



TORNGAT
**WILDLIFE
PLANTS &
FISHERIES**
SECRETARIAT

Labrador Research Forum

Park, D., Snook, J., and Whalen, J.

Torngat Wildlife, Plants and Fisheries Secretariat,
217 Hamilton River Rd., P.O. Box 2050 Stn. B
Happy Valley-Goose Bay, NL A0P 1E0

2015

**Torngat Joint Fisheries Board
Torngat Wildlife & Plants Co-Management Board
Torngat Wildlife, Plants & Fisheries Secretariat Series 2015-01**

Torngat Wildlife, Plants and Fisheries Secretariat

The primary responsibilities of the Torngat Wildlife and Plants Co-management Board and the Torngat Joint Fisheries Board are to establish total allowable harvests for non-migratory species of wildlife and for plants, recommend conservation and management measures for wildlife, plants, and habitat in the Labrador Inuit Settlement Area (LISA) and to make recommendations in relation to the conservation of species, stocks of fish, aquatic plants, fish habitat, and the management of fisheries in the Labrador Inuit Settlement Area.

The Secretariat is the implementation agent of the Torngat Joint Fisheries Board and the Torngat Wildlife and Plants Co-Management Board. The Secretariat is a team of professionals based in Happy Valley-Goose Bay that provide financial management, logistical, project management and analytical support to both boards.

Torngat Omajunik, Piguttunik Oganniaganillu Suliangit

Suliagigumajangit Torngat Omajunik, Piguttunillu AulatsiKatigengita AngajukKauKatigengit ammalu Torngat Ikajuttiget Oganniatuligijingita AngajukKauKatigengit sakKititsigiamut pijaugunnatunik katillugit aullaigatsatagiamut nokataKattangitunik omajunik ammalu piguttunik, uKautjigijajut asikKitailigiamut ammalu aulatsigiamut omajunik, piguttunik, ammalu inigiKattajanginnik Labradorimi Inuit Satusasimajanginni Nunani (LISA) ammalu uKautjigiagutunik ilingajunik asikKitailigiamut omajunik, oganniaganik, piguttunik, oganik, ammalu aulatsigiamut oganniaganik Labradorimi Inuit Satusasimajanginni Nunani.

SuliaKattet atuliaKititsigumajut kiggatuttinganik Torngat Ikajuttiget Oganniatuligijingita AngajukKauKatigenginnik ammalu Torngat Omajuligijinginnik Piguttunillu AulatsiKattajut AngajukKauKatigenginnik, sunatuinnanik, suliatsanik aulatsigiamut ammalu ikajutsitaullutik tamâginnut angajukKauKatigenut.

Tornгат Wildlife, Plants & Fisheries Secretariat Series

2015

Labrador Research Forum

Park, D., Snook, J., and Whalen, J.

Tornгат Wildlife Plants and Fisheries Secretariat
217 Hamilton River Rd., P.O. Box 2050 Station B,
Happy Valley-Goose bay, NL
A0P 1E0

Published by:
Torngat Wildlife, Plants and Fisheries Secretariat
217 Hamilton River Rd., P.O. Box 2050 Stn. B
Happy Valley-Goose bay, NL
A0P 1E0

Correct citation for this publication:

Park, D., Snook, J., and Whalen, J. (2015). Labrador Research Forum. *Torngat Wildlife, Plants and Fisheries Secretariat Ser.* 2015-01

Table of Contents

EXECUTIVE SUMMARY	7
PRESENTATIONS	9
FIRST PRESENTATION: JENNIFER MITCHELL FOLEY, TORNGAT WILDLIFE, PLANTS & FISHERIES SECRETARIAT (TWPFSS).....	9
SECOND PRESENTATION: JIM GOUDIE, NUNATSIAVUT GOVERNMENT (NG)	10
THIRD PRESENTATION: MARIE CLÉMENT, LABRADOR INSTITUTE (LI)	12
FOURTH PRESENTATION: PAUL MACDONALD, ENVIRONMENT CANADA (EC).....	13
FIFTH PRESENTATION: MARTIN LOUGHEED, TORNGAT MOUNTAINS NATIONAL PARK.....	14
POSTER SESSION	15
SEVENTH PRESENTATION: JOHN PISAPIO, NEWFOUNDLAND AND LABRADOR ENVIRONMENT AND CONSERVATION, WILDLIFE DIVISION	17
EIGHTH PRESENTATION: MARTHA ROBERTSON, FISHERIES AND OCEANS CANADA (DFO)	18
DISCUSSION TOPICS	19
FIRST TOPIC: COLLABORATION	19
SECOND TOPIC: GAPS	19
THIRD TOPIC: OVERVIEW OF EQUIPMENT AND FACILITIES	19
FOURTH TOPIC: RESEARCH COMMUNICATION	20
FIFTH TOPIC: PERMITTING PROCESSES.....	20
RECOMMENDATIONS FOR FUTURE LABRADOR RESEARCH FORUMS.....	21
ACKNOWLEDGEMENTS	21
APPENDIX A: ATTENDEES.....	22
APPENDIX B: OTHER RESEARCH STUDIES.....	24
APPENDIX C: AGENDA.....	34

Figures and tables

FIGURE 1: TWPFS PRESENTATION	10
FIGURE 2: PRESENTATION BY PAUL MACDONALD, ENVIRONMENT CANADA	14
FIGURE 3: POSTER SESSION	15
FIGURE 4: RESOLVING BIOLOGICALLY AND ECOLOGICALLY RELEVANT FEATURES FOR ECOSYSTEM MANAGEMENT OF THE COASTAL ZONE IN DATA POOR SITUATIONS – DFO	25
FIGURE 5: LAKE HABITAT OF ATLANTIC SALMON IN LABRADOR	27
FIGURE 6: FRESHWATER SPAWNING MIGRATION AND OVERWINTERING OF ADULT ATLANTIC SALMON IN TWO LABRADOR RIVERS	28
FIGURE 7: THE SHARED STORIES OF PEOPLE AND PLANTS: CULTURAL AND ECOLOGICAL RELATIONSHIPS BETWEEN PEOPLE AND PLANTS IN Makkovik	31

Executive Summary

The Torngat Wildlife Plants and Fisheries Secretariat hosted the Labrador Research Forum in Goose Bay, NL on March 3rd and 4th, 2015. The Forum was a collaborative effort led by the Torngat Secretariat and a Steering Committee of the following organizations: Nunatsiavut Government, Labrador Institute, Innu Nation, and NunatuKavut. The vision statement was “The Labrador Research Forum on Wildlife, Plants & Fisheries will provide networking and knowledge sharing opportunities amongst researchers.”

There was participation from academia and local aboriginal, federal and provincial governments. Organizations provided high-level overviews of their research programs and a poster session provided the opportunity to present research studies and network. The Forum finished with discussion surrounding the development of another forum in the future, communication strategies, and research challenges in the region.

There were several recommendations for encouraging collaboration in the region and planning the next Labrador Research Forum that include changing the time and location of the event, identifying gaps in participants, developing a research database and adding a student component.

AngajukKaunet Naillitisimajanga

Torngat Omajuligijingit Piguttunillu ammalu Ogannianimmik Sulialet katimatitsilauttut Labradorimi Kaujisagamut katimanimmik Goose Bay-mi, NL Mertz 3-mi 4-milu, 2015. Katimanik aulataulauttut Torngat SuliaKatinginnut ammalu Ikajutsijet katimajet ukunangat: Nunatsiavut kavamanga, Labrador Insitute Ilinniavitsuak, Innu Nation Allait, ammalu NunatuKavut. Takugumajaminik uKausiKasimajut “Labradorimi Kaujisannimut katimajet pitjutigillugit Omajuit, Piguttuit ammalu Oganniagait ikajuttigedlutik ammalu KaujimajatuKaminik atuKatigedlutik pivitsaujuni akungani Kaujisattet.”

IlaujuKalaukKuk pisimajumik ilinniavimmit ammalu nunalinni nunaKakKâsimajut, federal ammalu prâvinsimi kavamanit. katutjiKatiget angijummagimmik pitjutiKalauttut Kaujisadlutik suliajisimajaminik ammalu Kangatattigatsanik katimautiKadlutik pivitsaKagamut tunitjilutik Kaujisadlutik ilinniatausimajunik ammalu ikajuttigennimik. katimanik pijagelauttut uKâlautitillugit ilingajunik pivalliagamut asianik katimanimmik sivunitsatinni, Kaujimattisigiamut pannaigutininik, ammalu Kaujisadlutik uKumaittoKattajut nunalinni.

Unuttunik uKautjigiagutiKalauttut kajusimakKujidlutik ikajuttigegiamik avittusimajuni ammalu pannaigiamut kingullimik Labradorimi Kaujisagamut katimanitsamik ilautillugit asiangutillugu sitonditsanga ammalu initsanga katimanitsaup, ulinnaisillutik adjigengitunik ilauKataujunut, pivallianik Kaujisagamut katitsutaumajunik Kagitaujanut ammalu ilagiallugit ilinniajumik ilaujutsamik.

Introduction

The Torngat Wildlife Plants and Fisheries Secretariat hosted the Labrador Research Forum in Goose Bay, NL on March 3rd and 4th, 2015. The Forum was a collaborative effort led by the Torngat Secretariat and a Steering Committee of the following organizations: Nunatsiavut Government, Labrador Institute, Innu Nation, and NunatuKavut. The vision statement was “The Labrador Research Forum on Wildlife, Plants & Fisheries will provide networking and knowledge sharing opportunities amongst researchers.”

The Torngat Wildlife, Plants and Fisheries Secretariat is the implementation agent of the Torngat Joint Fisheries Board and the Torngat Wildlife & Plants Co-Management Board; a team of professionals that provide financial management, logistical, project management and analytical support. The primary responsibilities of the Torngat Joint Fisheries Board are to make recommendations in relation to the conservation of species, stocks of fish, aquatic plants, fish habitat, and the management of fisheries in the Labrador Inuit Settlement Area. The primary responsibilities of the Torngat Wildlife and Plants Co-management Board are to establish total allowable harvests for non-migratory species of wildlife and for plants and to recommend conservation and management measures for wildlife, plants, and habitat in the Labrador Inuit Settlement Area.

There was participation from academia and local aboriginal, federal and provincial governments. Organizations provided high-level overviews of their research programs and a poster session provided the opportunity to present research studies and network. The Forum finished with discussion surrounding the development of another forum in the future, communication strategies, and research challenges in the region.

Presentations

First Presentation: Jennifer Mitchell Foley, Torngat Wildlife, Plants & Fisheries Secretariat (TWPFS)

Overview: J. Mitchell Foley discussed the projects being conducted by the TWPFS:

TJFB-DFO Collaborative Post-Season Trap Survey for Snow Crab in NAFO Division 2H and 2J North (2013 & 2014)

Under the Torngat Joint Fisheries Board's research program, the Torngat Wildlife, Plants & Fisheries Secretariat have conducted a Post-Season Trap Survey in late August/September for two years in collaboration with the Department of Fisheries and Oceans. The objective of the Survey is to infer the continued health of the Nunatsiavut snow crab resource in fishing area 2HJN (Within CMA 1) by obtaining data on the recruitment, mortality and abundance of the crabs within commercially fished areas.

Fisheries Knowledge Study of Snow Crab Harvesters in NAFO Division 2H and 2J North (2013 & 2014) Under the Torngat Joint Fisheries Board's research program, the Torngat Wildlife, Plants & Fisheries Secretariat have conducted interviews with Snow Crab Harvesters north of the 54 40. The objective of the study is to gather information on the biology and distribution of fish species, perceived health of the species, community perceptions and economic importance, management systems, and potential conflicts from other ocean uses such as the oil and gas industry.

Torngat Caribou

The first systematic aerial census took place over 18 days in March, 2014. 30,689 km² were covered and the population estimate from the census was at 930 Caribou.

Commercial pilot observation Program

The secretariat is working on developing a commercial pilot observation program with respect to caribou population dynamics, this program will consist of 20-30 interviews with commercial pilots regarding observations made of caribou populations. The next phase of this project is data collection.

Polar bear traditional knowledge

The secretariat conducted 15 semi directed interviews with an interactive mapping component to gather traditional knowledge of polar bears. The program is in the final report- rough draft stage.



Figure 1: TWPFS presentation

Second Presentation: Jim Goudie, Nunatsiavut Government (NG)

Research related to plants and wildlife in Nunatsiavut

Lake Melville Research and monitoring program

This program is in place to ensure that Inuit land and waters are not compromised by the Muskrat Falls Hydroelectric project. The diets of Nunatsiavut beneficiaries were studied and hair samples tested for mercury to create a baseline study of mercury content prior to the flooding of the reservoir.

Nunatsiavummiut Land Use, knowledge and connection to place studies

This program has produced a marine mammal identification guide and prey species guide.

Torngat mountains caribou herd Inuit knowledge, culture and values study

This study drew together Inuit from Nunatsiavut and Nunavik as well as government agencies, from regional to federal levels across provincial borders. Information such as population size, food sources and known predators was gathered in this study to determine major threats to the caribou herd.

Food security work

NiKigijavut Nunatsiavutinni is one of the Food Security related projects taking place under the Sustainable Communities Initiative. This project includes Community-Led Food Assessments in 3 Nunatsiavut communities, as well as multiple research objectives relating to food access and security in Nunatsiavut. The objective of the program is to understand the level of food security in Nunatsiavut communities.

Northern Contaminants program projects

Ringed seal and arctic char have been collected and analyzed for mercury, 31 metals, persistent organic pollutants (bi-annually) and stable isotopes.

Passive air sampling is being conducted in Nain and NWR using filters to collect samples, samples are measured for mercury and persistent organic pollutants. Passive water sampling is being conducted in Nain and Saglek fjord using filters to measure for mercury and persistent organic pollutants, this is the first of its kind monitoring using a new technique developed through this project.

Questions and answers

J. Mitchell Foley (TWPFs) asked about the Going Off Going Strong Program, how many are involved in the program?

J. Goudie (NG): 10-15 people are involved and the program is year round.

J. Mitchell Foley (TWPFs): Does the NG have any research planned for polar bear?

J. Goudie (NG): It depends on what the NG are planning to do, in the process of starting more wildlife research studies.

J. Pisapio (Wildlife Div.) added that more polar studies will be discussed in the future because it is needed. He asked about the contaminants program, J. Goudie (NG) suggested he speak with Rod Laing.

M. Loughheed (Parks Canada) asked about who would conduct the polar bear survey.

J. Goudie (NG): It would depend on the budget.

Third presentation: Marie Clément, Labrador Institute (LI)

Overview of projects and the Lab Institute

Dr. Marie Clément is a research scientist working for the Marine Institute (Centre for Fisheries Ecosystems Research) and stationed at the Labrador Institute to develop a community-based aquatic research program. The overall objective of Marie's research program is to generate scientific information to assist in conservation, fisheries management and food security in Labrador. Current research projects are aiming at determining whether salmon stocks in the Lake Melville watershed are genetically distinct and should be managed as a separate designable unit; determining whether the salmon fisheries in Lake Melville are exploiting a single stock or represent a mixed stock harvest; (3) identifying important rivers contributing to salmon production and (4) developing analytical methods for quantifying contaminant levels and identifying chemical tracers in Atlantic salmon using Microwave Plasma-Atomic Emission Spectrometer (MP-AES) and Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS).

Questions and answers

F. Phillips (Torngat Wildlife and Plants Co-Management Board-TWPCB) discussed sustainable fisheries with respect to salmon and asked what is a sustainable fishery for coastal Labrador?

M. Clément (LI) responded by saying that further information is needed on the population size, and by demonstrating that the population is genetically distinct more information can be used to manage that fish population.

F. Phillips (TWPCB) asked how the rivers were chosen for salmon genetics, saying other rivers would have been better chosen.

M. Clément (LI) responded by saying that 11 tributaries known to support Atlantic salmon population were sampled. Ten additional tributaries were also visited but no salmon were captured, suggesting that all major tributaries producing salmon were sampled.

J. Pisapio (Wildlife div.) asked for an example with respect to contaminants from the muskrat falls project.

M. Clément (LI) responded that they are currently seeking baseline data regarding food consumption and mercury levels.

Fourth presentation: Paul Macdonald, Environment Canada (EC)

An overview of wildlife research and monitoring activities in Labrador

Environment Canada Canadian Wildlife Service (CWS) Goose Bay focus largely on migratory birds and species at risk. The Science and technology branch conduct research, supporting the development of environmental policy, products and services.

Recent examples of projects administered by Environment Canada's CWS include: Monitoring of common nighthawk (an at risk species), Surveying for landbirds in the practice target area, NL Boreal bird monitoring initiative, breeding bird survey, Atlantic coastal shorebird survey, eastern waterfowl survey, NAP goose banding and seabird colony monitoring in Labrador

S&T (Science and Technology branch): studying marine bird distributions in the Labrador sea and Wildlife toxicology; Mercury in lake Melville seabirds

CWS is working with Nunatsiavut on a community-based monitoring project using information obtained from birds donated to the community freezer program. The wings of the birds are used to obtain data for community level baseline information such as species, sex and age.

S&T has also conducted a seabird and marine mammal observer workshop this past year in Goose Bay to train local people in various communities through Labrador in the skills needed to aid in seabird and marine mammal observation.

Questions and comments

F. Phillips (Torngat wildlife and plants board) discussed Canada Geese. Many geese found in Labrador are from the U.S. There has been an increase of a smaller geese being found on the north coast of Labrador. He feels they are may be coming from Greenland and more research is required.



Figure 2: Presentation by Paul Macdonald, Environment Canada

Fifth presentation: Martin Lougheed, Torngat Mountains National Park

Research, Inventory and monitoring in Torngat mountains National Park

List of projects this past year (2013-14) include:

Plants and Climate Change with Memorial University, helping to determine the changes in vegetation and plant growth in response to changes in climate; Sea-bird survey of TMNP with Environment Canada; using helicopters to survey the coast and determine populations of seabirds and their ranges; Marine mammal, algae, and invertebrate sampling expedition with Arctic Kingdom, involving researchers from Canadian and American universities to determine the extent of biodiversity in the marine areas of Coast Labradors; Environmental monitoring and ecological integrity of TMNP for Parks Canada, including conducting wildlife observations of all species within the park to help determine the range, extent, and types of species of plants, birds, and wildlife including such examples as Polar Bears, Caribou, Wolves, Peregrine Falcons, Barrow's Goldeneye, Harlequin ducks, and marine mammals such as whales and seals. Dissemination of survey data from work on the Caribou Mountains Caribou herd, with knowledge from aerial surveys done in partnership with Quebec & NL, as well as gathering traditional knowledge from aboriginal users to determine the range, extent, and overall assessment of this herd.

Questions and answers

J.Pisapio (Wildlife Div.) asked if Parks Canada would publish a report on the Torngat Caribou Research Survey.

M. Lougheed (PC) responded that Parks Canada are a partner in the report by TWPFs and NG. They will not be publishing their own report.

Poster Session

The adjacent conference room was set up with posters provided by each of the presenters with information pertaining to their work. Time was allotted to browse the posters and ask questions to the researchers.



Figure 3: Poster Session

Sixth Presentation: Robert Perry, Newfoundland and Labrador Department of Environment and Conservation (NLDEC)

The Department of Environment and Conservation are working on the following projects:

The development of a centralized aquatics database and archive for Labrador

To generate models that can accurately predict distributions of fish species requires large amounts of location data. To address this need, a centralized aquatics database and archive was developed. This involved gathering old hard copy historical records from DFO and consultant reports. The data collected was combined with current records. To date 20,000 individual fish locations for Labrador have been recorded, which encompass 433 lake and river locations. Information can be used by water resources, natural resources and the mining and energy sector.

Surveys to determine species distributions throughout southern and northern Labrador

Funding provided under the Northern Strategic plan allowed many projects to be implemented in Northern Labrador with respect to species presence or absence. These projects have helped to delineate species distributions in Northern Labrador by adding to the current database, furthering the development of models.

Research on the influence of climate change and anthropogenic stressors for Northern fish populations

A study to investigate the effects of climate change on Northern fish populations is underway. Specifically, an investigation was launched to compare and contrast how cold cline species, such as the lake trout *Salvelinus namaycush*, exploited available thermal habitat deep and shallow water northern lakes. By conducting such a comparison it will be possible to ascertain and quantify the effects that climate change will have on the most vulnerable proportion of Labrador populations, those populations that exist within shallow water lakes. To perform this study three comparisons between fish populations within the deep and shallow water conditions will be conducted; fish year-class composition and abundance, overall differences in growth and differences in adaptive behaviour. Distribution of lakes in terms of bathymetry and thermal properties will be studied to quantify the potential impact that climate change will have on lake trout production, distribution and what inferences may be made for cohabiting species.

Genetics of various species located throughout Labrador

Studies to determine the origins of Labrador fish populations were undertaken to determine their effective population sizes. Effective population size infers how many fish are contributing

to the genetic make-up of a population, thereby indicating a population's vulnerability and its isolation from other populations. Species that were studied included lake trout, brook trout, longnose suckers and lake chub.

Questions and answers

M. Clément (LI) asked how long they've been doing their trout studies.

R. Perry (NLDEC): 10 years.

M. Clément (LI) asked about the arctic char program and if the program will be expanding.

R. Perry (NLDEC) responded that he is unsure but would be interested to find out more about the size and growth of the populations.

J. Pisapio (Wildlife Div.) asked about the land locked populations and how much forage space is in the freshwater part of their cycle.

R. Perry (NLDEC) said it depends on the location of the char, but is currently unsure.

M. Clément (LI) asked about effects of climate change on salmon.

R. Perry (NLDEC) said he felt that climate change was having an effect on the salmon populations.

R. Poole (DFO) asked how the otoliths were kept, ethanol or dry.

R. Perry (NLDEC) responded that the otoliths are mainly dried. Newer samples are in ethanol.

R. Poole (DFO) asked about a standardized process. If the net type and size were included for the database discussed in the presentation.

R. Perry (NLDEC): All that information is in the database.

Seventh Presentation: John Pisapio, Newfoundland and Labrador Environment and Conservation, Wildlife division

Focus: Labrador caribou herds

In Labrador, Wildlife Division leads research and monitoring programs on both migratory and sedentary caribou to help generate the information necessary to support management decisions. The Wildlife Division is conducting research on caribou population vital rates (mortality, survival, recruitment) and population demography. The Wildlife Division are conducting intensive monitoring of the George River caribou population decline. Wildlife Division and QC

provincial biologists conducted a population photo census last summer and determined the population to be 14, 200 (as of July 2014). J. Pisapio also stated that there were improvements in calf recruitment and the percentage of the large breeding males in the 2014 October classifications. I noted that while these findings are encouraging, these metrics are still well below that required for the population stabilize. The data support the requirement for the current ban on hunting of caribou. Ancillary to the caribou programs, Wildlife Division also conducts work on wolves and black bears. Further research and monitoring is currently being conducted on furbearers, species at risk, raptors, and fish communities. Wolf and black bear studies are geared towards investigating predation influence on caribou.

Questions and answers

E. Obendorfer (Phd Candidate) asked about food information from scat with respect to wolves and bears, J. Pisapio said that information could be taken and analyzed using other methods, include isotope analysis are better means of determining relative utilization of caribou and other prey items. WD is conducting such analysis with other partners.

Eighth Presentation: Martha Robertson, Fisheries and Oceans Canada (DFO)

DFO presented information on various projects being conducted in Labrador such as:

Multi-species research vessel surveys, Sentinel Survey program in Labrador, post season crab pot survey, the Gilbert Bay Marine Protected Area, cod tagging in southern Labrador, Atlantic salmon and Arctic char population monitoring, Atlantic salmon harvest genetics, Arctic char – climate variability and change, telemetry studies of Atlantic salmon and Arctic char, seal research, whale and sea turtle research, oceanography and habitat features for ecosystem management in data for coastal Labrador.

Questions and answers

J. Pisapio (Wildlife div.) asked about the battery life on cod tags

M. Robertson (DFO) responded that they last about 3 years.

Day 2: March 4th, 2015

Discussion topics

J. Whalen (TWPFS) began the day with a summary of the presentations from yesterday and discussed the topics for today's discussion.

First Topic: Collaboration

Participants discussed opportunities for collaboration in Labrador. Points that were made include:

- DFO is looking to expand their work in conservation of areas in Labrador. It is encouraged to apply for funding with existing programs.
- A search database of research projects conducted in Labrador would be helpful. Similar tools that could be used as a template or link in to include Arcticnet and the Harris center yaffle database.
- There are limitations to collaborative partnerships, there may be issues with research property, publications and intellectual property.
- Relevancy of the research to the people of Labrador is an important objective in gathering partnerships.
- Several projects were discussed that could provide opportunities for collaboration: Torngat Secretariat's marine atlas in the Labrador Sea (documenting ocean uses and ecological features), and the capelin project with M. Clément (LI).
- Collaboration may be difficult with linking research studies to the mandates of various groups.

Second Topic: Gaps

Participants suggested participants to be invited to future Labrador Research Forums:

- Labrador Hunting and Fishing Association,
- Consulting companies,
- Fish, Food and Allied Workers Union (FFAW),
- Universities, for example St. Mary's University and Trent University,
- Guardians and Wildlife Officers.

Third Topic: Overview of equipment and facilities

Participants discussed the equipment and facilities available from each respective organization:

- J. Goudie (NG): two research laboratories in Nunatsiavut, Nain Research Center has accommodations for researchers.
- M. Clément (LI): laboratory in North West River is under construction (currently installing fume hood)
- J. Mitchell Foley (TWPFS): camping equipment and modified gill nets available.
- M. Loughheed (PC): the Torngat Basecamp is well equipped and often hosts researchers.
- P. Reid (Innu Nation): experienced wildlife and forestry guardians available to help researchers, also access to accommodations and office space.

Fourth Topic: Research Communication

Participants discussed the manners in which they communicate their research to the public:

- Fisheries and Oceans Canada publishes research through peer-reviewed journals.
- Environment Canada: Research results and reports can be found online on EC website, through the Labrador Nature Atlas, and by contacting people at the local office. All results are provided to Nunatsiavut when conducted in the LISA.
- Wildlife Division: Research is available online or through links provided by employees.
- Parks Canada: research is available online or through links provided by employees.
- Nunatsiavut Government: Research is available to all Nunatsiavut beneficiaries. Research results may be requested by non-beneficiaries.
- Torngat Secretariat: Research reports are currently not available online, however, can be accessed through requests to employees. Awareness of research is conducted through facebook, twitter, website, posters and local events such as lunch and learns.

Other methods of communication include:

- M. Clément (LI) found speaking with people and creating media was the best way for her to communicate her projects.
- E. Orbendorfer (PhD candidate) added that working with youth in the community has helped her to communicate her project.

Fifth Topic: Permitting processes

- Nunatsiavut Government: information on the research permit process for research proposed in the Labrador Inuit Settlement Area (LISA) can be found online <http://nainresearchcentre.com/research-process/>
- Innu Nation: research permits questions should be directed to Richard Nuna, Manager of Environmental Programs.
- Parks Canada: permits to conduct research in Torngat Mountain National Park can be found online: <http://www.pc.gc.ca/eng/pn-np/nl/torngats/plan.aspx#rep>
- Wildlife Division: permits to conduct wildlife research, including anything that may be intrusive or working in animal habitat (e.g. caribou habitat) would fall under the Wildlife act. Bird surveys do not require permits.
- Environment Canada: SARA Permits are required for activities that could affect the listed species' or its residence. More information can be found on the SARA Public Registry at: <http://www.sararegistry.gc.ca/default.asp?lang=En&n=69E4BEBB->
- Environment Canada: Migratory Bird Permits may be required for activities, including “scientific” activities, that affect migratory birds or their residences. Permit application forms can be found at: <http://ec.gc.ca/nature/default.asp?lang=En&n=677AEBD4-1>. For additional information or to submit permit application forms, email: permi.atl@ec.gc.ca

Recommendations for Future Labrador Research Forums

Participants made suggestions for the next Labrador Research Forum:

- Change of venue, recommendations include Sheshatshiu, North West River, Nunatsiavut.
- Provide an option for video conferencing or conference call.
- The timing of the Forum may be more appropriate in April or May.
- Presentations should include the following to enhance the opportunities for collaboration: research priorities, objectives and future projects.
- Develop guidelines for presentations and topics.
- Add a student component to engage youth.
- Increase the budget to include travel allowance for key note speakers and/or students.

Acknowledgements

The Torngat Wildlife, Plants and Fisheries Secretariat would like to thank all participants for joining us in the first Labrador Research Forum. We would also like to thank the hard work of the Steering Committee for taking the time to help us organize the event. This could not have been possible without the funding support from the Torngat Joint Fisheries Board and the Torngat Wildlife & Plants Co-Management Board and the Torngat Secretariat logistics team. We look forward to a second Labrador Research Forum in the near future.

Appendix A: Attendees

Name	Organisation	Contact information
Bryn Wood	Torngat Wildlife, Plants and Fisheries Secretariat	Bryn.wood@torngatsecretariat.ca
Julie Whalen	Torngat Wildlife, Plants and Fisheries Secretariat	Julie.whalen@torngatsecretariat.ca
Jennifer Mitchell Foley	Torngat Wildlife, Plants and Fisheries Secretariat	Jennifer.mitchell@torngatsecretariat.ca
Robert Perry	Dept. Environment and Conservation NL	robperry@gov.nl.ca
Frank Phillips	Torngat Wildlife and Plants Board	
Rebecca Poole	Dept. Fisheries and Oceans	Rebecca.poole@dfo-mpo.gc.ca
Martha Robertson	Dept. Fisheries and Oceans	Martha.robertson@dfo-mpo.gc.ca
Margaret Warren	Dept. Fisheries and Oceans	Margaret.warren@dfo-mpo.gc.ca
John Pisapio	Dept. Wildlife and Conservation	johnpisapio@gov.nl.ca
Jim Goudie	Nunatsiavut Gov.	Jim_goudie@nunatsiavut.com
Doug Blake	Torngat Wildlife and Plants board	
Martin Lougheed	Parks Canada	Martin.lougheed@pc.gc.ca
Paul Macdonald	Canadian Wildlife Service	Paul.h.macdonald@ec.gc.ca

Erica Obendorfer	Phd Candidate Carleton University	ericaorberndorfer@carleton.ca
Andrea Proctor	Labrador Institute	Andrea.proctor@mi.mun.ca
Marie Clément	Labrador Institute	Marie.clement@mi.mun.ca
Melissa Abbott	Dept. Fisheries and Oceans	Melissa.abbott@dfo-mpo.gc.ca
Sebastian Piwas	Innu Wildlife guardian	
Hank Rich	Innu wildlife Guardian	

Appendix B: Other Research Studies

Name: Merline Fonkwe

Organization: Labrador Institute MUN

Email: merline.fonkwe@mun.ca

Project: Using dendrochemistry technology (the chemistry of tree rings) for environmental impact assessment and monitoring, related to mining and other human activities, and the historical reconstruction of soil and groundwater chemistry. Currently, I am using tree-ring chemistry to identify and delineate contaminated areas by various chemicals (trace elements and volatile organic compounds) as results of leakage from solid waste disposal (former landfill sites) and petroleum spills from storage sites. Summary of a research project (funded by Harris Centre of Memorial University of Newfoundland - MMSB Waste Management Applied Research Program): Landfills are an important method of organized waste disposal. Landfills inevitably generate leachate, and when that leachate is improperly managed, it pollutes nearby groundwater resources, soil, and air. This environmental pollution poses a risk to human health. Such risks necessitate careful control of spatial and temporal variations in environmental conditions during a landfill's operational lifespan and after its closure. This is necessary in a better design of waste management strategies in general, and assessment, remediation or containment plans in particular. Conventional methods (soil and groundwater sampling from borehole drilling) are expensive, time-consuming, and ecologically damaging or complex in inhabited areas, and also fail to provide a historical record of the environmental conditions, which is necessary to predict future movements of contamination. Tree-ring characterization (dendrochemistry) represents a unique tool to age-date past environmental impacts, and thus to reconstruct site's environmental history. So far in Newfoundland and Labrador, no previous study has been undertaken on the applications of dendrochemistry for detecting the contaminants in soils and aquifers, or to assess the environmental impacts associated with contamination events.

Name: Margaret Warren/Nadine Wells

Organization: Department of Fisheries and Oceans Canada – Science Branch

Email: Margaret.Warren@dfo-mpo.gc.ca

Project Title: Resolving biologically and ecologically relevant features for ecosystem management of the coastal zone in data poor situations – application to coastal Labrador Project Summary: Management of marine ecosystems requires the development and application of space-based information and analysis tools that determine and apply the appropriate analytical scales to species, habitats and ecosystems of interest. During the recent Canadian Science Advisory Secretariat (CSAS) process for the “Identification of Additional Ecologically and Biologically Significant Areas (EBSAs) within the Newfoundland and Labrador Shelves Bioregion” it became clear that the scale of analysis suitable for the offshore did not match the scale of habitats in the coastal region. In addition, the coastal region of Labrador was identified as a large data-poor area with limited, often site-specific information. In this project we have developed a set of protocols to map physical features of the coastal zone and relate them to habitat characteristics using modelling and empirical verification of predictions where data exists. This includes features such as headlands, the extent and duration of land fast ice and other areas of high productivity.

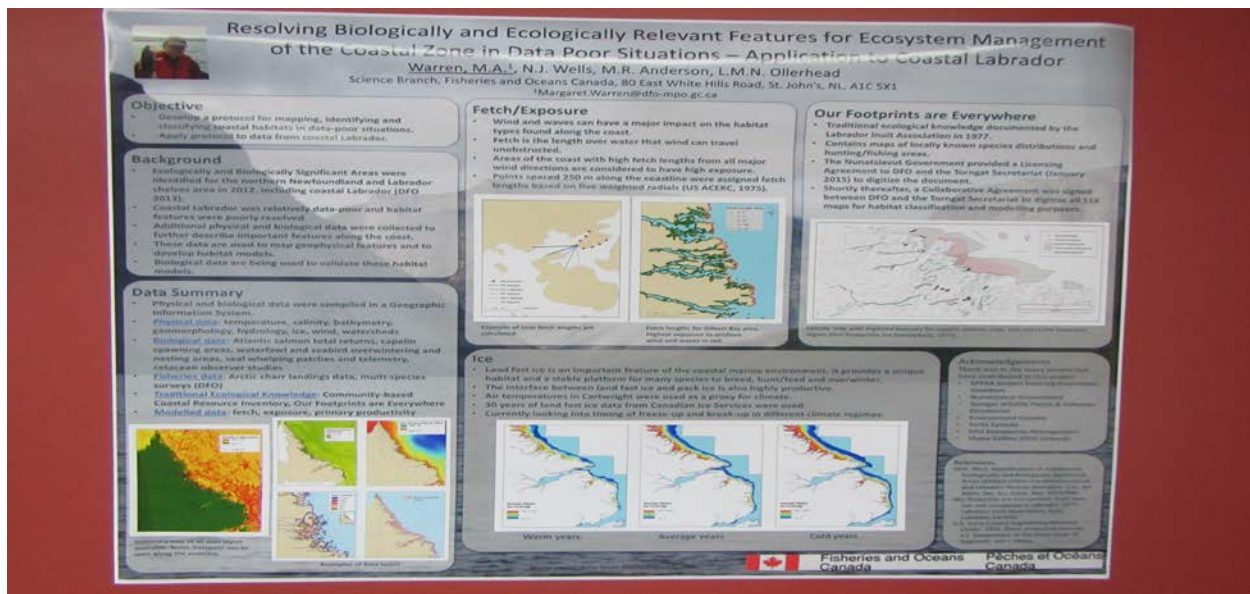


Figure 4: Resolving biologically and ecologically relevant features for ecosystem management of the coastal zone in data poor situations – DFO

Name: Donna Carroll

Organization: NunatuKavut Community Council

Email: dcarroll@nunatukavut.ca

Identifying Wolverine & Ivory Gull Presence in NCC Asserted Land Claim Area. This project purpose is to gather ATK and TEK on wolverine and ivory gull in southern Labrador. With the gathered ATK and TEK, the information is used to conduct field studies of observing, tracking, and identifying these species. This project is in effort to identify species presence and to develop a management plan to protect and conserve the current populations.

Impacts of Human Encroachment on the Woodland Caribou 2015 is the first year for this in-depth study of the Mealy Mountain caribou herd. A week long base-line observation study will record the herds' behaviour. In addition, a base-line fecal sample study will also be collected to identify hormone and genetic information of the herd.

Name: Rebecca Poole

Organization: Department of Fisheries and Oceans Canada

Email: Rebecca.poole@dfo-mpo.gc.ca

ATLANTIC SALMON PARR GROWTH BENEFITS FROM LACUSTRINE HABITAT UTILIZATION IN SOUTHERN LABRADOR Project: Atlantic salmon parr are typically known as stream dwellers, utilizing the faster flowing waters in the riffle habitat of streams. However, in studies in northern geographic regions salmon parr have been found to benefit from the utilization of lacustrine habitat. The present study was conducted on five study sites in southern Labrador, consisting of an adjacent, interconnected fluvial (river) and a lacustrine (pond/lake) habitat. Atlantic salmon parr were collected from each habitat type at each study site to investigate the influence of habitat use on nutritional status (i.e. proximate body composition and energy). The proximate body composition consists of measures in protein, lipid, ash, and moisture. Energy was obtained using a calculation of protein and lipid content. The proximate body composition differed significantly for all components by site and habitat and the energy content did not differ by site but did differ significantly by habitat. Parr utilizing lacustrine habitat had greater energy content, which is vital for overwinter survival. This study highlights the importance of the lakes and ponds that are connected within a watershed to the production and conservation of Atlantic salmon.

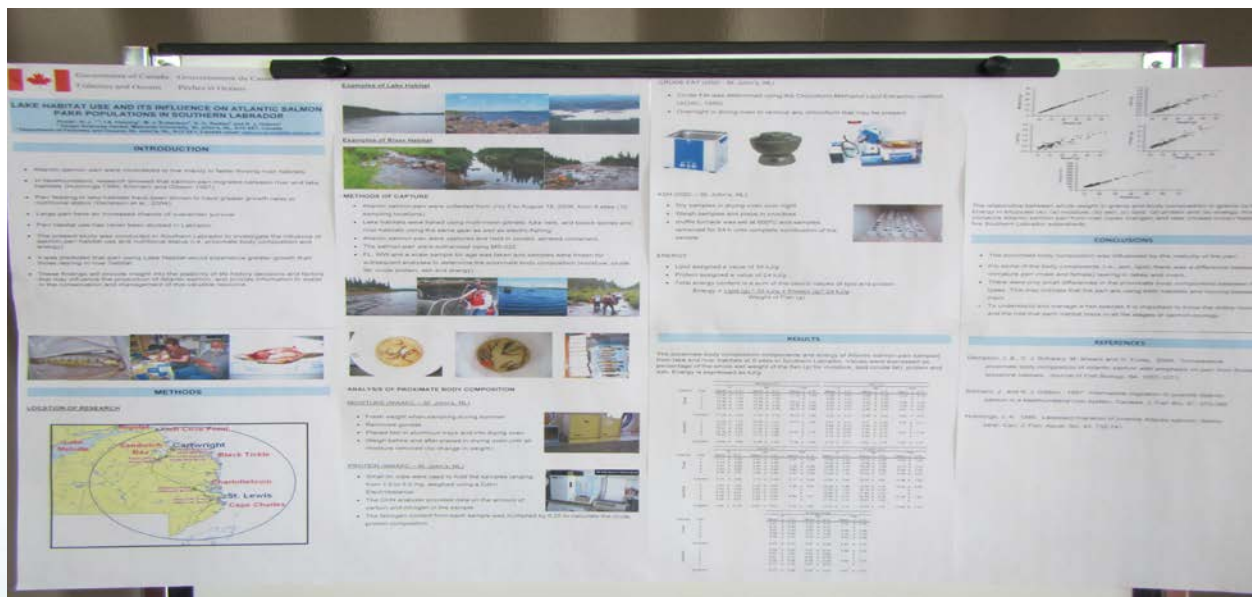


Figure 5: Lake Habitat of Atlantic salmon in Labrador

Name: Martha Robertson

Organization: Department of Fisheries and Oceans Canada

Email: Martha.Robertson@dfo-mpo.gc.ca

Project Title: SPAWNING MIGRATION AND SURVIVAL OF ATLANTIC SALMON IN TWO NORTHERN CANADIAN RIVERS Project Summary: Atlantic Salmon (*Salmo salar*) generally return to their natal rivers to spawn. Many of these fish survive, return to sea and recondition prior to subsequent spawning. Telemetry methods are being used to study freshwater migrations, spawning, and survival of Atlantic Salmon in two Labrador rivers: St. Lewis River in southern Labrador (52°26'N, 56°11'W; Drainage Area = 2590 km²) and Hunt River in northern Labrador (55°31'N, 60°42'W; Drainage Area = 2590 km²). Radio tags were applied to 20 returning salmon at St. Lewis River and 29 at Hunt River. Ten salmon tagged at St. Lewis also have acoustic tags. The modal river age of salmon was 4 years (range 3-5 years) and all small salmon (< 63 cm) were maiden one-sea-winter (1 SW). Large salmon (≥ 63 cm) were maiden two-sea-winter (2 SW) or repeat spawners (2 SW consecutive and alternate, 1 SW alternate). Tagged fish are being tracked using fixed receiver stations placed in potential spawning and overwintering areas as well as regular helicopter surveys. Results of upstream migration patterns, timing and location of spawning, movement to overwintering habitat and predominance of autumn returns to sea will be presented.



Figure 6: Freshwater spawning migration and overwintering of adult Atlantic salmon in two Labrador Rivers

Name: Sara McCarthy

Organization: Wildlife Division, NL

Email: saramccarthy@gov.nl.ca

Health Monitoring Program- George River Caribou Herd: Continuation of the 2012 hunter based health monitoring program through collection of fecal, blood, and hair samples during live caribou captures. These samples are analyzed for exposure to disease/parasites and stress/reproductive hormone concentrations. The overall goal is to identify relationships between health, stress, and reproductive success to understand possible contributions to the population trends and demographics of the George River caribou herd.

Bat Presence, Distribution, Ecology, and Demography: Annual colony counts, targeted captures and mist net surveys to document what bat species are found in Labrador, their distribution, and local ecology of maternal colonies. This research is particularly timely given the current threat that white nose syndrome poses to North American bat species and the recent listing of two of Labrador's bat species as Endangered at the federal level by COSEWIC.

Name: Erica Obendorfer

Organization: PhD candidate (Carleton University)

Email: ericaobendorfer@carleton.ca

Research focus: Cultural and ecological relationships between people and plants in Makkovik

Local research advisor: Carol Gear, Community liaison Officer, Makkovik

Project type: PhD Research

Project Start Date: Spring 2012

Research summary: During three preliminary visits in 2012/3, I spoke with Makkovimiut to better understand local research priorities on the topic of people-plant relationships. Of the many research priorities identifies, two interrelated priorities form the central focus for this project:

- Part 1. Documenting cultural plant knowledge
- Part 2. Learning more about the plants of cultural places

Part 1: The stories people tell about plants

Through discussions, workshops, and working with plants, we are documenting (audio recordings, notes, photos) the many ways that plants are present in the lives of Makkovimiut. This includes the cultural role of plants as food, medicine, and materials; but we also focus on how people care for and manage plants, as well as the attitudes that help govern people-plant relationships.

Part 2: The stories plants tell about people

We are looking at the plants of cultural places to see if past human activities have visible effects on present-day plant communities. In particular, we are looking at the plants of commercial and family fishing stations near Makkovik, to understand whether plants can help tell the story of previous cultural activities in these areas.

THE SHARED STORIES OF PEOPLE & PLANTS

Cultural and ecological relationships between people and plants in Makkovik

Erica Oberndorfer, PhD Candidate, Carleton University (Goose Bay) – erica.oberndorfer@carleton.ca



THE QUESTIONS

As of April 2014, we spoke with Makkovimuit about research priorities on the topic of people-plant relationships. This research focuses on two interrelated priorities:

The stories people tell about plants: We are documenting cultural knowledge about plants in Makkovik, including the use of plants in daily life, plant harvesting, and perspectives on caring for plants and respectful harvesting.

The stories plants tell about people: We are looking at the plant communities of fishing stations and cultural sites to see if plants can teach us about past land uses.



THE PLANTS

As of April 2014, plant experts have discussed 48 species of plants, from 45 genera and 25 plant families - additional species from this past year's work are still being reviewed. In addition to food, medicine, and materials, Makkovimuit highlight the social, aesthetic, and intrinsic value of plants; some plants have warnings and prohibitions, while others are a nuisance or are invasive species. Plants are important as landmarks and signals, and as food, habitat and medicine for animals. Unspoken rules around harvesting, sharing, and caring for plants promote both cultural and ecological values.



Aunt Annie Evans





THE PEOPLE

In Makkovik, Carol Gear is the Community Liaison Officer for this project. Guides Todd Broomfield and Sheldon Andersen, as well as Conservation Officer Errol Andersen, advise much of the ecological research. Jessica Winters is the research assistant for this project, and Joan Andersen is the project's historian. The plant experts with whom we work are Aunt Nellie Winters, Aunt Annie Evans, Aunt Ellen and Uncle Harold Andersen, Mrs Enid and Mr Charlie McNeill, Mr William and Mrs Clara Ford, Mr Jim McNeill, Mrs Mary B and Mr Tony Andersen, Mr Henry Jacque, Mr John Winters, Mr Randy Edmunds, Marilyn Faulkner, and ten anonymous plant experts. Gita Ljubicic is the academic supervisor (Carleton).




RELATED PROJECTS & NEXT STEPS

As we learn, we continue to incorporate Makkovimuit plant knowledge into programs in Makkovik. Last year, research assistant Jessica Winters developed teaching posters on plants and health for community supper, led a plants-based art program for youth, and developed a youth plant guide. We also organised an international exhibition of Makkovik sewing and craftwork.

Currently, we're reviewing transcripts, and working with data from plant ecology field work. In the year ahead, we will be writing up findings, and sharing this cumulative knowledge through a Makkovik plant guidebook.



Makkovik

NAKUMMEK THANK YOU



Figure 7: The shared stories of people and plants: cultural and ecological relationships between people and plants in Makkovik

Name: Ashlee Cunsolo Willox

Organization: Canada Research Chair, Determinants of Healthy Communities and Assistant Professor of Community Health, Departments of Nursing & Indigenous Studies, Cape Breton University

Email: ashlee_cunsolowilcox@cbu.ca

Inuit Mental Health & Adaptation to Climate Change (2012-2014)

- Project Lead: Rigolet Inuit Community Government
 - Partners: Inuit Community Governments of Makkovik, Postville, Hopedale, & Nain; the Department of Health & Social Development (Michele Wood); and the 'My Word': Storytelling & Digital Media Lab (Inez Shiwak)
 - Principal Investigator: Ashlee Cunsolo Willox
 - Funders: Health Canada and the Nasivvik Centre for Inuit Health & Changing Environments
- Anthropogenic climate change and the associated changes in weather, temperature, snow, and ice are causing increasing disruptions to the lives, livelihoods, and health and well-being of Inuit across Canada. Emerging evidence indicates that climate change and associated environmental degradation are also causing impacts to mental health. These climate-sensitive mental health impacts are expected to be widespread, cumulative, and unequally distributed. Recognizing this, the five Inuit Community Governments of Nunatsiavut, Labrador, Canada conducted a regional study on the impacts of climate change on mental health. This research followed a community-based and community-led participatory framework, premised on EcoHealth approaches. Data were gathered through 120 in-depth interviews conducted by local research coordinators and 18 digital stories created by Inuit in the region. Participants reported that changes in climate and environment, and the resulting disruption to land activities, were a threat to mental health and well-being, and led to: intense emotional reactions associated with loss of activities, identity, and sense of place (grief, mourning, anxiety, stress, distress); real and potential increases in consumption of drugs and alcohol; potential increases in suicide ideation; and potential to aggravate acute anxiety disorders and major depression. Climate change was also reported to act as a magnifier for other forms of stress and distress and to highlight socio-economic inequalities, leading to further negative ramifications for mental health and well-being. These findings contribute to the emerging research on climate change and mental health in the North and globally, and provide a regional perspective and baseline of potential pathways through which climate change may continue to impact on mental health and well-being.

- Project Lead: Rigolet Inuit Community Government
 - Partners: Inuit Community Governments of Makkovik and Postville, the Department of Health & Social Development (Michele Wood), and the 'My Word': Storytelling & Digital Media Lab (Inez Shiwak)
 - Principal Investigator: Ashlee Cunsolo Willox
 - Funders: Health Canada, Nasivvik Centre for Inuit Health & Changing Environments, and the Children & Youth in Challenging Contexts Network
- Inuit populations are at the frontlines of climate change and, due to continued reliance on the land for sustenance and wellbeing, already-present health disparities, and difficulty accessing health-sustaining resources, are often susceptible to resulting impacts to physical and mental health and wellbeing. When combined with other stressors from changes in governance structures, economies, and social structures, as well as the intergenerational impacts of colonialism, there are further potential impacts on cultural continuity, knowledge exchange, and individual and community resilience. Understanding these needs, communities across the North are proactively finding ways to maintain cultural values, foster livelihoods, and promote resilience to change. For example, responding to these stressors and community needs and building from previous research conducted in the region that found that youth and middle-aged adults are particularly susceptible to the mental health impacts of climate change, the Inuit Community Governments of Rigolet, Makkovik, and Postville, Nunatsiavut, Labrador designed and piloted the IlikKuset-Ilingannet!/Culture-Connect! Program. This program ran from October 2013 to March 2014 and united 5 youth with 5 adult mentors in each community to learn cultural skills—hunting, trapping, food preparation, snowshoe-making, music, carving, art, and sewing—in order to assist both youth and adults in connecting together in a positive and health-promoting environment dedicated to knowledge transmission and cultural skills development and preservation. Evaluation research conducted with 40 youth, mentors, and key stakeholders in the region found that participating in the IlikKuset-Ilingannet! program increased confidence and self-worth among the youth and mentors; created new and/or enhanced relationships between and among the youth and mentors; revitalized cultural pride among youth and mentors; supported skills training and development; and showed promise as a strategy for supporting youth and mentor resilience, mental health, and adaptive capacities in the short and long term. Research indicated that cultural mentorship programs linking youth and adults together may have the potential to enhance and expand mental health, build adaptive capacities and youth resilience, and increase knowledge transfer among generations to promote sustainability in health and culture within the context of rapid change.

Appendix C: Agenda

Day 1: Labrador Research Forum

9:00	Welcome and Opening Remarks <ul style="list-style-type: none"> • Overview • Purpose • Round Table introductions 	Facilitator
9:30	Presentations (20 min) X3 <ul style="list-style-type: none"> • Torngat Secretariat • Nunatsiavut Government • MUN Aquatic Research Program 	TBD TBD Marie Clement
10:30	Break	
10:45	Presentations (20min) X4 <ul style="list-style-type: none"> • Innu Nation • NunatuKavut • Environment Canada • Torngat Mountains National Park 	TBD TBD Paul MacDonald Martin Loughheed
12:00	Lunch	
1:30	Poster Session	
3:00	Presentations (20min) X2 <ul style="list-style-type: none"> • Wildlife Division • DFO 	John Pisapio Martha Robertson
3:40	Open Discussion/Closing Remarks	

Day 2: Labrador Research Forum

9:00	Welcome and Opening Remarks <ul style="list-style-type: none">• Recap & introductions	
9:15	Discussion	
10:30	Break	
10:45	Report Back	
11:10	Discussion/ Action Items/ Next Steps	
12:00	Adjournment/Closing remarks	