

**TUKTOYAKTUK AND AKLAVIK  
TARIUQ (OCEAN) COMMUNITY-BASED MONITORING PROGRAM**

**RESULTS FROM THE FIRST  
INDICATORS WORKSHOP**



**JUNE 28, 2001,**

**HAMLET COUNCIL CHAMBERS  
AKLAVIK, NWT**

Prepared by: Sara Eddy



Fisheries and Oceans  
Canada

Pêches et Océans  
Canada

Canada

## **EXECUTIVE SUMMARY**

---

Following from the Community Marine Environmental Health (MEH) Workshops, held in Aklavik and Tuktoyaktuk in 2000, and subsequent meetings of the two community Tariuq (Ocean) Working Groups, an Indicators Workshop was held in Aklavik June 28, 2001. The objectives of this workshop were: 1) To move forward on recommendations and goals set in the Tuktoyaktuk and Aklavik Community Marine Environmental Health Workshops; and 2) To discuss and select indicators to begin the Tariuq (Ocean) Community-based Monitoring Programs this year (2001).

Members of the Aklavik and Tuktoyaktuk Working Groups, additional members from the organizations represented on these groups, DFO staff and monitoring experts participated, in the workshop.

This report provides the proceedings and results of the Tariuq (Ocean) Monitoring Program Indicators Workshop. Community concerns, identified at the previous workshops, were reviewed and updated. A series of indicators and monitoring activities were discussed for Tuktoyaktuk and Aklavik. From these, two indicators and monitoring methods were chosen to begin monitoring in Summer 2001. The first is the monitoring of water temperatures, to be obtained by deploying data loggers at two locations for each community. These loggers are to be deployed in July 2001 and retrieved at freeze-up (October 2001). Aklavik participants selected Shingle Point and the Mackenzie River for their monitors. Tuktoyaktuk participants selected Hendrickson Island and Tuktoyaktuk Harbour. The second monitoring activity is to be index gill netting at three locations for each community. Aklavik participants selected the coast at Shingle Point, the mouth of the Pokiak Channel and above the island at the end of the back road. Tuktoyaktuk participants want to focus on whitefish and herring, gill netting at locations used by Lois Harwood in the herring study, for example, Tuktoyaktuk Island. Gill netting will commence in August/September 2001, once appropriate permits and methodologies have been finalized.

The monitoring program will start small and build upon successes. It is anticipated that the program will expand to include more indicators and different seasons. A second indicators workshop is planned for 2002.

## TABLE OF CONTENTS

---

<b>EXECUTIVE SUMMARY</b> .....	<b>II</b>
<b>TABLE OF CONTENTS</b> .....	<b>III</b>
<b>1. INTRODUCTION</b> .....	<b>1</b>
1.1. CONTEXT.....	1
1.2. OBJECTIVES OF THE TARIUQ (OCEAN) INDICATORS WORKSHOP.....	2
1.3. OBJECTIVES OF THE TARIUQ (OCEAN) MONITORING PROGRAM .....	2
1.4. CHARACTERISTICS OF THE TARIUQ (OCEAN) MONITORING PROGRAM.....	2
1.5. REVIEW OF CONCERNS FROM COMMUNITY MEH WORKSHOPS, 2000 .....	3
1.6. UPDATE OF CONCERNS.....	4
<b>2. INDICATORS</b> .....	<b>6</b>
2.1. WHAT IS AN INDICATOR? .....	6
2.2. EXISTING MONITORING PROGRAMS IN THE ISR .....	6
2.2.1. <i>Fisheries and Oceans Canada (DFO) – Doug Chipczak</i> .....	6
2.2.2. <i>Ecological Monitoring and Assessment Network – North (EMAN-N) – Joan Eamer</i> .....	8
2.2.3. <i>Arctic Borderlands Ecological Knowledge Co-op – Joan Eamer</i> .....	8
2.2.4. <i>Global Learning and Observations to Benefit the Environment (GLOBE) – Peter Hardy</i> .....	9
2.2.5. <i>Mackenzie Valley Cumulative Impact Monitoring Program (MVCIMP) – Lorraine Seale</i> ....	9
2.3. SELECTION OF INDICATORS.....	10
<b>3. TARIUQ (OCEAN) MONITORING PROGRAM</b> .....	<b>10</b>
3.1. BREAK-OUT GROUPS .....	10
<i>Break-out Group 1</i> .....	11
<i>Break-out Group 2</i> .....	13
<b>4. TARIUQ (OCEAN) MONITORING PROGRAM – SUMMER 2001</b> .....	<b>17</b>
<b>5. CONCLUSIONS</b> .....	<b>17</b>
<b>APPENDIX A: AGENDA</b> .....	<b>18</b>
<b>APPENDIX B: WORKSHOP PARTICIPANTS</b> .....	<b>19</b>
<b>APPENDIX C: TARIUQ (OCEAN) INDICATORS WORKSHOP BUDGET</b> .....	<b>20</b>
<b>APPENDIX D: COMMENTS, QUESTIONS AND ANSWERS</b> .....	<b>21</b>

# 1. INTRODUCTION

---

## 1.1. Context

On June 28, 2001, the first Tariuq (Ocean) Community-based Monitoring Program Indicators Workshop was held in Aklavik, Northwest Territories. Participants at the workshop included (Appendix A):

- Members of the Tariuq (Ocean) Working Groups from Tuktoyaktuk and Aklavik;
- Additional members of the organizations Working Group members represent;
- Staff from Fisheries and Oceans Canada (DFO) (Winnipeg, Yellowknife and Inuvik); and
- Monitoring experts from Indian and Northern Affairs Canada (INAC) representing the Mackenzie Valley Cumulative Impact Monitoring Program (MVCIMP), Environment Canada representing Arctic Borderlands Ecological Knowledge Co-op and Ecological Monitoring and Assessment Network North (EMAN-N), Global Learning and Observations to Benefit the Environment (GLOBE) and the Gwich'in Renewable Resources Board (GRRB).

The precursors to this workshop were the Community Marine Environmental Health Workshops<sup>1</sup>, held in January 2000 for Tuktoyaktuk and March 2000 for Aklavik, and the subsequent Tariuq (Ocean) Working Group meeting held in both communities (June 2001 for Tuktoyaktuk and March 2001 for Aklavik).

At the 2000 Community Workshops, the objectives 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.

From these first workshops, the structure for the Community Working Groups was established. The role of the Working Groups is to assist with the development of the monitoring program for the community. At the initial Aklavik and Tuktoyaktuk Working Group meetings it was determined that more information on what indicators are, how they would be selected and monitored needed to be explored. As a result, the Tariuq (Ocean) Indicators Workshop was held.

---

<sup>1</sup> Please see “Results from the Aklavik Community Marine Environmental Health (MEH) Workshop, March 6-7, 2000” and “Results from the Tuktoyaktuk Community Marine Environmental Health (MEH) Workshop, January 25-26, 2000.” Both documents are available from Fisheries and Oceans Canada by calling: (867) 777-7502 or (204) 984-5561.

## 1.2. Objectives of the Tariuq (Ocean) Indicators Workshop

1. To move forward on recommendations and goals set at the Tuktoyaktuk and Aklavik Community Marine Environmental Health Workshops. The goals for the communities of Tuktoyaktuk and Aklavik are:
  - **Tuktoyaktuk:** “The land and water are the foundation of our culture...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.”
  - **Aklavik:** “To maintain a healthy ecosystem for now and the future through monitoring, and the sharing of scientific, traditional and local knowledge.”
2. To review and update community concerns.
3. To discuss and select indicators to begin Tariuq (Ocean) Community-based monitoring programs this year.

## 1.3. Objectives of the Tariuq (Ocean) Monitoring Program

- Monitor (long- and short-term) the health of the ocean ecosystem;
- Communities and agencies plan together;
- Contribute valuable information to test the effectiveness of the Beaufort Sea Integrated Management Planning Initiative (BSIMPI), Marine Protected Areas, and measures taken by industry during development to protect the marine environment; and
- Contribute to Health of the Oceans reporting.

## 1.4. Characteristics of the Tariuq (Ocean) Monitoring Program

1. It is community-based.
  - Community sets goals and objectives;
  - Community selects indicators;
  - Community monitors do the work;
  - Information is shared; and
  - Traditional lifestyles are respected.
2. It has support within DFO and other organizations.
  - Marine Environmental Quality (MEQ) is of national interest;
  - There is funding to support the program;

- The monitoring program is part of the DFO annual workplan; and
  - Fisheries Joint Management Committee (FJMC) and Inuvialuit Game Council (IGC) support the initiative.
3. Linkages with other monitoring programs (i.e. EMAN-N, Mackenzie Valley Cumulative Impacts Monitoring Program [MVCIMP], Arctic Borderlands Ecological Knowledge Co-op, etc.)

### 1.5. Review of Concerns from Community MEH Workshops, 2000

- **Tuktoyaktuk** (see “Results from the Tuktoyaktuk Community Marine Environmental Health (MEH) Workshop, January 25-26, 2000” report for a complete list of concerns)
  - Contamination: DEW line sites, lagoon and dump, mercury, long range transport of pollutants, cadmium;
  - Better resource management and education for youth;
  - Timely sharing of research (samples) to communities;
  - Climate change (ozone, wind, storms);
  - Politicians need to understand community concerns and write policies accordingly;
  - Traditional knowledge must be used in studies;
  - Shoreline erosion; and
  - Changes in animals (beluga, seals, fish)
  
- **Aklavik** (see “Results from the Aklavik Community Marine Environmental Health (MEH) Workshop, March 6-7, 2000” report for a complete list of concerns)
  - Agencies do not communicate together enough;
  - Training for monitors;
  - Water quality and quantity concerns:
    - animal waste
    - upstream sources (pulp and paper)
    - changes in river flows
    - litter and waste in river system
  - Fish: loche livers, stock identification for charr at Shingle Point;
  - Contaminants: in birds and DEW line; and
  - Coastal erosion.

## 1.6. Update of Concerns

As a group, the participants brought up the following concerns. These concerns acted as lead-up to the identification of indicators to be implemented during Summer 2001.

- Seismic being done in fishing lakes; no seismic should be allowed in these lakes - Tuktoyaktuk HTC
- Freshwater creeks have drained out, which is affecting the quality of water in Tuktoyaktuk
- Concern about color of snow (yellowish) - Tuktoyaktuk
- What are the impacts when off-shore seismic begins in 3-4 years? - Tuktoyaktuk
- Want more information on dredging, may have caused decline in fish populations (e.g. when Tuktoyaktuk Harbour was dredged the last time oil companies were using it) - Tuktoyaktuk
- How much monitoring is being done associated with seismic in fish bearing lakes? - Aklavik
- Want access to data that is monitored - Aklavik
- Want information from Habitat, DFO about any explosives that are being used in rivers or streams - Aklavik
- Debris travelling down the river by water or ice
- Sewage and water quality in Aklavik
- Burning of the dump in Tuktoyaktuk and associated water and air contamination



**Figure 1:** Introduction to the workshop.



**Figure 2:** Summarizing the results of the break-out groups.



## 2. INDICATORS

---

### 2.1. What is an Indicator?

An indicator is a measurable feature of a characteristic of the ecosystem which can help determine whether goals and objectives are being achieved, and whether the ecosystem is healthy. A series of indicators is needed to accurately assess what is occurring in the environment and ecosystem health. More simply stated, an indicator is a marker against which comparisons of change can be noted. Indicators do not need to be associated with numerical values; they may be grouped by categories, statements, etc. The indicators to be selected for the Tariuq program need to be relatively simple and inexpensive to collect (i.e. in terms of equipment used) and must be something that will change perceptibly over time in order to draw meaning from the results.

There are two categories of indicators, biological and physical.

- **Biological** (biotic) refers to the living parts of the environment. By monitoring animals we can gain valuable information about environmental changes and stresses affecting different species. Examples of biological indicators include:
  - Population/stock levels (abundance, distribution, recruitment, diversity);
  - Individual level (measuring individuals, sex of individuals, reproduction rate, observations of diseases and deformities); and
  - Behaviour (observations of timing of migration and feeding, avoidance).
  
- **Physical** (abiotic) refers to the non-living parts of the environment. By monitoring non-living aspects of the environment, we can gain valuable information about environmental changes and their causes. Examples of physical indicators include:
  - Water temperature;
  - Ice thickness;
  - Dates of freeze-up and ice out;
  - River flow (peak flow, timing of flow);
  - Contaminants in water, snow, sediment and animals; and
  - Habitat (coastal erosion, sedimentation).

### 2.2. Existing Monitoring Programs in the ISR

#### 2.2.1. Fisheries and Oceans Canada (DFO) – Doug Chipertzak

Under the direction of Lois Harwood and Sam Stephenson, the DFO Inuvik office is currently involved in monitoring a variety of indicators. Many of these activities are undertaken in partnership with other organizations, such as the Fisheries Joint Management Commission (FJMC) and the Gwich'in Renewable Resources Board

(GRRB). Much of the information collected comes from animals that have been harvested for subsistence purposes or, in the case of bowhead, dead beached animals.

The following details DFO monitoring projects and the indicators being studied.

- Ringed Sea Productivity
  - Ovulation rates, body condition of all age classes (blubber thickness and BMI) and correlation to ice conditions
  - Disease (influenza and brucella)
  - Focus is on the Holman area
- Beluga Whale Productivity
  - Body condition (blubber thickness), disease, pregnancy rates, calving interval for Mackenzie Estuary-Beaufort Sea beluga
- Bowhead Whale
  - Documenting the locations of washed up, dead whales and bear feeding sites
- Hornaday River
  - Water quality and quantity monitoring, using a gauge site
- Unusual Events
  - Keeping records of reported unusual events, such as starveling or undernourished seals, bearded seals in river, salmon in the Beaufort Sea, bowhead in unusual locations
- Husky Lakes
  - Ecological assessment - water quality and characteristics of the water column (salinity, oxygen, temperature), sediment composition, benthos and zooplankton, fish (diversity and biomass and exploitation rates), beluga whale entrapments, seals, fish
  - This is a three year study for 2001, 2002, 2003
- Arctic Charr and Dolly Varden
  - Rat River, Hornaday River and Kuujjua River - number of fish harvested, catch per unit effort, size, sex, condition, age and weight of fish harvested over time (some databases are older than 10 years), water temperature, relative amount of debris, relative water level, index netting (to compare abundance between years) of up and coming recruits (smolts) at the community fishing sites
- Index Netting
  - Near Tuktoyaktuk and Aklavik
  - Compiling information on lengths, weights, aging structures and species distribution
  - Monitoring changes to the fishery

- Charr Collection
  - Weighing, measuring and collection of aging structures from charr near Shingle Point
  - Information on the make up of the stocks being harvested

Possible future monitoring activities to be implemented by DFO may include:

- Shingle Point “complex”
  - Bowhead whale observations and wind direction
  - Fishing success, biodiversity and abundance
- Tuktoyaktuk Harbour “complex”
  - Fishing success, biodiversity and abundance; build on 1997-99 databases
- Mackenzie Estuary “complex”
  - Break-up dates, as determined by satellite data and by dates the beluga enter the bays
- Netting on Coast
  - Find how abundant are smaller individuals of certain species
- Water Temperatures
  - Perhaps attach data loggers to the ends of nets or leave data loggers in fishing areas during harvesting

### ***2.2.2. Ecological Monitoring and Assessment Network – North (EMAN-N) – Joan Eamer***

EMAN-N is a network for the coordination of ecological monitoring throughout northern Canada. The organization is made up of government agencies and co-management boards. These groups work together to bring together monitoring information and experts who can provide monitoring advice. Currently, the network is working to produce a web site that will bring existing monitoring information and monitoring programs together in one venue. The focus of EMAN-N is on climate change and industrial development.

### ***2.2.3. Arctic Borderlands Ecological Knowledge Co-op – Joan Eamer***

The Arctic Borderlands Ecological Knowledge Co-op is a non-profit society; while government agencies participate, it is government-run. The geographical scope of the society is the range of the Porcupine Caribou herd, which includes some coastal and marine areas.

The purpose of the Co-op is to put all types of information about the Porcupine Caribou Herd range in the same format for easy comparison and availability. In this way, the information can be used to find out what is happening in the environment and to try and find solutions.

Indicators were first looked at six years ago by the Co-op, and continue to be examined at Annual Gatherings. In terms of community monitoring, the Co-op performs annual interviews in several locations, including Aklavik and Katovik, Alaska, and records observations. There is a strong emphasis on traditional knowledge, documented by asking people what has been happening, rather than making measurements. Arctic Borderlands would like to link its program together with the Tariuq (Ocean) Monitoring Program.

#### ***2.2.4. Global Learning and Observations to Benefit the Environment (GLOBE) – Peter Hardy***

The GLOBE program is international in scope and focuses on involving students and communities in science. Currently, 77 schools from across the Arctic are involved. Students collect and enter data into the GLOBE web site and look at data entered by other students around the world. In this manner, students learn to collect, interpret and disseminate information. This develops skills within communities and may assist these students in building an environmental management career.

Three main projects are underway:

1. POPs: High schools in Pangnirtung, Inuvik and Old Crow are involved in a study of how these contaminants enter our food chain.
2. Traditional Knowledge: Observations on how the climate is changing.
3. Climate: Students in schools are looking at climate and how it is changing.

Related to the GLOBE program, DFO commented that they are currently completing an Arctic Marine Education Curriculum intended for grade 10 students, which could be linked to GLOBE. This program is scheduled to be introduced as a pilot program in select schools in Fall 2001.

#### ***2.2.5. Mackenzie Valley Cumulative Impact Monitoring Program (MVCIMP) – Lorraine Seale***

The MVCIMP, a requirement of the Gwich'in and Sahtu land claims, encompasses the Mackenzie Valley and is linking with other programs to determine what is happening along the Mackenzie River. Activities upstream impact the river and marine environments in the ISR. A list of valued ecosystem characteristics to be monitored has been compiled and a monitoring program is under development. There are many linkages between MVCIMP and the Tariuq (Ocean) Monitoring Program, and there is a lot of potential for these projects to complement each other.

### 2.3. Selection of Indicators

The selection of indicators for this monitoring program was done by the community participants in attendance at the Tariuq Indicators Workshop (see Section 4). Participants were advised to use the following important parameters in making selections:

- Meaningful to the communities;
- Relatively simple and inexpensive to measure;
- Indicates health of ecosystem;
- Timeliness for decision making;
- Data must have meaning;
- Indicator responds to change; and
- Indicator should be related to some objective (e.g. maintain water quality above a certain value).

Also, the following are considered when selecting indicators:

- Timing (hourly, daily, seasonally, yearly);
- Spatial (near-shore, off-shore, upstream/downstream, surface/bottom);
- Effort (how many traps, how many grabs);
- Methodology – need consistent techniques to ensure data is usable over the long-term;
- Data recording and analysis; and
- Communication of findings back to community members and organizations.

## 3. TARIUQ (OCEAN) MONITORING PROGRAM

---

### 3.1. Break-out Groups

Workshop participants split into two facilitated break-out groups for the afternoon portion of the workshop. These groups were to discuss the community monitoring programs in terms of the following guidelines:

- What are you going to do?
- Why are you doing it? (Is it meaningful to your community concerns?)
- Who is going to do it?
- How and when will it be done?
- How much will it cost? If it is too expensive, can it be maintained long-term?
- How will you communicate the data and when will you evaluate what you monitored?

Participants were reminded that the Tariuq Monitoring Program is primarily a marine monitoring program. As such, we can forward recommendations about monitoring

needed for inland freshwater lakes and creeks, but cannot perform the monitoring ourselves. This program can include the outflow of the Mackenzie River or creeks as related to impacts on the coastal and nearshore environment.

### ***Break-out Group 1***

**Facilitator: Don Cobb, DFO**

**Rapporteur: Marlene Bailey, DFO**

#### **Part 1**

#### **MONITORING NEEDS AND POSSIBLE INDICATORS**

##### **BRAINSTORMING:**

1. Drinking Water Quality – samples of fish and sample water; monitor available information.
2. Herring Migration – sample for contaminants when migrating upstream and downstream.
3. Seismic monitoring – monitor fish lakes for debris and fish kills.
4. Monitor Beluga – date of migration into estuary, population size.
5. Beluga Harvest Data – for example, low harvest may be due to windy weather for season.
6. Monitor coastal erosion.
7. A concern of ice pack is further out and fewer icebergs make it harder to travel and hunt for whales. Last bowhead harvested was in 1991 when there was more ice.
8. Ice pressure ridges are not as high, ice is thinner. Kendall Island area has more air pockets in ice.
9. Muskrats are said to have a different taste; not as good tasting as they used to be.
10. Caribou River winter camp project access road overland on the spill list of Gwich'in Land and Water Board.



**Figure 3:** Break-out Group 1.

## *Break-out Group 2*

**Facilitator: Doug Chiperzak, DFO**

**Rapporteur: Sara Eddy, DFO**

### **Part 1**

#### **MONITORING NEEDS AND POSSIBLE INDICATORS**

#### **BRAINSTORMING:**

#### **Tuktoyaktuk Participants**

##### 1. Coast/Inland

- Key fishing lakes and creeks connected to the ocean:
  - Fish species present, population numbers, ages, life history and role that these lakes and creeks play
  - How fish are being impacted by development and environmental change
- *Information Needs:*
  - Summarize results from past studies
  - Inventory of species; need for baseline data

##### 2. Ocean/Coast

- What are fish feeding on? Need information on benthos, zooplankton and bottom vegetation
- What is on the bottom of Tuktoyaktuk Harbour? A study was done in the 1980s – where are the results?
- Why are there so few herring in Tuktoyaktuk Harbour now as compared to the past?
- Timing of fish entering Tuktoyaktuk Harbour – used to see whitefish in July and August, herring in September; now sometimes herring in summer; changes in timing could be related to changing water temperatures
- Mapping of some Arctic Biological Station databases as part of a DFO data recovery effort
- *Indicators:*
  - Multi-mesh index netting
  - Temperature of water

##### 3. Coastal erosion

- Extensive around Tuktoyaktuk
- *Indicators:*
  - Mark low water level – need to consult Steve Solomon on how to do this properly
  - Take pictures every year and compare

##### 4. Creeks drying up

- Waterflow is changing in creeks
- Creeks and lakes are important to the marine environment – without them there would not be any fish in coastal areas



- Last year a survey was done in the Tuktoyaktuk Block to check the water levels of lakes; oil and gas companies use this information to know how far to drill – when they drill too far the lakes drain
- *Indicators:*
  - Could take water velocity measurements and depths

#### 5. Youth Involvement

- *Action:*
  - Could hold a workshop with older students (grades 9-12) to get their ideas; may feel more comfortable speaking around their own peers
  - Perhaps as part of the Oceans Day celebrations in September?

### **Aklavik Participants**

#### 6. Snow and Ice

- There is more snow in Aklavik than in the past
- Dirt is blowing on the snow
- *Indicators:*
  - Can do the same type of measurements as with water quality
  - Observations
  - Water quality in the ocean, lakes and creeks can be measured in terms of O<sub>2</sub>, pH, nutrients and metals

#### 7. Delta water levels

- Flooding hasn't taken place for the last three years because of low water levels
- Changes in the water of the delta – becoming more muddy
- Lakes are drying up – some are breaking through
- Erosion – creeks are breaking through to other creeks
- Waves are becoming bigger in the river and contributing to delta erosion
- *Indicators:*
  - Could take water velocity measurements and depths

#### 8. Timing of migrations

- Whales, geese, polar bears
- Saw frogs up here for the first time – they are not usually so far north
- *Indicators:*
  - Make observations as to when they first arrive
  - Observations about when eggs are laid

#### 9. Ice

- In the past, the dates of freeze-up and ice out were consistent; now we cannot predict
- The fur on the animals we trap is not as nice and thick as it was in the past
- *Indicators:*
  - Observations about ice – when does freeze up take place, when is the ice out

#### 10. Ice roads

- Does traffic volume on ice roads disrupt spawning and migration?
- There is more traffic than ever now with the oil and gas industry
- FJMC is considering doing a study on this topic – it is known that clearing an ice road of snow results in the ice thickening; this may reduce the overwintering space available for fish
- *Indicators:*
  - DFO could map and calculate the area of ice roads in the region
  - Record noise levels under the ice as it relates to road traffic and associated ice cracking
  - Measure ice depths

#### 11. Water quality

- The Caribou River Project Camp has had water advisories issued against drinking the water

### **Part 2**

#### **MOVING FORWARD, NEXT STEPS:**

We want to get the Tariuq Monitoring Program to move forward this summer, monitoring one or two indicators. What are priorities that we can start monitoring?

1. **Water quality:** needs further discussion among other departments and monitoring groups
2. **Water temperature:** can easily deploy data loggers to monitor temperatures; we can put these in areas where people fish to find possible relations between temperature and catch
3. **Test netting:**
  - Tuktoyaktuk – locations to be determined by the HTC; possibly at the cisco monitoring stations already in use
  - Aklavik – locations to be determined by the HTC and RRC
4. **Water depth and discharge:** need specialized equipment; will find out if anyone is already involved in this type of monitoring or is willing to lend the equipment; perhaps a student could be taught to do this monitoring in creeks nearby the Hamlet sites
5. **Observations:** ice out, freeze-up, whales, unusual events; could include extra information into the annual interviews done by Arctic Borderlands Co-op; could use log book kept by the Renewable Resources Officer
6. **Fish health:** could make a table showing fish species in this area, what contaminants analysis has been done, where the fish were caught and when the analysis was done

7. **Needs further discussion:** Loche livers, seismic, ABS (Arctic Biological Station) dataset, past information on creeks and lakes along the coast.



**Figure 4:** Break-out Group 2.

#### **4. TARIUQ (OCEAN) MONITORING PROGRAM – SUMMER 2001**

---

Convening as a single group following the break-out session, the following were chosen to be monitored during Summer 2001 by the communities of Aklavik and Tuktoyaktuk.

##### **TEMPERATURE GAUGES – JULY TO ICE FREEZE-UP (OCTOBER) 2001**

➤ **Aklavik:**

1. Mackenzie River (near Hamlet)
2. Shingle Point

➤ **Tuktoyaktuk:**

1. Tuktoyaktuk Harbour (2)
2. Hendrickson Island

- To be deployed week of July 9, 2001

##### **TEST NETTING – AUGUST/SEPTEMBER 2001**

➤ **Aklavik:**

1. Coast at Shingle Point
2. Mouth of the Pokiak Channel
3. Above the island at the end of the back road

➤ **Tuktoyaktuk** (focus on whitefish and herring):

1. Locations used by Lois Harwood in the herring study
2. Tuktoyaktuk Island
3. Near sewage lagoon? To see the quality of the fish in that area.

- Prior to commencing test netting, we will need to find the cost of having someone do test netting; DFO will get in touch with working group member to confirm

At this early stage, it was determined that monitors will be selected by the Working Groups. For test netting, notices will be posted in the communities for applications, from which Working Group members will choose successful candidates.

#### **5. CONCLUSIONS**

---

The Tariuq (Ocean) Monitoring Program plan is to start small and build upon successes. It is anticipated that the program will expand to include more indicators and different seasons. A second indicators workshop is planned for 2002.

## APPENDIX A: AGENDA

---

### AGENDA

#### Marine Environmental Quality (MEQ) Indicators Workshop

#### Tuktoyaktuk and Aklavik Tariuq (Ocean) Community-based Monitoring Program Aklavik, June 28, 2001

---

09:00 – 09:05	Opening prayer
09:05 – 09:45	Introduction: <ul style="list-style-type: none"><li>▪ Objectives of workshop</li><li>▪ Introduction to the Tariuq (Ocean) monitoring program</li></ul>
09:45-10:15	Review of concerns expressed in Aklavik and Tuktoyaktuk workshops <ul style="list-style-type: none"><li>▪ Updating of concerns for both communities</li></ul>
10:15- 10:30	Refreshment break
10:30- 10:45	What is an indicator – overview
10:45-11:15	DFO <ul style="list-style-type: none"><li>▪ ongoing monitoring programs and potential linkages with Tariuq monitoring program</li></ul>
11:15-11:35	General indicators suggested by other monitoring programs (EMAN-N, Arctic Borderlands Ecological Knowledge Co-op, GLOBE and MVCIMP)
11:35-12:00	Types of indicators that we could use for community monitoring
12:00-1:00	Lunch – provided
1:00-1:15	Instructions for break-out groups
1:15-2:45	Break-out groups <ul style="list-style-type: none"><li>▪ Discuss monitoring program for your community</li></ul>
2:45-3:00	Refreshment break
3:00-4:00	General forum: <ul style="list-style-type: none"><li>▪ Discuss results of break-out groups</li><li>▪ Priority list of indicators to begin this year</li></ul>
4:00	Wrap-up

## APPENDIX B: WORKSHOP PARTICIPANTS

---

Donald Aviugana	Aklavik HTC and Inuvialuit Elders Committee
Jacob Archie	Inuvialuit Elders Committee
Danny A. Gordon	Aklavik HTC
Annie B. Gordon	Inuvialuit Elders Committee
Catherine Semple	Gwich'in Elders Committee
Virgil Firth	Gwich'in Youth Committee
Daryn Archie	Inuvialuit Youth Committee
Charlie Archie	Inuvialuit Youth Committee
David Edwards	Gwich'in Renewable Resources Council
Dennis Arey	Aklavik HTC
James MacDonald	Gwich'in Renewable Resources Council
Louisa Kalinek	Inuvialuit Elders Committee
Phillip Ross	Gwich'in Renewable Resources Council Youth
Danny Greenland	Gwich'in Renewable Resources Council Youth
Fanny Greenland	Gwich'in Renewable Resources Council
Jimmy Komeak	Tuktoyaktuk Elders Committee
Rex Cockney	Tuktoyaktuk Community Corporation
Fred Wolki	Tuktoyaktuk Elders Committee
Christopher Felix	Tuktoyaktuk HTC
Diandra Raddi	Tuktoyaktuk Youth Committee
Enoch Pokiak	Tuktoyaktuk HTC
Patrice Stuart	Tuktoyaktuk Youth Committee
Randall Pokiak	Tuktoyaktuk HTC
Gary Edwards	Gwich'in Renewable Resources Council
Lorraine Seale	DIAND – Mackenzie Valley Cumulative Impact Program
Peter Hardy	GLOBE
Allen Firth	Gwich'in Renewable Resources Board, Inuvik
Joan Eamer	EMAN-N, Arctic Borderlands Co-op
Doug Chiperzak	ISR Oceans Program Coordinator, DFO
Don Cobb	Marine Environmental Quality Coordinator, DFO
Sara Eddy	Coastal Inventory Resource Analyst, DFO
Marlene Bailey	Integrated Management Resource Person, DFO

## **APPENDIX C: TARIUQ (OCEAN) INDICATORS WORKSHOP BUDGET**

<b>Item</b>	<b>Cost</b>
<b>Hall Rental:</b>	<b>\$250.00</b>
▪ Aklavik Hamlet Council Chambers	\$250.00
<b>Catering:</b>	<b>\$250.00</b>
▪ Lunch, coffee and snacks morning and afternoon	\$250.00
<b>Miscellaneous</b>	<b>\$402.02</b>
▪ Juice and Pop	\$42.02
▪ GRRB Administration Fee	\$130.50
▪ Aklavik HTC Administration Fee	\$67.50
▪ Inuvialuit Elders Committee Administration Fee	\$67.50
▪ Tuktoyaktuk Community Corporation Administration Fee	\$94.50
<b>Transportation:</b>	<b>\$2,592.79</b>
▪ Air: Inuvik to Aklavik	\$1,875.71
▪ Air: Tuktoyaktuk to Aklavik	\$582.08
▪ Taxi	\$135.00
<b>Honoraria:</b>	<b>\$3,180.00</b>
▪ 17 @ \$150/day	\$2,550.00
▪ 7 @ \$90/day	\$630.00
<b>Travel:</b>	<b>\$7,600.00</b>
▪ Don Cobb and Sara Eddy	\$7,600.00
<b>TOTAL</b>	<b>\$14,274.81</b>

## **APPENDIX D: COMMENTS, QUESTIONS AND ANSWERS**

---

### **1. Discussion that took place during the workshop as one group, prior to the break-out groups.**

**Q:** Will we be tying into other international programs?

**A:** We can link to anything. There is a lot of science happening in the north and a lot of interest in this monitoring program. A lot of international programs take place in the offshore, whereas this program will focus on the coastal/inshore areas. Taken together, the offshore programs and this one will compliment each other and provide a broader picture of what is occurring in the marine environment.

**Q:** What is index netting?

**A:** Index netting is a method where nets of different mesh sizes or multi-mesh nets are set at the same places at the same time every year.

**Q:** We are still waiting to receive the information that DFO has collected in the past. Is there any change to the environment after cleaning up the DEW line?

**A:** Actually, the DEW line clean up is being done by a different department, not DFO. Not sure what, if any, monitoring is associated with the clean-up.

**Q:** In Aklavik, we have a high rate of cancer. We are still wondering where this is coming from. Is it the river?

**A:** This is a common concern. I wish I could give a better answer, but I do not know. Maybe in some way this monitoring program can help deal with this issue. Human health concerns bring in Health Canada to investigate; due to their heavy workload, this can be a long process and very frustrating.

**Q:** We work with DFO, but there are now many other environmental groups up here as well.

**A:** That is why we have invited representatives from other groups here so we can learn from them and not duplicate work that is already underway.



**Q:** When community monitors come in, how do you see them working with Lois and Sam? How do you see DFO's monitoring program interacting with the local monitors? How do you plan to have information documented and discussed at the local level?

**A:** Maybe we can add on to the existing Beluga Monitoring Program. Our intent is to work closely with the DFO area offices and with communities. Part of the role of the Tariuq (Ocean) Working Groups will be to bring information back to the community. Marlene Bailey, DFO Inuvik, will be acting as the community liaison. We cannot do monitoring independently if we want to see the whole picture.

**Q:** We can link together and come to a forum like this – the monitors can give thought to what is discussed and come back to us in the community. Environmental health is a serious business.

**A:** One thing we can do is meet again. Perhaps we can bring in our monitors and monitors from other programs to discuss.

**Q:** Will monitors be looking at offshore drilling programs?

**A:** We are going to start off small. There are monitoring programs associated with oil and gas development. We are talking with industry and trying to link our program with theirs. We are not large enough at this time to do offshore monitoring at this time. There is a monitoring program associated with seismic activity this summer; DFO has been given permission to go on board and observe.

**Q:** Sometimes DFO doesn't have enough personnel.

**A:** Industry monitoring will be done by consultants; DFO will be an observer, although they may not be present at all times.

**Q:** Are there regulations that garbage must be burned? Are there DFO regulations about sewage discharge?

**A:** There is a licencing process that DFO feeds into. There are set limits as to what garbage emissions and sewage discharge may contain.

**Q:** I am not comfortable with the word "indicator". Need simpler wording.

**A:** An indicator is a marker against which comparisons of change can be made. We monitor indicators all the time. When you are waiting for a pot to boil, you are monitoring. The annual contest Aklavik holds to guess the date of ice out is monitoring.

**Comment (DFO):** The Oceans Act provides the means to bring together information beyond DFO's traditional realm of fish and marine mammals. We can collect and include other information, even though we don't necessarily do the research.

## **2. Discussion that took place as one group, following the break-out groups.**

**Comment (Participant):** We rely on traditional knowledge, but we also need to get information from DFO – we need to know what is out there in order to protect the environment. We do not know what the whales are feeding on out in the ocean; as a result, we do not know where the important habitat areas are located.

**Response (DFO):** DFO is currently working on an ecological overview that will hopefully answer some of these questions and identify research gaps. As far as we (DFO) knows there is no plan in place to get information on the offshore environment. It can be assumed that this research will come as industry focuses on offshore areas. There is a need for more information on the offshore and the marine ecosystem as a whole. We will try to ensure that more of this information trickles down to the working groups and community members.

**Comment (DFO):** What is the best way to bring information back to the community?

**Response (Participant):** You should be targeting specific people in the communities who are interested in this information and who will share this information with other organizations.

**Question (Participant):** How does the Beaufort Sea rate in terms of productivity, as compared to other Arctic marine environments?

**Response (DFO):** The productivity of the Beaufort Sea is fairly low compared to other seas, such as the Bering Sea.

**Comment (DFO):** We need to keep a summary of all monitoring activities that are going on and share this information.

*For more information, contact:*

Marine Environmental Quality Coordinator  
Fisheries and Oceans Canada  
501 University Crescent  
Winnipeg, Manitoba  
R3T 2N6  
(204) 983-5135

ISR Program Coordinator  
Fisheries and Oceans Canada  
Suite 101 Diamond Plaza  
Yellowknife, NWT  
X1A 1E2  
(867) 669-4922