackets after the word "tariuq." One reason for having the word "ocean" after "tariuq" were so that its meaning would not confuse younger Inuvialuit, as the word "tariuq" is also used in reference to table salt. The second reason is so that those who do not speak the Inuvialuit language can understand the purpose of the monitoring program. Participants of the

workshop supported the name. As a result, the community-based marine monitoring program will be referred to as the Tariuq (Ocean) Monitoring Program in the future.

3. COMMUNITY GOAL OF MEH PROGRAM IN AKLAVIK

Participants were asked to develop a goal for the Aklavik marine monitoring program. This goal is a broad statement describing what the community would like to see and use the ecosystem for in the future. Workshop participants broke into two working groups to develop the goal(s). Each community is to have their own goal(s) and objectives for the program. As yet, a goal(s) has not been established for the broad ISR monitoring program, but the larger program goal(s) will reflect, at least in part, the goals set out by the different communities.

Workshop participants, in an open forum format, developed the main components they wanted to see in their goal(s) for the community.

Aklavik Community MEH Monitoring Goals

- Accurate and timely information flow
- Monitor the quality of our environment
- To have a healthy environment – water, land and air and the plant and animals that live in it. For now and future generations
- Traditional ecological knowledge

Figure 1: Aklavik Community MEH Workshop.

The workshop participants broke into two groups to draft options for the community monitoring goal(s). The working group proposed goals are provided below.

Group 1:

To monitor the health of the environment and the plants and animals which live in it for our use and the generations to follow.

To share information and traditional knowledge for now and the future.

Group 2:

To have a healthy environment for our children in the future by using scientific, traditional and local knowledge.

To monitor any impacts on our environment caused by industry or changes in human and animal activities.

The two groups met again as one group and came up with a third option, which is provided below.

Entire Group:

To share traditional knowledge for a healthy environment and the plants and animals which live in it for our use and generations to follow, for now and the future.

The three options were combined during the evening and presented to workshop participants at the second day of the workshop for approval and further editing. The final version of the proposed MEQ Goal for Aklavik is provided below.

Proposed Aklavik MEH Goal:

To maintain a healthy ecosystem for now and the future through monitoring, and the sharing of scientific, traditional and local knowledge.

4. COMMUNITY OF AKLAVIK MEH OBJECTIVES:

The objectives for the community-based monitoring program should provide steps to achieve its goals. Objectives for the program were discussed in two working groups and then reviewed by the group at large. The objectives put forward by the participants are as follows:

1. To provide training to monitors.
2. To encourage capacity building in community including RRC and HTC.
3. Monitoring to cover all seasons; spring, summer, fall and winter.
4. Coordinating, linking and exchanging information with other monitoring programs and agencies.
5. To respect traditional lifestyles and values.
6. Linking or integrating agency science with local and traditional ecological knowledge.
7. To have an annual workshop to exchange information.
8. To share information that is meaningful to the community.
9. Long-term monitoring.
10. Do not ignore short-term monitoring needs.
11. Identify community concerns and revisit these concerns on a regular basis.

5. AKLAVIK COMMUNITY CONCERNS:

Community concerns are important to document and incorporate into the monitoring program. Concerns related to the environment, to human health or a combination of the two, reflects what the people in the community observe and feel. Community concerns can change over time, as some problems are dealt with and no longer remain a concern, or new problems or potential threats develop, raising new concerns. To identify community concerns, past concerns obtained through consultations in the development of the community conservation plan and through the National Program of Action (which compiles concerns from all coastal communities) were presented as a starting point (Appendix D). Concerns were discussed in an open forum format.

Although all concerns are important, it is unlikely that the monitoring program would be able to deal with them all at once. Therefore, a process to determine community concern priorities was conducted. Prioritizing the concerns makes it easier to establish a starting point for the monitoring program. However, priority concerns cannot necessarily be dealt with from highest to lowest. Some concerns may not be possible to deal with at this time or will need extensive collaboration with other agencies in order to respond to them properly. This collaboration can take extra time. When feasible, the top priorities will be dealt with first.

To prioritize the community concerns, each participant who was a resident of Aklavik was given 15 red dots to place on the concerns which they thought were of the greatest importance. Individuals could use all their dots on one concern or place one each on 15 concerns or place them in any variation in between. This method, although quick and efficient, can be subject to bias. Individuals can be influenced by watching others place their dot(s) on a concern and thus be influenced to place their own dots on those concerns. Participants were cautioned about this possible bias and encouraged to feel comfortable about whatever they thought was their greatest concern. It is to be expected that some concerns rate higher with certain individuals than others.

The concerns reflect those in the room at that particular period in time. Participants were informed that if new concerns arose they could be added at a later date. Concerns should be re-appraised at some regular annual or biannual intervals.

Table 1 provides the list of the prioritized concerns. The table also contains concerns identified by a representative of Indian and Northern Affairs Canada (DIAND) which were agreed upon by those workshop participants who reside in the community.

Table 1: Community concerns and their relative priority, as expressed by the Aklavik participants.

Concern	Relative Priority
AKLAVIK COMMUNITY CONCERNS	
Agencies not communicating together enough	19
Training for monitors	17
Large numbers of muskox around Malcolm and other rivers, possible contamination of water through muskox wastes and transfer of pathogens	17
Mackenzie River being contaminated from upstream sources such as pulp mills	13
Loche livers in poor condition	12
Litter and waste entering river system	12
Reports to communities too technical	10
Drinking water sources at Shingle Point should be tested	9
Changes in river flows related to Bennet Dam	8
Contaminants in seabirds	7
Changes in flows of rivers	6
Stock I.D. for charr at Shingle Point	6
Erosion along coast increasing in past 5 years	5
Kokamuk Beach – DEW Line contaminants	4
DIAND CONCERNS	
Point source contamination – garbage on ice etc.	8
Debris from communities entering water during flood events	3

Additional concerns brought forward on March 7 and not prioritized:

- Small spills not reported by shipping companies; how much of contaminants enter waterways through small spills.

- Increase shipping/cruise ships in Beaufort Sea and potential contamination from actions such as illegal discharge of ballast, etc.

5.1. Review of Concerns

The top concern was that government agencies do not communicating enough amongst each other, nor with the community. There was a feeling that many monitoring programs already exist, but that there was little coordination between them.

The lack of training available to community monitors ranked as a high priority concern, as did contaminant issues. In terms of contaminants, concerns were raised about their presence in animals and in the environment at large, and possible impacts.

6. INDICATORS:

There are many definitions for indicators. One such definition from a handbook put out by Environment Canada (Grant, 1997) is as follows:

"A measurable feature or characteristic of the ecosystem which can help you determine whether you are achieving your goals and objectives, and whether your ecosystem is healthy. Several indicators are needed to get a good picture of ecosystem health."

Indicators can be used to obtain information for different purposes. The Great Lakes Ecosystem Health Framework (IJC, 1991) identified three types of indicators, these were:

1. Compliance indicators (compliant with ecosystem objectives);
2. Diagnostic indicators; and
3. Predictive (early warning) indicators.

Some monitoring programs may only use one type of indicator. However, for broader programs all three types may be used and can be selected to complement each other.

1. Compliance indicators:

- Compliance with ecosystem objectives.
- Address community concerns.
- Most visible part of monitoring program.
- Readily communicable to public and policy makers.
- Individual or population attributes of commercial. Subsistence or aesthetically important species (i.e. charr, beluga, polar bear).

2. Diagnostic indicators:

- Parameters or processes that provide insight as to cause of ecosystem objectives not being met (noncompliance).
- Information on changes to:
- Quality of habitat or resources
- Quantity of habitat or resources
- Water column concentration of toxic chemicals

3. Predictive indicators:

- Early warning system
- Allows for development of predictive management, rather than reactive management strategies.

Participants thought that before indicators can be selected, more information is required on individual concerns and experts are needed to provide advice on these potential indicators. Through an open forum process, the type of information needed before entering into a discussion on indicators was identified.

6.1. Concerns and Required Information

Concern #1: Agencies not communicating

ACTION:
Continue strengthening linkages.

Concern #2: Training monitors

ACTION:
Talk to other monitoring groups about setting up course for monitors.

Concern #3: Muskox and transfer of pathogens, etc.

- Are pathogens transferable to marine organisms such as fish and seals?
- What types of pathogens?
- Other water quality issues?
- How much have muskox numbers increased and what are their numbers?

ACTION:
Determine if there are water quality issues associated with muskox and whether pathogens are transferable to fish or marine mammals.

Concern#4: Mackenzie River – upstream contaminants

- What sources upstream?
    - Pulp & paper
    - Great Bear Lake
    - Oil & gas activity – Liard and Norman Wells
- What type of contaminants?
- What is being monitored?

- What is being found?

ACTION:
Summarize contaminant sources and monitoring of these contaminants.

Concern #5: Loche livers

- Where is existing study at?

ACTION:
Contact Joan Eamer or Ken Sinnet on Co-op study being conducted.

Concern #6: Litter and Waste

- Possible awareness campaign - possible item for community working group to discuss.

Concern #7: Report to communities too technical

- Monitor reports that come into RRC and HTC offices for level of technical difficulty.

ACTION:
Discuss with HTC's and RRC's as well as FJMC and GRRB to determine whether this type of monitoring should be implemented.

Concern #8: Drinking water sources at Shingle Point need testing

- Drinking sources are:
  - Walking River
  - Downhill
  - Middle camp
  - John Arey's camp
- What should be measured?
- How should water samples be taken and when?

ACTION:
Determine who should be doing this?

Concern #9: Changes in flow due to Bennet Dam

- Trends
- Modeling

ACTION:
Summarize known impacts of Bennet dam on water flows in delta – possible poster item.

Concern #10: Contaminants in seabirds

ACTION:
Check on what contaminant studies have been done, on what species and where?

Concern #11: Changes in flow patterns of rivers and channels

- Schooners 35 years ago could pass through Moose Channel but now it is difficult for even a speed boat to pass through.
- Old photographs
- Examine old hydrologic records
- TEK may be required

Concern #12: Stock identification of charr at Shingle Point

- When ice is around you catch larger charr at Shingle Point
- More numbers when ice is close

ACTION:
Find out at what stage genetic work is at.

Concern #13: Increased coastal erosion

- Steve Solomon's work
- Beaufort pilot storm surge/sea temperature project

Concern #14: Komakuk Beach – DEW Line contaminated sites

- Connect to 25 year monitoring program for these sites
- There used to be dumping of waste and materials/equipment by DEW Line staff several miles offshore

ACTION:
Make appropriate contact to make linkage with DEW Line monitoring program.

7. AKLAVIK MEH WORKING GROUP

Participants at the workshop discussed the formation of a community working group to help initiate, promote and advise the monitoring program for Aklavik. There was consensus that a working group should be established.

Participants agreed that the working group should:

- Be a small group;
- Have a budget developed by DFO;
- Include one representative each from:
  - HTC
  - RRC
  - Inuvialuit Elder Committee
  - Gwich'in Elder
  - Inuvialuit Youth
  - Gwich'in Youth
  - DFO

8. CONCLUSION

Workshop participants supported the development of a community-based marine monitoring program in Aklavik. This program would link with other monitoring activities in the area. The community-based marine monitoring program would be named the Tariuq (Ocean) Monitoring Program. The establishment of an Aklavik monitoring working group to assist with implementation and operation of the community-based

marine monitoring program in Aklavik was recommended by workshop participants. The working group would consist of one member each from HTC, RRC, Inuvialuit Elder Committee, Gwich'in elder, Inuvialuit youth, Gwich'in youth and DFO.

DFO agreed to organize the first working group meeting to begin the process of implementing the Tariuq (Ocean) Monitoring Program in Aklavik.

9. REFERENCES

Grant, Kathy. 1997. Reaching New Heights: A handbook for developing community based ecosystem health goals, objectives and indicators. Environment Canada (DOE FRAP 1997-17); 85 pp.

IJC (International Joint Commission). 1991. A proposed framework for developing indicators of ecosystem health for the Great Lakes Region. Council of Great Lakes Research Managers. International Joint Commission. 47 pp.

APPENDIX A: Agenda

AGENDA

Aklavik MEH Workshop
David Storr Building/Inuvialuit Complex
March 6-7, 2000

TUESDAY, JANUARY 25

9:00am **Introduction:**

- Welcome statement and prayer
- Participants identify themselves
- Explain format for the workshop

9:15am **Workshop Objectives:**

1. To provide information to the community of Aklavik on the proposed Marine Environmental Health Program (MEH) - marine monitoring program
2. To seek community support in developing a community-based monitoring program
3. To identify community concerns
4. To identify MEH goals and objectives for Aklavik
5. To begin discussions on indicators to be monitored

9:30am **Introduction to *Oceans Act*:**

- 3 major programs
- Integrated Management (IM), Marine Protected Area (MPA)
- Marine Ecosystem Health (MEH)
- How 3 programs fit together

9:45am **MEH Program – what is it?**

- Marine monitoring
- Community-based component
- Agency based component
- Use of TEK
- Information back to community
- Guidelines and standards
- Education and training

10:00am **MEH Linkages:**

- MVCIMP
- NPA

- Arctic Ecological Knowledge Co-op
- FJMC/DFO

10:15am **Coffee**

10:45am **Open Forum on Concerns**

- Open floor to observations (change or unusual events) seen over year
- Provide concerns from NPA and other programs
    - Are these concerns still valid
    - New concerns

12:00 **Lunch Provided**

1:00pm **Recap of observations and concerns**

1:15pm **Group breakouts – Prioritizing concerns**

1. Group A: Marine Environment
    - fish
    - marine mammals
    - water quality
    - coastal erosion
    - ice
    - climate

2. Group B: Social/economic as they relate to the marine environment
    - growth/jobs
    - education
    - health

3:00pm **Coffee**

3:15pm **Recap from working groups and discussion**

4:00pm **Goal of MEH program in Aklavik**

- Examples of goals from other programs

4:15pm **Open forum on goal(s) for Aklavik MEH program**

4:45pm **Wrap-up of goal(s) and tomorrow's agenda**

WEDNESDAY, JANUARY 26

9:00am **Recap of yesterday's concerns and goal(s)**

9:30am **MEH Objectives for Aklavik**
- Examples of objectives from other programs

9:45am Coffee

10:15am **Break in to working groups to discuss objectives**

11:30am **Recap from working groups and discussion**

12:00pm Lunch Provided

1:00pm **Wrap-up of objectives**

1:30pm **Indicators**
- What makes a good indicator?
- Examples of indicators

1:45pm **Break into working groups**

3:00pm Coffee

3:30pm **Recap from working groups and open forum on indicators**

4:30pm **Summary and closing**
- Where to next?
- Thank you

APPENDIX B: List of Participants

March 6, 2000

Name	Address	Organization	Phone No.
Neil Heron	P.O. Box 173	Hamlet of Aklavik	
D.C. Gordon	P.O. Box 83	WMAC NS	
Billy Archie	P.O. Box 133	Aklavik HTC	978-2723
Jacob Archie	P.O. Box 31	Aklavik HTC	978-2450
Scott Gallupe	Box 2100	INAC, Inuvik	777-3361
Donald Aviugana	Box 194		
Phillip Ross	General Delivery		
James Greenland	General Delivery	RRC	
David Edwards	Box 132	RRC	
Fanny Greenland	Box 173	RRC	978-2029
James Macdonald		RRC	
Ian McLeod		RWED Ren. Res. Officer	
Anna Illasiak		Inuvialuit Elders	

March 7, 2000

Name	Address	Organization	Phone No.
Neil Heron	P.O. Box 173	Hamlet of Aklavik	
D.C. Gordon	P.O. Box 83	WMAC NS	
Billy Archie	P.O. Box 133	Aklavik HTC	978-2723
Jacob Archie	P.O. Box 31	Aklavik HTC	978-2450
Donald Aviugana	Box 194		
Phillip Ross	General Delivery		
James Greenland	General Delivery	RRC	
David Edwards	Box 132	RRC	
James Macdonald		RRC	
Anna Illasiak		Inuvialuit Elders	

APPENDIX C: Aklavik Community Workshop Budget

Item		Cost
Hall Rental:		**$400.00**
▪ David Storr Building – 2 days @$200/day	$400	
Catering:		**$330.00**
▪ Two lunches, coffee and snacks mornings and afternoons	$330	
Stationary and misc. supplies:		**$98.06**
▪ Film and processing	$31.75	
▪ Binders, tape, markers, etc.	$66.31	
Contracts:		**$3,189.00**
▪ Recording – two days @ $250/day	$500	
▪ Report writing	$2,500	
▪ Admin. Fees	$189	
Honorariums:		**$2,850.00**
▪ 19 @ $150/day	$2,850	
Travel:		**$2,791.25**
▪ Doug Chiperzak (includes hotel & meals for Louis Goose)	$2,791.25	
	TOTAL	**$9,658.31**

APPENDIX D: Community Concerns

Concerns from the Aklavik Community Conservation Plan

Site 85: Kendall Island Site

- The Inuvik, Tuktoyaktuk and Aklavik Community Working Groups are concerned that oil and gas and tourism activities, and their associated air flights, may have a negative impact on the birds, beluga whales and traditional life styles.

Site 86: Mackenzie Bay and Shallow Bay

- The Inuvik, Tuktoyaktuk and Aklavik Community Working Groups are concerned that marine transportation, oil and gas development, tourism and animal rights groups may interfere with the calving of belugas, nesting of birds and subsistence harvesting by local people.

Site 95: Inner Mackenzie Delta including Peel, Aklavik, Husky and West Channels

- Aklavik is concerned that industrial development, especially hydrocarbon exploration/production and shipping and barging operations will have a major impact on the fish resources.

Site 96: Fish hole/Cache Creek and Big Fish River

- Aklavik is concerned that the number of charr may never return to a sustainable harvesting level.

- Locals believe water quality has changed (became less salty). Community has also noticed that grayling become scarce in these waters.

Site 121: North Slope East of Babbage River

The past proposals for oil and gas development infrastructure at Stokes Point and King Point on the Beaufort coast may, if implemented, negatively affect habitat, especially that related to caribou and waterfowl.

Concerns taken from the Mackenzie Valley Cumulative Impact Monitoring Inventory

Concern	Keywords	Community ID
Dene require assistance to ensure a healthy environment now and for future generations	Dene, environment	Aklavik
Sewage disposal, burning of garbage, burning of fossil fuels, industrial activities, forest fires, long-term transport, animal and/or human health	contaminants, air, soil, water, fish, wildlife, vegetation, nutrition	Aklavik
Fish found that are "unhealthy, having sores and lesions, abnormal growths, blood-spotted eggs, watery flesh and black stunted livers	contaminants, fish, Mackenzie River	Aklavik
Changes in precipitation and temperature	wind, temperature, precipitation, UV rays, sunlight, health, climate, air, contaminants	Aklavik
Impacts from watershed manipulations and global warming	Water quality, flooding, global warming	Aklavik
Water flow and water levels in the Mackenzie Delta.	Water	Aklavik
There is more driftwood these days.	Water	Aklavik
Priority of future contaminant studies must include full use of traditional knowledge,	Water quality, contaminants, land, water	Aklavik
Is traditional food safe for human consumption?	Contaminants, health, nutrition, wildlife	Aklavik
Changes in the distribution, timing and frequency of traditional land uses as a result of alienation of localized areas through over-use, growth of communities, improved vehicle access and industrial development	Resources, traditional land use	Aklavik
Habitat loss, alteration, fragmentation, LRTAP, global warming, altered flows, habitat change, water temperature and ice regimes	Water quality, global warming, habitat, temperature, ecosystems, ice	Aklavik
Groundwater quality and quantity of water that would flow into pits during mining	Water quality, water quantity, mining, groundwater	Aklavik
Sub-lethal effects on fish, wildlife, plants and ultimately human health	Water quality, fish, wildlife, plants, human health, nutrition, sediment	Aklavik
"Off flavour" taste of fish	Contaminants, fish	Aklavik

Concern	Keywords	Community ID
Integrity of frozen core dams, slow settling of suspended particulates, acid generation from waste rock, kimberlite toxicity, nitrogen contamination of waste rock and location of monitoring stations	Water quality, dams, acid, toxicity, nitrogen, waste rock	Aklavik
Manmade disturbances (road construction/maintenance, forestry, etc.)	Water quality, rivers, forestry, roads	Aklavik
Changes in water and sediment quality	Water quality, sediment, vegetation	Aklavik
Change in fish quality and quantity	Fish, harvest, habitat	Aklavik
Impacts from acid rain and sediment quality	Water quality, acid rain, global warming	Aklavik
Change in water flow caused by draining of lakes	water quantity, lakes	Aklavik
Creeks are drying up.	water	Aklavik
Contamination of the Coppermine River watershed for fish and drinking water	water quality, contaminants, fish, drinking water, human health	Aklavik
Human health of young children and senior citizens	temperature, precipitation, wind, sunlight, UV rays, children, senior citizens, health, air quality, weather	Aklavik
Drinking water creek levels are down.	water	Aklavik
Break-up is happening earlier.	water	Aklavik
Integrity of frozen core dams, slow settling of suspended particulates, acid generation from waste rock, kimberlite toxicity, nitrogen contamination of waste rock and location of monitoring stations	water quality, dams, acid, toxicity, nitrogen, waste rock	Aklavik
Is sewage from Aklavik affecting drinking water?	water	Aklavik
Residue seen in melt water from the Peel River.	water	Aklavik
Changes in permafrost (surface soil temperatures)	temperature, permafrost, surface soil	Aklavik
Caribou River runoff effects on the water.	water	Aklavik
Priority of future contaminant studies must include full use of traditional knowledge,	water quality, contaminants, land, water	Aklavik
There is more silt in the river.	water	Aklavik
Water quality - Is it changing?	water	Aklavik
Are gravel pits affecting silt in the river?	water	Aklavik

Concern	Keywords	Community ID
Is sewage from Aklavik affecting fish?	water	Aklavik
Pulp and Paper effluent from the Peace and Athabasca Rivers.	water	Aklavik
Decline in population, contaminant assessment	birds, population, contaminants,	Aklavik

Concerns from Canada's National Program of Action - Arctic Region:
(includes concerns from coastal communities across the Arctic)

1. Contamination of DEW Line sites.
2. Long-range transport of persistent organic pollutants and metals (mercury, cadmium and lead) affects human health and country foods.
3. Potential impacts of past ocean disposal practices.
4. Accumulation of metals (and other contaminants) from drill wastes in land-based oil and gas drilling.
5. Elevated levels of mercury found in polar bears; high levels of cadmium found in kidneys and livers of various marine mammals.
6. Construction of port facilities and structures to stabilize shorelines may alter fish habitat or prevent fish from following their normal migration routes.
7. Underwater noise and ice breaking may affect migration patterns of whales, especially near polynyas.
8. Environmental noise and ice-breaking impacts on hunting activities are a major concern as impacts are ongoing and may threaten food security and public safety.
9. Underwater noise and increased suspended sediment associated with dredging activity may disturb feeding or migrating activities in whales.
10. Dredging activities may have an impact on plankton and fish populations in nearshore environments.
11. Potential still exists for the laying of a gas pipeline, which could change habitats (oxygen depletion and sedimentation in spawning and overwintering areas).
12. Impact of hydroelectric development on changes in the pattern of freshwater runoff (may change wetland vegetation and wildlife use).
13. Threat of large oil spills posed by oil drilling and production activities could affect marine wildlife.
14. Input of nutrients into marine environment through sewage dumping.
15. Input of contaminated sediments into marine environment.
16. Mineral and sediment extraction and alteration are concern because of habitat alteration and smothering of benthic communities.

For more information, contact:

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