



Inside this issue:

Beluga monitoring 2

Local ecological indicators 2

Acoustics and habitat use 2

Capacity and training 3

Collaboration with universities 3

Sampling overview 3

Looking ahead 4

A successful summer of research and monitoring

Since the 1980s the Inuvialuit have collaborated with DFO and FJMC in monitoring beluga harvests in the ISR. This monitoring program has grown to represent one of the world’s longest and comprehensive monitoring programs for beluga whales.

with beluga monitors at Hendrickson Island, East Whitefish and Kendall, to collect samples for studies looking at beluga health, energy needs and lung function.

knowledge with scientific knowledge of beluga whales.

Beluga research taking place in the ISR contributes to monitoring objectives for the Tarium Niryutait Marine Protected Area (TNMPA) and the Anguniaqvia Niquyuam Area of Interest (ANAOI). This beluga programs went very well this summer, thanks to the support and participation from the FJMC, IGC and HTC’s.

Additional research projects took place to better understand beluga habitat and how belugas use the estuary during the summer. Lastly, local observations of beluga whales were collected this year in Kugmallit Bay, Kendall Island and Darnley Bay, to bridge local and traditional ecological



In more recent years there have been focused research projects located at key harvest sites to improve our understanding about belugas and their health. This year, researchers worked closely



The unusually high number of belugas hunted in Ulukhaktok this summer prompted the DFO and the FJMC to send Kate Snow to Ulukhaktok to record observations and train hunters on sampling whales. Kate interviewed 10 people and asked questions about specific beluga whale observations

and about future beluga monitoring.

The interviews portrayed a community that wants to share their knowledge and eventually be a part of the Inuvialuit Settlement Region beluga monitoring program.

Whales were observed in the Mackenzie River in September, and the location of one dead whale was given to the FJMC, which allowed samples to be collected for analysis at the DFO. These are examples of the strong partnerships that have grown between DFO, FJMC and the Inuvialuit in the ISR.

Unusual whale sightings

Monitoring and Research

Beluga monitors were stationed at Kendall Island (Kyle Conley), East Whitefish (Lawrence Angasuk), Hendrickson Island (Verna Pokiak) and Darnley Bay (Jody Illasiak and Brandon Green) did an excellent job of working with harvesters to sample belugas and record the size of whales.



Hunters in Aklavik, Ulukhaktok and Sachs Harbour collected samples and/or measurements from harvested whales through the FJMC harvester-reward program.

Comprehensive sampling efforts (see Table 1) were concentrated at East Whitefish Station and Hendrick-

son Island, with a small team at Kendall Island for selective sampling. Samples and data collected by monitors are used to understand beluga health. Measurements of the whale provide information about condition, and the teeth and eyes are used to estimate age.

Tissue samples were taken to monitor the contaminant levels, diet, and disease.

Researchers are also studying beluga diet and the potential effects of climate changes on their energetics. These studies will increase our understanding of beluga health in the context of environmental changes that are occurring in the Arctic.



Local Ecological Indicators Study

Community knowledge about beluga whales is based on generations of hunting and observing belugas. Community members from Inuvik, Paulatuk, Tuktoyaktuk, Ulukhaktok and Sachs Harbour shared their knowledge and observations about about belugas.

* Community members

recorded where belugas were observed

- * Harvesters shared their observations about harvested belugas
- * A hydrophone anchored 200 m from Hendrickson Island recorded beluga vocalizations to match observations made from

a viewing platform.

- * Community members shared how they would like to see LEK and TEK included in beluga monitoring

Community meetings and interviews will be held to fill knowledge gaps and identify local ecological indicators.



Acoustics and Habitat Study



The physical characteristics of Kugmallit Bay were studied as a continuation of research

that began in 2013. We were testing whether hot spots of beluga habitat use had physical charac-

teristics that were different than other areas in the bay.

Transects were run with side scan sonar and ediment samples were collected to obtain detailed

information about the Bay. Water samples and water chemistry data were collected in the Bay in July and August to evaluate seasonal changes. Two moorings were deployed in Kugmallit Bay to record beluga vocalizations, salinity, turbidity and water depth (i.e. tides).

Capacity and Training



We acknowledge the training and mentoring provided by Frank and Nellie Pokiak towards beluga monitoring and research in the ISR. They collected excellent quality sam-

ples for more than ten years, trained beluga monitors, and mentored researchers. Their contribution to the beluga monitoring program is greatly appreciated.

Research capacity in four communities was increased through a number of training and employment opportunities in the ISR. In total, eight Inuvialuit youth

were employed this summer and contributed to the success of the beluga programs while also learning about beluga sampling and research in the ISR. One youth from Iqaluit joined the team to learn beluga sampling. Two youth assisted DFO scientists with camp logistics at Hendrickson Island and East Whitefish, and one youth was employed in Tuktoyaktuk as a community coordinator.

Inuit from Iqaluit, Kugluktuk and Pangnirtung also travelled to beluga harvest camps for a knowledge exchange program. One hunter from Pangnirtung was hosted by John Noksana Sr. in Tuktoyaktuk, and received training on hunting, butchering, sampling and preparing beluga at Hendrickson Island. A family from Kugluktuk was hosted by Hank Rogers on Kendall.

Collaboration with Universities

Drs. Gregg Tomy and Gary Stern from the University of Manitoba collaborate with Dr. Loseto to study whether mercury and 'new' man-made contaminants are increasing or decreasing in beluga whales. The DFO collaborated with four students:

Matt Binnington (University of Toronto), Marina Piscitelli and Maria Morell (University of British Columbia) and Laura Bourque (University of Guelph). Matt is studying how beluga preparation methods can change the amount of vitamins, fat and contaminants in muktuk. Laura

and Marina studying the lungs and trachea (wind pipe), and Maria is studying the inner ears. The ear study will describe the normal ear anatomy for beluga and document any structural changes of the cochlear cells. Repeated sound exposure at a specific intensity level and frequency can cause a hearing loss. These researchers will report their results to the HTC and ARI.



DFO – FJMC Sampling Overview

Topic	Study	Tissue(s)
Age	How old was the beluga?	Jaws (teeth) and eyeballs (lenses)
Health	Did this whale have an infection, disease or abnormality that could affect its health?	Diaphragm, spleen, heart, tongue, muscle, lymph nodes, adrenal gland, thyroid gland, lung, blood
	What are beluga hormone and vitamin levels?	Blood
Contaminants	Are contaminants increasing or decreasing?	Muscle, liver, kidney, muktuk, milk, bile, urine
Diet and energy	What did this beluga eat? How much energy do belugas need to survive, reproduce and migrate?	Blubber, blood, muscle
Reproduction	Was the female pregnant? How many pregnancies did she have?	Uterus, fetus, reproductive organs

Contact Information

Lisa Loseto

Freshwater Institute, Fisheries and Oceans Canada
501 University Cres
Winnipeg, MB
R3T 2N6

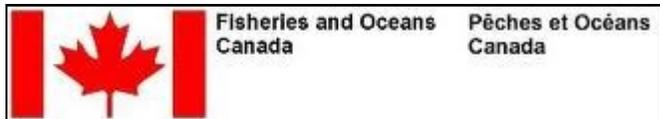
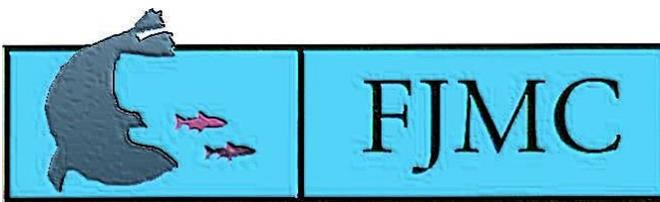
Phone: 204-983-5135

Fax: 204-984-8403

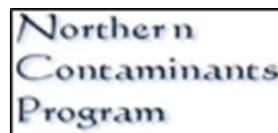
E-mail: lisa.loseto@dfo-mpo.gc.ca

The DFO takes an ecosystem based approach toward research and management. DFO and FJMC partner to address the FJMC core mandate of measuring and monitoring the ecosystem status of both the TN MPA and the Large Ocean Management Area

Visit the FJMC on Facebook



Thank you to our supporters:



Looking Forward:

Summer 2014:

Lisa Loseto presented research updates to the IGC in Whitehorse, YT.

Fall 2014: Sonja Ostertag will be leading community meetings in November, 2014 in Inuvik, Paulatuk, Tuktoyaktuk and Ulu-khaktok to report on

findings from the Local Ecological Indicators Study.

Summer 2015: Lisa Loseto's research team is planning to present their results to the communities of Tuktoyaktuk and Inuvik in the late spring/early summer.

Share your ideas:

- Attend the fall and/or winter meeting
- Talk with your local HTC Board/RP
- Contact the FJMC (867-777-2828 or on Facebook).

