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

JANUARY 25-26, 2000

Prepared by Doug Chiperzak and Mae Cockney

PREFACE

Fisheries and Oceans Canada (DFO), Oceans Program Division thanks everyone who contributed to the Tuktoyaktuk Community Marine Ecosystem Health Workshop.

Special thanks to the facilitators, Helen Fast and Louis Goose, for their valuable help. Thanks also to Brad Duffet, Eleanor Ross and Ada Cockney 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 a community-based monitoring program, a workshop was held in Tuktoyaktuk, Northwest Territories, January 25-26, 2000. The objectives of the workshop 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. A wide range of community organizations, government agencies, students and the general public were invited to, and participated in, the 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 Tuktoyaktuk. 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 contaminants and the flow of information between scientists, politicians, and the community. Information requirements for the ten highest ranked concerns were identified and included as action items within this report.

The structure for a Tuktoyaktuk 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, Tuktoyaktuk Elders Committee, Tuktoyaktuk Youth Committee, Tuktoyaktuk Community Corporation, Tuktoyaktuk Hunters and Trappers Committee, and one member of the community at large. Potential tasks of the working group include the design of a communications strategy, the establishment of guidelines for the use and collection of traditional knowledge, and the development a framework to provide resource management training to community youth.

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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 Tuktoyaktuk 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 since taken place in Aklavik.

1.8. Workshop Objectives

The objectives of the workshop were:

1. To provide information to the community of Tuktoyaktuk 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 Tuktoyaktuk; 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 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 TUKTOYAKTUK

Participants were asked to develop a goal for the Tuktoyaktuk marine monitoring program. This goal was to 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.

On the first day of the workshop a draft goal was agreed upon, requiring further editing.

Draft Goal

The land and the water are the foundation of our culture. We can't vocalize it but we live it on a daily basis. If we destroy it, we destroy ourselves.

To maintain healthy populations of traditional food sources for the benefit of the community of Tuktoyaktuk and the ISR at large. To understand and share the knowledge of the ecosystem and to maintain a healthy community.

The draft goal was edited overnight (see below), and accepted by the workshop participants the following day. The proposed goal will be distributed to the workshop participants, community groups, and organizations via this report for comment. The goal will then be reviewed, and, pending changes, will be formally adopted at the next MEH workshop in Tuktoyaktuk.

Proposed Goal

The land and the water are the foundation of our culture. We can't vocalize it but we live it on a daily basis. If we destroy it, we destroy ourselves. The goal of the MEH Program in Tuktoyaktuk is to maintain healthy populations of traditional food sources for the benefit of the community and the ISR at large; to gain understanding and share knowledge of the ecosystem so that we can make wise decisions.

4. COMMUNITY OF TUKTOYAKTUK 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 identify sources of pollution.
2. To monitor contaminants in the food sources.
3. To monitor harvesting techniques or link to existing work.
4. To input monitoring data into fish and wildlife management processes.
5. To link to other agencies with respect to information for the good of the community.
6. To coordinate and provide comprehensive programs of education, research and traditional knowledge.
7. To evaluate the development of a research/management for the ISR.
8. To monitor development activities.
9. To act on the information given to us (the community).

After identifying objectives a number of questions were raised by participants regarding the proposed monitoring program:

Question: How will the monitoring body act on the information?

Answer: Monitoring information would be shared with the community, internally within DFO, with other government agencies, Inuvialuit organizations and industry. This information could be used in management plans, used to address potential problems and find solutions to these problems.

Question: What kind of body needs to be informed, HTC's?

Answer: Within communities, HTC's would be informed, but the information must also be passed on to other organizations within the community and the community at large. How information is communicated within a community might be left up to a community working group to determine.

Question: Will someone be hired (Marine Ecosystem Coordinator), part-time, full time, seasonal?

Answer: At the community level someone will be hired when monitoring starts, probably on a seasonal or part-time basis. We also may be able to use students from the FJMC mentoring program and thereby give them experience while collecting

valuable information. The program will start small and grow as our capacity to grow allows.

Question: Will they be stationed in Tuktoyaktuk?

Answer: Yes, we may at first use existing monitors or train new monitors or both.

5. TUKTOYAKTUK 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). Participants were divided into two groups to review the relevancy of these concerns and to document additional concerns. Concerns from both working groups were compiled. In cases where there were similar concerns recorded by both groups, these were combined to form a single concern. Concerns were paraphrased to make them more concise. These were then recorded and approved by the workshop participants to ensure each concern was properly captured prior to being recorded as a community concern.

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 Tuktoyaktuk 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: Community concerns and their relative priority, as expressed by the Tuktoyaktuk participants.

Concern	Relative Priority
DEW line sites contamination	46
Better resource management and education for youth	43
Tuk sewage lagoon and dump site	38
Information from research activities not getting back to community	33
Ozone layer	27
Getting politicians to understand community concerns and write appropriate policy	27
Tracking at what stage samples are when information goes to Health Canada, etc.	22
Mercury through the food web	21
"Continuation" of traditional knowledge	20
Using traditional knowledge; studying the well-being of marine mammals	16
Shoreline erosion	16
Climate change	15
Need to check nets more often	13
Development of species management plans	13
Effects on whales of increased tourism	12
Change in winds and direction of storms; increasing severity of storms	12
Beluga spending less time in coastal areas	12
Long-range transport of pollutants via Mackenzie River	10
Lack of knowledge of effects from dredging	10
Effects of increased population growth; effects on hunting and fishing	10
Effects from dredging	9
Low water in creeks and lakes altering fish migrations	6
Development of shoreline protection measures	6
Change in seals sinking faster, due to changes in water	5
Understanding occurrences of new species	4
Long-range transport of pollutants via ocean	4
How noise affects animals	3
Long-range transport of pollutants via air	2
Implications of changes of species distribution - e.g. seals	2
Cadmium and radiation	1

Figure 1: Tuktoyaktuk community members prioritizing concerns at the workshop.

5.1. Review of Concerns

The top concern was that of contamination from DEW Line sites. This not only included the site in Tuktoyaktuk where the clean-up is nearly complete, but also DEW Line sites along the coast of the ISR, such as at Nicholson and Atkinson Points. Concerns related to ozone depletion, contaminants, information flow, and exchange all ranked high as priority concerns.

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. Due to time constraints it was not possible to go through all the concerns, but the process was started with the first ten concerns in Table 1.

6.1. Concerns and Required Information

Concern #1: DEW Line

- Tuk, Nicholson, Horton River, Atkinson Point, Army Camp

ACTION:

1. Identify which sites have been cleaned-up, not cleaned-up, where in the clean-up, and what are the time frames.
2. Identify all solid waste sites.
3. What monitoring has or is being done at respective dump sites.
4. Map marine and land dump sites.
5. Review past dumping/burying practices by DND.

Concern #2: Resource Management Training for Youth

- Refer to Section 7.

Concern #3: Sewage and Dump

- Set up monitoring stations
- Extend water sampling into bay
- Monitor fish presence/absence
- Identify key species for long term monitoring

ACTION:

1. What is known about impacts from sewage lagoon and dump?
2. What studies have been done?
3. Look at sediment analysis conducted by Royal Military College.

Concern #4: Ozone

- Examine how ozone depletion is connected to climate change
- Develop appropriate indicators

ACTION:

1. Develop a poster on ozone, what it is, and what are the effects of ozone.
2. Obtain readings on UV levels for Tuktoyaktuk area.

Concern #5: Information about research getting back to community

- Refer to working group
- NWT Science License goes through EISC
- Use laymen's language
- Track research and identify focus
- Research library

Concern # 6: Getting politicians to understand community concerns & write appropriate policy

- Too early?
- Bring politicians to the people (MP Ethel Blondin?); start with local politicians

Concern #7: Tracking stages that samples (contaminants) are at – reporting results back to community in plain language

- Refer what potential resources are available to Integrated Management program

ACTION:

1. Can tracking of samples be done and if so how?
2. What is a good statistical sample for determining contaminant levels?

Concern # 8: Mercury through the food web/chain

ACTION:

1. Find out what has been done in area around Tuktoyaktuk.
2. When will sampling occur again?
3. What are the allowable levels for consumption?

Concern #9 & 10: Continuation of traditional knowledge and using TK to study effects on marine mammals

- Refer to working group
- Use TK to monitor
- Respect TK to guide hunting practices
- TK-based research

7. TUKTOYAKTUK 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 Tuktoyaktuk. There was consensus that a working group should be established.

Participants agreed that the working group should:

- Be a small group of between 4 to 6 members;
- Have a budget developed by DFO;
- Include representatives from:
  - Fisheries and Oceans Canada,
  - Tuktoyaktuk Elders Committee,
  - Tuktoyaktuk Youth Committee,
  - Tuktoyaktuk Hunters and Trappers Committee,
  - Tuktoyaktuk Community Corporation,
  - One member from the community at large – the method of selecting this person will be determined by the working group; and
- Be in operation no later than June 2000.

Items to consider for an operating framework for the working group:

- Who does the working group report to?
- Co-ordination between DFO and the working group.
- Need to ensure monitoring information is shared with the community.
- Set goals and objectives to meet the goals set forth by the working group.
- Develop plan on how to share information.
- Operating rules to review membership from time to time.
- Develop a process for screening, hiring, and supervising monitors.
- Term of membership - 2 years, 3 years, other?

Potential tasks for the working group:

1. Develop a communications strategy to disseminate information to the community.
2. Develop a resource management training framework for youth.
3. Establish guidelines for collection and use of traditional knowledge.

ACTION ITEMS:

1. Doug Chiperzak to write letters to the Hunters and Trappers, Elder, and Youth Committees and Tuktoyaktuk Community Corporation to advise them of the working group and to request of them to appoint a representative to the working group.
2. Doug to chair first meeting and to circulate a draft agenda.

8. CONCLUSION

Workshop participants supported the development of a community-based marine monitoring program in Tuktoyaktuk. 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 a Tuktoyaktuk monitoring working group to assist with implementation and operation of the community-based marine monitoring program in Tuktoyaktuk was recommended by workshop participants. The working group would consist of one member each from DFO, Tuktoyaktuk HTC, Tuktoyaktuk Community Corporation, Tuktoyaktuk Elder Committee, Tuktoyaktuk Youth Committee and one member form the community at large. The member from the community at large would not be affiliated with the organizations already with representation on the working group.

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

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
Tuktoyaktuk MEH Workshop
January 25-26, 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 Tuktoyaktuk 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 Tuktoyaktuk
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 Tuktoyaktuk**

- Examples of goals from other programs

4:15pm **Open forum on goal(s) for Tuktoyaktuk 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 Tuktoyaktuk**
- 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

Name	Address	Organization	Phone No
Paul Voudrach	PO Box 75 Tuk	RWED	977 2350
Allen Kogiak	Box 2100 Inuvik	DIAND	867 777 3361
Christopher Felix	Box 92 Tuk	HTC	977 2263
Dennis Raddi	PO Box 318 Tuk	TCC	977 2407
Lisa Loreen	PO Box 344 Tuk	Tuk Youth Committee	977 2192
Chuck Gruben	Tuk WT	HTC	977 2457/977 2360
Roy Cockney	Tuk	Elder Committee	977 2199
Timmy Komeak	Tuk	Elder Committee	977 2578
Jordan O'Connor	Tuk	General Delivery Tuk Health Centre	977 3231
Vera Ovayuak	PO Box 333, Tuk	HTC	-
Rob Walker	Box 2100 Inuvik	DIAND	777 3361
Andy Kimiksana	Tuk	Elder Committee	977 2006
Boogie Pokiak	Tuk	HTC	977 2253
Max Kotokak	Tuk	HTC	867 977 2033
Ernest Pokiak	Tuk	Mayor	977 2286
Gordon A….	Tuk	Elder	977 2214
Julia Cockney	Tuk	NTCL	977 2199
Michelle Skanz	Tuk	Aurora College	977 2275
Flora Cockney	Tuk	Aurora College	977 2275
Angela Cockney	Tuk	Aurora College	977 2275
Douglas Panktalok	Tuk	Aurora College	977 2275
Richard Panaktalok	Tuk	Aurora College	977 2275
Doreen Cochney	Tuk	Aurora College	977 2275
Dennis Felix	Tuk	Aurora College	977 2275
Irene Nyuauriak	Tuk	Aurora College	977 2576
David Rufus	Tuk	Aurora College	977 2227
Steven Cockney	Tuk	Aurora College	977 2115
Tina Steen	Tuk	Aurora College	977 2100
Catherine Katigakyok	Tuk	Aurora College	None
Stanley Keebik	Box 323 Tuk	ILA Elder	N/a
William …	Tuk		
Robert F. Cockney	P.O. Box 161	Aurora College	977-2212
Jackie S. Beaulie	P.O. Box 161	Aurora College	977-2212

January 26, 2000

Name	Address	Organization	Phone No
Molly Nogasak	PO Box 34 Tuk		977 2203
Joan	Tuk		977 2349
Curtis Grueben	Tuk	Tuk Youth Committee	977 2462
Dennis Raddi	PO Box 318 Tuk	TCC	977 2407
Lisa Loreen	PO Box 344 Tuk	Tuk Youth Committee	977 2192
Chuck Gruben	Tuk WT	HTC	977 2457/977 2360
Roy Cockney	Tuk	Elder Committee	977 2199
Timmy Komeak	Tuk	Elder Committee	977 2578
Paul Voudrach	Tuk	RWED/TCC	977 2350
Vera Ovayuak	PO Box 333, Tuk	HTC	-
Andy Kimiksana	Tuk	Elder Committee	977 2006
Boogie Pokiak	Tuk	HTC	977 2253
Max Kotokak	Tuk	HTC	977 2033

APPENDIX C: Tuktoyaktuk Community Workshop Budget

Item		Cost
Hall Rental:		**$1,200.00**
▪ Kitti Hall - 3 days @ $400/day	$1,200	
Catering:		**$650.00**
▪ Two lunches, coffee and snacks mornings and afternoons	$650	
Stationary and misc. supplies:		**$306.85**
▪ Film and processing	$37.94	
▪ Binders, tape, markers, etc.	$268.91	
Contracts:		**$3,189.00**
▪ Recording – two days @ $250/day	$500	
▪ Report writing	$2,500	
▪ Admin. Fees	$189	
Honorariums:		**$4,760.00**
▪ Elders - 6 days @ 150/day	$900	
▪ Youth - 4 days @ 90/day	$360	
▪ TCC directors - 2 days @ $400/days	$800	
▪ HTC members - 9 days @ $300/day	$2,700	
Travel:		**$6,939.31**
▪ Doug Chiperzak (includes hotel & meals for Louis Goose)	$3,477.81	
▪ Louis Goose airfare	$120	
▪ Helen Fast travel	$3,341.50	
	TOTAL	**$17,045.16**

APPENDIX D: Community Concerns

From Tuktoyaktuk Community Conservation Project:

1. The analysis of water quality in the area around the Tuktoyaktuk dump and sewage system outlet to determine the necessity for future action.

2. The development of species management plans for wildlife harvested in the Planning Area.

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.

APPENDIX E: Concerns by Working Groups

GROUP 1:

1. Water Quality

- Long-term effects on fish and water quality decanting of water from the dump (on ocean waters also).
- Closely monitor and test once a month: June, July, August and September. Not just when decanting sewage and dump. Must keep records.
- Additional monitoring should be done by the Hunters and Trappers Committee.
- New location for the dump.
- Likely increasing population pressures.
- Pipe sewage out to ocean.
- Sewage treatment plant.
- Analyze fish, waterfowl, etc. for contaminants.
- Concern about what was left behind by the oil companies.

2. Development of species management plans

- Beluga
- Arctic cisco (herring) – all fish – whitefish, pike, burbot, coney
- Seal (mainly dog food)
- Polar bears
- Water creek – low water – connected to water lake, fish in the creek can't go up the creek, low snow levels.

3. Other Issues

- Contamination of the DEW line sites. Past practices cause for concern, dumping, equipment and barrels left that have begun to rot and seep, causing contamination – from Shingle Point to Nicholson. Four sites cleaned up and two to be cleaned up. ALL BY THE EDGE OF THE WATER.
- Long-range transport of persistent organic pollutants (POP) and metals (mercury, cadmium and lead) and the affects to human health and country foods.
- Monitor Mackenzie River especially where beluga congregate.
- Monitor what comes down the river for example concerns with pulp mills, fisheries pollution that comes down the river. Test water, animals, and fish based on expert advice at the farthest point.
- Potential impacts of past ocean disposal practices.
- Accumulation of metals (and other contaminants) from drilling wastes in land based oil and gas drilling. (Not much of a problem so far, but potential problems for it exists with new development)

- Mercury in polar bears, seals, fish and beluga, and the whole food chain. Test elders for mercury and cadmium (form of radiation). Test should be done on soil and plants for water based contaminants on a regular basis and develop a plan. Consider removing research to a 3rd party.
- Construction of port facilities and structures to stabilize shorelines, may alter fish habitat or prevent fish from following their normal migration routes. Hamlet side is being monitored – stabilizing has not had any effect on fish. DFO and HTC to monitor harbour, including fish, water quality and vessel practices – get a harbour master, e.g. Procedures for dealing with potential problems including oil spills.
- Underwater noise and ice breaking may affect migration patterns of whales, especially near polynyas.

GROUP 2:

1. Tuk sewage lagoon and solid waste site – possible contaminants into marine environment.
- Long term goal and objectives for health issues.

2. Concerns over effects from dredging – herring

3. Lack of knowledge of effects from development like dredging.
- How do you compensate?

RECOMMENDATION: look at past data on pre-dredging and post-dredging.

4. What are the effects from increased population growth?
- On hunting?
- On fishing?

5. Coastal erosion – increasing

6. Climate change
- Coastal erosion
- Lake changes

7. Education
- Passing on traditional knowledge, some stored on tape but not available and some being lost.
- Understanding what is going on now as the next generation will be the managers of the resources.

8. Traditional ecological knowledge
- Concerns were passed on 20 years ago, where are they and nothing was done.

9. Long-range transportation of pollutants.

- Air and water
- Getting into the food source

10. Occurrence of species
- Not normal to the area i.e., Pacific salmon, walleye

11. Some species are not seen close to the community anymore i.e., ringed seal

12. Seals sink faster after being shot – fresh water

13. Timing of beluga whales movement into shallow waters
- They move out into deeper water
- When whales come in they do not stay as long and they come in as one group.

14. Increased winds from the northeast during the summer.
- Use to get calmer winds from the east
- Storms use to mainly come from west, but now from the east too.

15. Ozone layer – hole

16. Some lakes that flowed into the ocean no longer do.
- Lake levels are lower
- Warmer weather also affecting inland areas as well, melting the permafrost

RECOMMENDATION: Need a strategy developed to increase education of the potential effects of contaminants, climate change, noise pollution, etc.

17. Get information from research cruises such as JOIS and SHEBA
- We do not always get the information from such project to make informed decisions at the community level.

18. Tracking information after animals have been sampled for contaminants.
- Sample – DFO – Health Canada – community

19. Traditional ecological knowledge knew noise affected animals.
- Noise from boats when hunting beluga
- What are the effects of air flights on beluga?

20. Effects from increase in tourism on whales when in shallow water.

21. Have to check fish nets more often – fish in nets die quicker.

22. Noise related to water depth – animals are more threatened by noise when in shallower water.

23. Making politicians understand people's concerns.