CanNorth
Canada North Environmental Services
Limited Partnership

EASTERN ATHABASCA REGIONAL MONITORING PROGRAM 2013/2014 COMMUNITY REPORT

Final Report

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EXECUTIVE SUMMARY

The Eastern Athabasca Regional Monitoring Program (EARMP) was established in 2011 under the Province of Saskatchewan's Boreal Watershed Initiative. The EARMP community program was established to monitor the safety of traditionally harvested country foods by collecting and testing representative water, fish, berry, and mammal chemistry from the seven communities located in the region. Harvesting and eating traditional country foods (berries, fish, and wild game) are an important part of the culture in northern Saskatchewan and contribute to an overall healthy lifestyle through physical activity and healthy eating. The intent of the EARMP community program is to provide confidence to community members that their traditional country foods remain safe to eat today and for future generations.

The 2013 EARMP community sampling program included testing water, berries, fish, moose, barren-ground caribou, and snowshoe hare collected independently by, or with the aid of, community members from Black Lake, Camsell Portage, Fond du Lac Denesuline First Nation, Stony Rapids, Uranium City, Wollaston Lake, and Hatchet Lake Denesuline First Nation. The evaluation of the country foods data shows that most chemical concentrations are below available guidelines, similar to concentrations expected for the region, and similar to the established 2011/2012 baseline data.

In addition to the regular EARMP community program, CanNorth conducted a nutritional analysis of wild foods from northern Saskatchewan in collaboration with Dr. James Irvine and Brian Quinn of the Northern Saskatchewan Population Health Unit in La Ronge. The resulting data indicate that northern Saskatchewan caribou, moose, rabbit, and fish are low-calorie, nutrient-dense, healthy servings of meat and meat alternatives. Furthermore, compared to other meat, they have higher levels of Omega-3 fatty acids and lower amounts of saturated fat. The northern Saskatchewan fish are also a great source of Vitamin D.

1.0 INTRODUCTION

1.1 Background

The Eastern Athabasca Regional Monitoring Program (EARMP) is a joint, long-term environmental monitoring program established in 2011 under the Province of Saskatchewan's Boreal Watershed Initiative. The program is supported by contributions from several stakeholders including Cameco Corporation, AREVA Resources Canada Inc., and the Saskatchewan Ministry of Environment. One of the primary goals of the Boreal Watershed Initiative is to assess the ecological integrity of Saskatchewan's northern watersheds in order to address potential environmental concerns and to identify sustainable management practices in the region. The EARMP was designed to identify potential cumulative effects downstream of uranium mining and milling operations in the Eastern Athabasca region of northern Saskatchewan (Figure 1).

Cumulative effects are defined as impacts on the environment that result from the incremental impact of an action when added to other past, present, and foreseeable future actions (Joint Panel 1992). Cumulative effects might occur when projects overlap spatially, such as when two watersheds exposed to uranium mining and milling activities converge. Cumulative effects may also occur temporally if contaminants are emitted into the environment over extended periods of time. The EARMP was developed to establish baseline conditions and facilitate the examination of spatial and temporal changes over the long term.

Extensive amounts of environmental monitoring are completed near each uranium mining and milling operation in northern Saskatchewan. The operations are regulated by both federal and provincial agencies including Environment Canada, the Canadian Nuclear Safety Commission, and the Saskatchewan Ministry of Environment. In addition, regional sampling occurs through the Athabasca Working Group (AWG) Environmental Monitoring Program, which started in 2000. The EARMP was designed to complement other monitoring programs and allows a more comprehensive evaluation of potential cumulative effects from industry in northern Saskatchewan.

The EARMP framework includes two programs: a community program and a technical program. The technical program was established to monitor potential long-term changes in the aquatic environment far far-field downstream of uranium mining and milling operations in the Eastern Athabasca region. Information from the technical program is

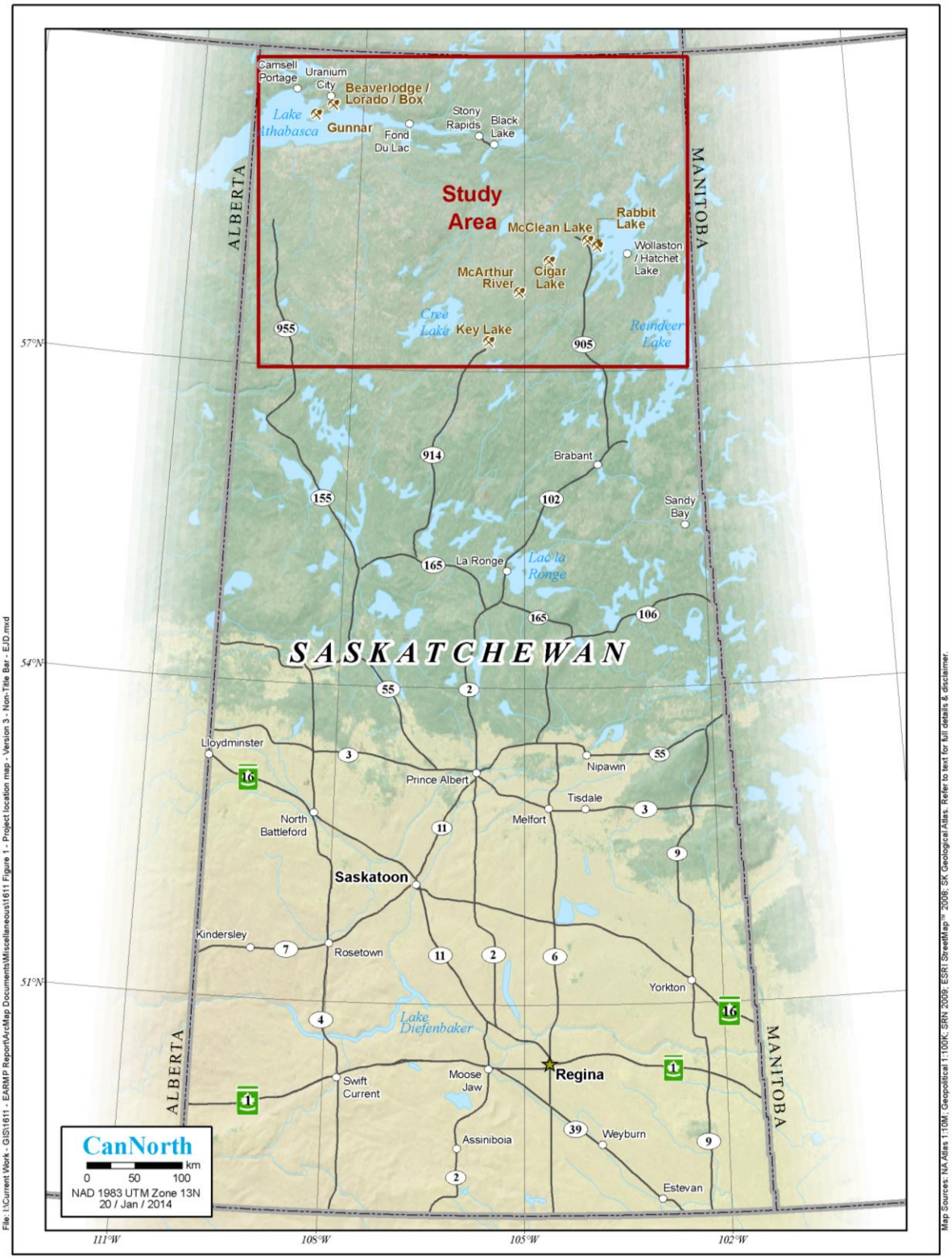

Figure 1.

Study location.

presented in a separate report. The community program was established to monitor the safety of traditionally harvested country foods by collecting and testing water, fish, berry, and mammal samples from the seven communities located in the Eastern Athabasca region. The objective of this document is to discuss the study design and results of the 2013/2014 EARMP community program.

1.1.1 Uranium Mining and Milling Operations in the Region

There are five active uranium mines in the Eastern Athabasca region. These include Key Lake, McArthur River, McClean Lake, Rabbit Lake, and Cigar Lake. In addition, other decommissioned and/or abandoned uranium mine sites are located within the region and near the community of Uranium City. The locations of these uranium mining and milling operations are presented in Figure 2. Extensive monitoring in the local study areas generally includes testing the air, soil, vegetation, water, sediment, benthic invertebrates, and fish (EcoMetrix 2010a, 2010b; SENES 2010, 2012; AREVA 2012). These sampling programs are designed specifically for each mine and are a requirement under the provincial operating licence. Summary descriptions of each site are provided in APPENDIX A.

1.1.2 Communities in the Region

There are seven communities in the region, including Black Lake, Fond du Lac Denesuline First Nation, Stony Rapids, Wollaston Lake, Hatchet Lake Denesuline First Nation, Camsell Portage, and Uranium City (Figure 2). For the EARMP community program, the communities of Wollaston Lake and Hatchet Lake Denesuline First Nation were assessed together, creating a total of six community study areas. Summary descriptions of each community are provided in APPENDIX A.

1.2 EARMP Community Program Objectives

The EARMP community program was developed to address potential concerns about the safety of country foods that community members routinely consume. Country foods can be defined as "traditional native foods that are obtained from the land, such as wild game, birds, fish, and berries by local residents during subsistence hunting and gathering" (Peace-Athabasca Delta Group Project 1972). Country food studies in Hatchet Lake and

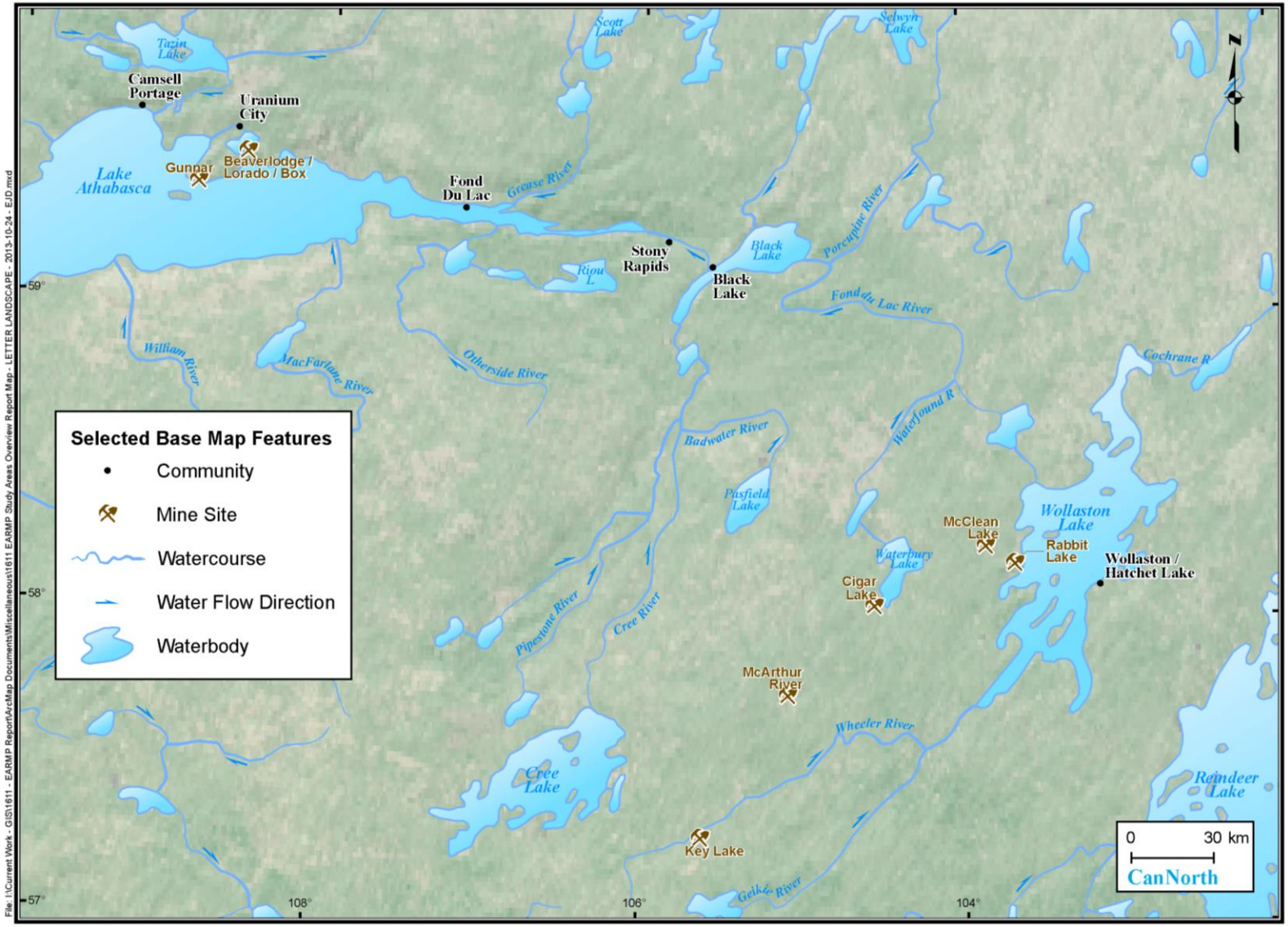

Figure 2.
Study area overview.

Uranium City have established that fish, berries, and wild game are important food sources for communities located in northern Saskatchewan (CanNorth 1999, 2011). In this way, the EARMP community program provides important information to the residents of northern Saskatchewan. Additional information on the use of country foods in northern Saskatchewan and the health benefits associated their consumption is provided in APPENDIX A.

The EARMP community monitoring program objectives are to:

1. determine the safety of traditionally harvested food for local consumption;
2. establish long-term monitoring at community sampling areas to assess variability and potential changes over time;
3. build mutually beneficial relationships as well as engage and involve community members in the gathering of information for the program; and,
4. communicate monitoring results to community members and other stakeholders through reporting, public media, and meetings.

1.3 Summary of EARMP Community Program Framework

1.3.1 Community Involvement

The community monitoring program relies on the participation of community members for the selection of sampling locations and sample collection. Prior to commencing the fieldwork in the summer of 2011, notices describing a new environmental monitoring program were distributed to the band chief/mayor and council for distribution and discussion within each community. The purpose of the notices was to invite community members to select representatives from each community to carry out the country foods sampling for the EARMP. Community members were selected from each community and provided training in the collection and shipping procedures for the EARMP community sampling program.

The collection of country food samples is carried out in one of two ways: either independently by the community member or in conjunction with a representative of CanNorth, who is responsible for the management of the program. The sampling locations within each community were established during the field training session when physical variables such as water depth, fishing locations, and berry patches could be determined.

1.3.2 Study Design and Objectives of the 2013 Program

The specific objective of the 2013/2014 EARMP community monitoring program is to determine the safety of traditionally harvested foods by monitoring foods gathered from areas selected by each community from the summer 2013 to the winter of 2014 and comparing them to the baseline established during the previous two sampling years (2011/2012 and 2012/2013) to monitor for potential changes over time.

Consistent with the baseline monitoring years, samples of water, fish (lake trout and lake whitefish[1]), blueberry[2], and ungulates (moose and/or barren ground caribou) were collected from each of the six EARMP community sampling areas in 2013 and early 2014. In addition, a few snowshoe hare samples were submitted from both Uranium City (two samples) and Camsell Portage (three samples) as the targeted samples size of five ungulates was not achieved. As discussed above, sample selection and collection was completed directly by, or with the assistance of, community residents. Although a full suite of chemical parameters were measured for each sample, this report focused on a smaller list of chemicals[3], which have been identified as the chemicals of most interest for uranium operations by regulatory agencies, environmental assessments, as well as other monitoring programs. Table 1 summarizes the reduced list of chemicals.

TABLE 1

Chemicals assessed for the EARMP community program.

Chemicals	
Aluminum	Molybdenum
Ammonia*	Nickel
Arsenic	Polonium-210
Cadmium	Radium-226
Cobalt	Selenium
Copper	Thorium-230
Iron	Uranium
Lead	Vanadium
Lead-210	Zinc
Mercury**	

*For water only.
**Mercury is not associated with uranium mining and milling operations (refer to Appendix A for more information).

[1] Northern pike samples were also collected from Uranium City in 2011and 2012 and Camsell Portage in 2012.
[2] Bog cranberry samples were also collected in 2011 and 2013 from select communities.
[3] Referred to as Constituents of Potential Concern by industry.

Chemistry results from the country foods tested in 2013/2014 were compared to available guidelines, to chemical concentrations measured in country foods collected throughout northern Saskatchewan during other monitoring programs (i.e., regional reference range), and to chemical concentrations measured as part of the baseline. Comparing the EARMP country foods results to available guidelines and regional reference data is valuable because most foods have detectable levels of environmental chemicals, but that does not mean they are a concern to human health. A full description of the data sources used for comparison is provided in APPENDIX A.

1.4 Report Structure

The EARMP community report is subdivided into six major sections:

1.0 Introduction
2.0 Water Quality
3.0 Fish Chemistry
4.0 Berry Chemistry
5.0 Mammal Chemistry
6.0 Wild Food Nutrition
7.0 Summary and Conclusions

Sections 2.0 to 5.0 provide an overall summary of the water, fish, berry, and mammal chemistry results from 2013/2014. Section 6.0 provides a brief summary of a nutritional study completed in 2014 on wild foods from northern Saskatchewan completed by the Population Health Unit in Northern Saskatchewan. Section 7.0 provides an overall conclusion about the country foods assessed in the region.

This document is streamlined so that the main text provides a summary of the most important information, with further background information and details of the analysis presented in appendices. APPENDIX A expands on the EARMP community program framework and provides detailed information on the study area, study design, and data sources. APPENDIX B presents the detailed data analyses completed on the 2013/2014 community data, while the raw data are provided in APPENDIX C. The nutritional analysis study is presented in detail in APPENDIX D.

2.0 WATER QUALITY

Surface water samples were collected by hand at one waterbody of interest near each community by community members and CanNorth field staff. Waterbodies assessed included Black Lake, Ellis Bay of Lake Athabasca near Camsell Portage, the Fond du Lac River near Fond du Lac, the Fond du Lac River near Stony Rapids, the Fredette River near Uranium City, and Welcome Bay of Wollaston Lake (Figure 3). All samples were preserved as required and kept refrigerated until chemical analysis was completed. All water samples were submitted to the Saskatchewan Research Council (SRC) analytical laboratory for chemical analysis. The detailed water quality data analysis is presented in APPENDIX B and summarized below. The raw water quality data are presented in APPENDIX C.

Concentrations of the chemicals in the water were very low, with most chemicals at levels so low the laboratory could not measure them even with the use of laboratory techniques known for their ability to measure low levels of chemicals. Chemicals that were at measurable levels were all lower than the Canadian Drinking Water Quality guidelines (HC 2012) and the Canadian Water Quality guidelines for the protection of freshwater aquatic life (CCME 2013). Additionally, chemical concentrations were within the range of concentrations expected for the region or during the baseline assessment. Table 2 summarizes the 2013 community water quality sampling program results.

TABLE 2

Summary results of the 2013 EARMP community water quality program.

Community	Below Drinking Water Guideline	Below Environmental Guideline	Within Regional Reference Range	Similar to Baseline Levels	Safe to Drink
Black Lake	✓	✓	✓	✓	Yes
Camsell Portage	✓	✓	✓	✓	Yes
Fond du Lac	✓	✓	✓	✓	Yes
Stony Rapids	✓	✓	✓	✓	Yes
Uranium City	✓	✓	✓; 1 exception	✓	Yes
Wollaston Lake/ Hatchet Lake	✓	✓	✓; 1 exception	✓	Yes

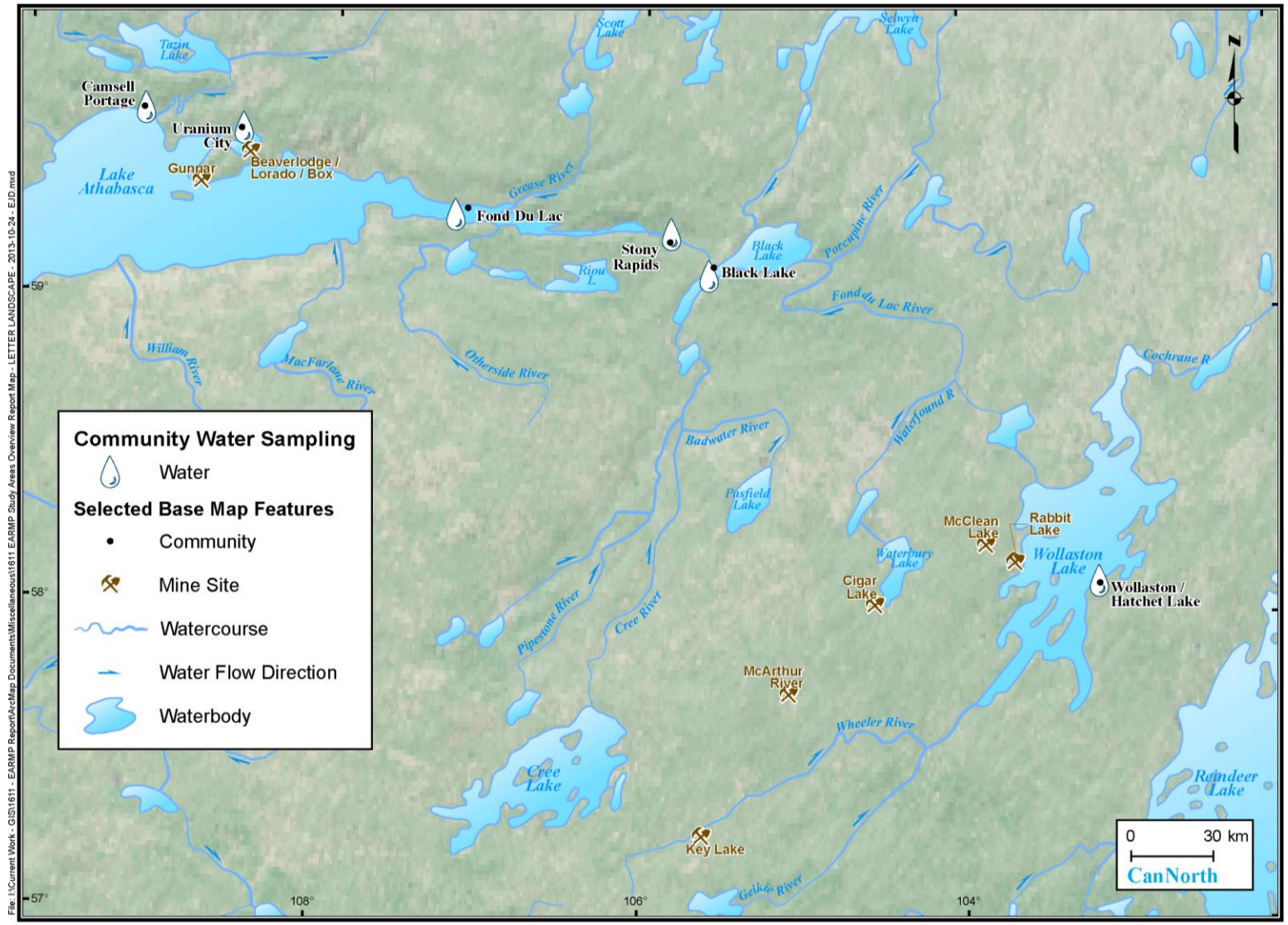

Figure 3.
Water quality sampling areas, 2011 to 2013.

3.0 FISH CHEMISTRY

Fish chemistry samples were collected by community members using overnight gill nets set at waterbodies near their communities or by angling (Figure 4.). Fish collected from each community included lake trout and lake whitefish. Five samples of each species from each of the six study areas in each year were targeted; however, this target was not always achieved (see APPENDIX B for sample sizes).

All fish collected for chemistry near the communities were frozen and shipped to CanNorth offices in Saskatoon where they were identified to species, measured (fork length) to the nearest 1 mm, weighed to the nearest 20 g, and sexed. A visual external health assessment was completed for each fish and the stomach contents were described. Ageing structures (otoliths[4] or cleithra[5]) were removed and submitted to North Shore Environmental to determine the age of the fish. The fish flesh was then submitted to SRC for chemical analysis. The detailed data analyses are presented in APPENDIX B and are summarized below. The raw fish chemistry data are provided in APPENDIX C.

Chemical concentrations in the community fish samples were often so low that the laboratory could not measure the level. This was the case for aluminum, cadmium, lead, molybdenum, nickel, uranium, lead-210, thorium-230, and vanadium in over half of the samples assessed in all of the communities. Average arsenic, mercury, and radium-226 levels at some communities were higher than the regional reference range but similar to community concentrations measured during the baseline assessment. A summary of the EARMP community program fish chemistry results is presented in TABLE 3.

TABLE 3

Summary results of the 2013 EARMP community fish chemistry program.

Community	Within Regional Reference Range	Similar to Baseline Levels	Safe to Eat
Black Lake	✓,1 exception	✓	Yes
Camsell Portage	✓,1 exception	✓	Yes
Fond du Lac	✓	✓	Yes
Stony Rapids	✓,1 exception	✓	Yes
Uranium City	✓, 1 exception	✓	Yes
Wollaston Lake/ Hatchet Lake	✓,1 exception	✓	Yes

[4]Calcified structures that fish use for balance and orientation. They can be used to age some species of fish.
[5]Paired, flat bones located beside the clavicle in the pectoral arch of some fish. They can be used to age northern pike.

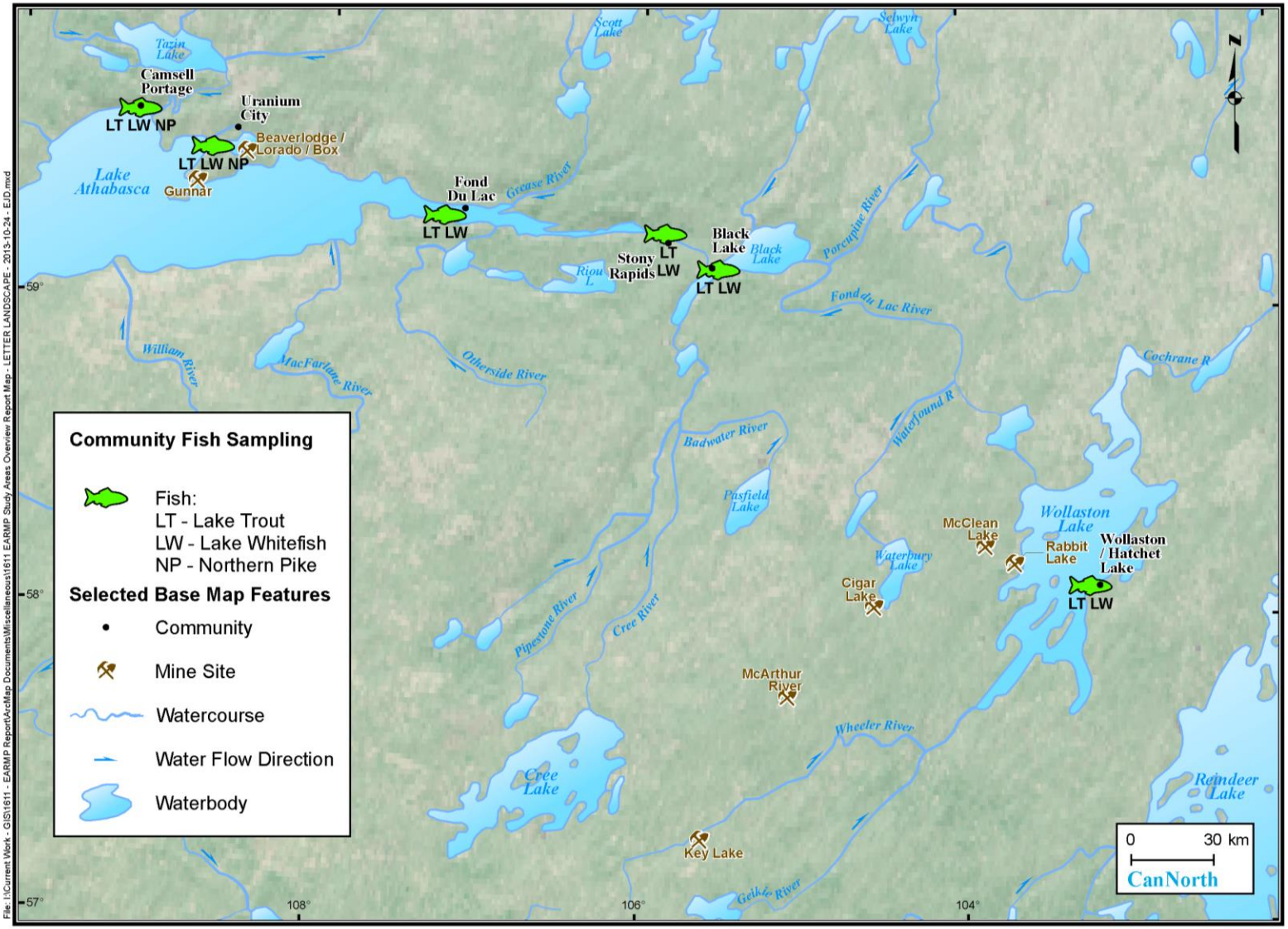

Figure 4.
Fish chemistry sampling areas, 2011 to 2013.

4.0 BERRY CHEMISTRY

Near each study community, berry samples were hand collected by local community members independently or with the aid of CanNorth personnel. Sampling was completed at five locations typically used for berry collection by community members (Figure 5.). Depending on accessibility and on current local abundance, berry species selected for collection were either blueberries or bog cranberries. All samples were double-bagged and frozen until submission to SRC for chemical analysis. The detailed data analyses are presented in APPENDIX B and are summarized below. The raw chemistry data for berries are provided in APPENDIX C.

Similar to the water and fish data, the level of chemicals in the berries were often too low for the laboratory to measure. This included levels of cadmium, selenium, uranium, thorium-230, arsenic, and vanadium which were often too low to measure in blueberries from most communities. In cranberry samples, levels of selenium, uranium, lead-210, thorium-230, arsenic, and vanadium were often too low to measure.

The only chemical of note is aluminum levels in blueberry samples from Stony Rapids. The concentrations were higher than baseline levels and the regional reference range. Aluminum is a common food additive, so a guideline on how much aluminum should be in a person's weekly diet has been established. The levels of aluminum found in the blueberries from Stony Rapids are well below this guideline, and are therefore, not a cause for immediate concern. Special attention will be made to aluminum concentrations in blueberries from this Stony Rapids sampling location in 2014.

A summary of the EARMP community program berry chemistry results is presented in TABLE 4.

TABLE 4

Summary results of the 2013 EARMP community berry chemistry program.

Community	Within the Regional Reference Range	Similar to Baseline Levels	Safe to Eat
Black Lake	✓	✓	Yes
Camsell Portage	✓	✓	Yes
Fond du Lac	✓	✓	Yes
Stony Rapids	✓, 2 exceptions	✓, 1exception	Yes
Uranium City	✓, 1exception	✓	Yes
Wollaston Lake/ Hatchet Lake	✓	✓	Yes

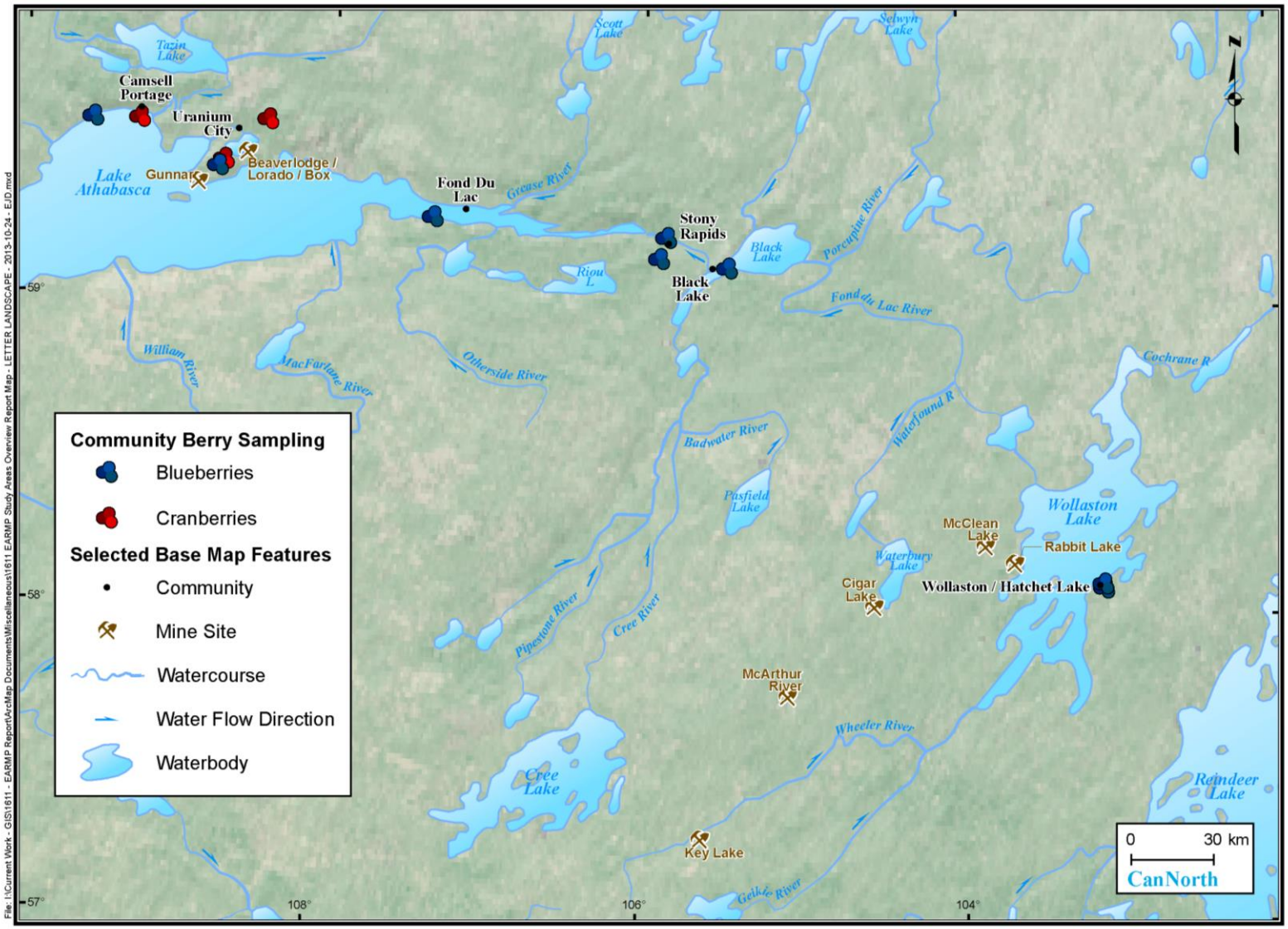

Figure 5.
Berry chemistry sampling areas, 2011 to 2013.

5.0 MAMMAL CHEMISTRY

Mammal samples were collected by local community members during their routine hunting activities. Two main species commonly hunted and consumed in northern Saskatchewan were targeted; barren-ground caribou and moose. Moose samples were collected near the communities of Uranium City and Camsell Portage (Figure 6). Although barren-ground caribou samples were collected from most communities, several communities hunt in the same general area (Figure 6).

In the winter of 2013/2014, five barren-ground caribou samples from each of Black Lake, Fond du Lac, and Wollaston Lake, while three samples were collected from Stony Rapids. In Camsell Portage and Uranium City, two and three moose samples were collected in 2013/2014, respectively. In addition, snowshoe hare samples were collected from each of Uranium City (two samples) and Camsell Portage (three samples) since the target ungulate samples size was not achieved. All samples received from the communities by CanNorth were submitted to SRC for chemical analysis. The detailed data analyses are presented in APPENDIX B and are summarized below. The raw mammal chemistry data are provided in APPENDIX C. The focus of the discussion below remains on moose and barren-ground caribou, since the available snow-shoe hare data from the communities is limited at this time. It is expected that as more snowshoe hare samples are submitted over time, a more detailed assessment of chemical concentrations in these mammals can be completed.

Concentrations of chemicals that were too low for the laboratory to measure varied slightly between the barren-ground caribou and moose meat samples. In barren-ground caribou meat, concentrations of molybdenum, uranium, lead-210, thorium-230, and vanadium were often too low for the laboratory to measure. In moose meat, the same chemicals as well as nickel and arsenic were often too low for the laboratory to measure.

The average level of cadmium in barren-ground caribou from Fond du Lac had been higher than the regional reference range during baseline monitoring years, however, in 2013/2014; the levels were well within the expected range for the region. Only the average nickel concentration in barren-ground caribou at Stony Rapids was higher than the regional reference range. To better put the 2013/2014 barren-ground caribou nickel levels into perspective, concentrations of nickel found in supermarket meat were assessed. Health Canada measured nickel concentrations in meat from supermarkets

across Canada between 2005 and 2007 (HC 2011). The average concentration in the meat was higher than what was observed in the Stony Rapids barren-ground caribou, indicating the wild meat was actually a lower source of nickel in resident's diets than what may be found at the grocery store. Overall, the 2013 mammal chemistry data show no cause for concern to EARMP community member residents (TABLE 5).

TABLE 5

Summary results of the 2013/2014 EARMP community mammal chemistry program.

Community	Within the Regional Reference Range	Similar to Baseline Assessment	Safe to Eat
Black Lake	✓	✓	Yes
Camsell Portage	✓	✓	Yes
Fond du Lac	✓	✓	Yes
Stony Rapids	✓, 1 exception	✓, 1 exception	Yes
Uranium City	✓	✓	Yes
Wollaston Lake/Hatchet Lake	✓	✓	Yes

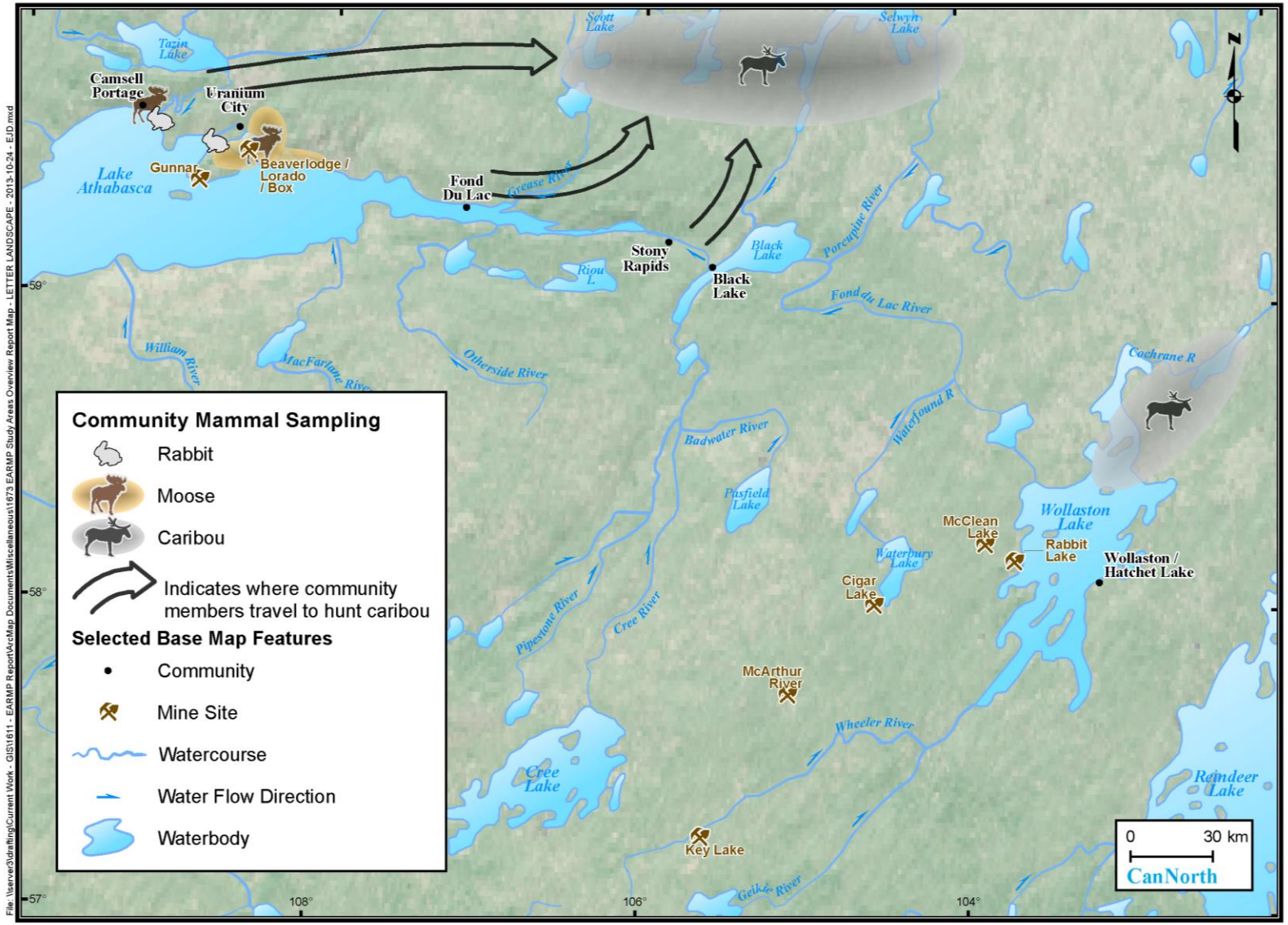

Figure 6.
Mammal chemistry sampling areas, 2011 to 2014.

6.0 WILD FOOD NUTRITION

In 2013/2014, CanNorth in collaboration with the Dr. James Irvine with the Northern Saskatchewan Population Health Unit in La Ronge conducted a nutritional analysis of wild foods from across northern Saskatchewan. Samples were collected by northern residents during their routine hunting and gathering activities in the fall of 2013 and winter of 2013/2014. All samples were then shipped to CanNorth in Saskatoon where they were labelled and frozen for future analysis. All samples collected were submitted to Interwest Sunwest Laboratory in Saskatoon for nutritional analysis. In addition four fish species sampled were also analyzed for Vitamin D analysis.

The resulting data indicate that northern Saskatchewan caribou, moose, rabbit, and fish are low-calorie, nutrient-dense, healthy servings of meat and meat alternatives. In addition, compared to other meat, they have higher levels of Omega-3 fatty acids and lower amounts of saturated fat. The northern Saskatchewan fish are also a great source of Vitamin D. A detailed assessment of the available nutritional concentrations measured in northern wild foods is presented in APPENDIX D.

7.0 SUMMARY AND CONCLUSIONS

Seven communities in northern Saskatchewan are located downstream of uranium mining and milling operations in the Eastern Athabasca region. The EARMP community program was established in 2011 to monitor the safety of traditionally harvested country foods (water, berries, fish, moose, and barren-ground caribou) in Black Lake, Camsell Portage, Fond du Lac, Stony Rapids, Uranium City, and Wollaston Lake (assessed together with Hatchet Lake). This report presents the results of the 2013 monitoring year.

The results of the evaluation of the country foods data shows that most chemical concentrations are below available guidelines, similar to concentrations expected for the region, and similar to the baseline assessment completed in 2011 and 2012. Based on the available information, chemicals in the EARMP community country foods are not a concern.

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APPENDIX A: COMMUNITY MONITORING PROGRAM FRAMEWORK

1.0 INTRODUCTION

The Eastern Athabasca Regional Monitoring Program (EARMP) is a joint, long-term environmental monitoring program established in 2011 under the Province of Saskatchewan's Boreal Watershed Initiative. The EARMP was designed to identify potential cumulative effects downstream of uranium mining and milling operations in the Eastern Athabasca region of northern Saskatchewan. It consists of two programs: a technical monitoring program and a community monitoring program. The technical program was established to monitor long-term changes in the aquatic environment far downstream of uranium mining and milling operations in the Eastern Athabasca region. The community program was established to monitor the safety of traditionally harvested country foods from the communities located in the Eastern Athabasca region.

The following document focuses entirely on the EARMP community program. The objective of the EARMP community program framework document is to provide detailed information related to the communities and mine sites located in the Eastern Athabasca region of northern Saskatchewan, the rationale for studying country foods, detailed information and rationale on the EARMP community program study design, and details of the data analyses and communication of the results.

2.0 STUDY AREA

2.1 Communities

There are seven communities in the region including Black Lake, Camsell Portage, Fond du Lac Denesuline First Nation, Hatchet Lake Denesuline First Nation/Wollaston Lake, Stony Rapids, and Uranium City. For the EARMP community program, the communities of Wollaston Lake and Hatchet Lake Denesuline First Nation were assessed together due to their close proximity to each other, creating a total of six community study areas. Provided below are brief descriptions of each community.

2.1.1 Black Lake

The community of Black Lake is situated in northern Saskatchewan's Athabasca region approximately 1,180 km northwest of Prince Albert. Access to the community is by air

to Stony Rapids and then by all-weather road approximately 20 km to Black Lake. Access to the Athabasca Seasonal Road (provincial highway 905) also lies between the two communities. The community currently maintains a total registered membership of 2,035 members, with 1,586 of those members residing on reserve and 442 members residing at locations off reserve (AANDC 2012).

The people of Black Lake initially settled at Stony Lake prior to relocating to the area currently occupied by the fishing camp on the banks of the Black Lake River. The current community of Black Lake was settled in the early 1950s after a new Roman Catholic church was constructed. The Dene language is still very strong and continues to be taught by the Elders to children and youth, both at home and within the school system. The people continue to maintain their traditional lifestyle: with hunting, fishing, and trapping very evident on a year-round basis as both commercial and private pursuits (PAGC 2008, 2012).

2.1.2 Camsell Portage

Camsell Portage is a small community located on the northern shoreline of Lake Athabasca, approximately 35 km from the community of Uranium City. It remains the most northern and isolated community in the province and is only accessible by boat in the open water season and by air year round.

Camsell Portage was settled by trappers who arrived during the 1900s from Lac La Biche, the Northwest Territories and Fort Fitzgerald, Alberta and who used it as a historical portage route to the north. During peak activities near Uranium City, Camsell Portage had a population of over 300 people (pers. comm. Philippe Steene). The population of Camsell Portage is currently 27 people. No mining activity has taken place in the area; however, currently there are operating hydroelectricity generating stations nearby the community of Camsell Portage on the Waterloo, Wellington, and Charlot River systems.

2.1.3 Fond du Lac

The community of Fond du Lac is situated on the northeast shore of Lake Athabasca in the Athabasca region of northern Saskatchewan, approximately 60 km south of the Northwest Territories border and 1,275 km northwest of Prince Albert. It currently

maintains a total registered membership of 1,842 members, with 1,045 members residing on reserve and 796 members residing at locations off reserve (AANDC 2012). Members are primarily of Dene and Cree decent. Access to the community is by seasonal ice road in the winter and by boat during the summer. Two airline companies also provide year-round access to the community.

Founded over 150 years ago, Fond du Lac is one of the oldest and most remote northern communities in Saskatchewan. During Cultural Camp, the Elders share their cultural and traditional knowledge with the youth, including demonstrations in setting traps, tent raising, fire building, snow shoe racing, and preparing and smoking dry meat (PAGC 2008, 2012).

2.1.4 Hatchet Lake/Wollaston Lake

The Hatchet Lake Denesuline First Nation and the community of Wollaston Lake are situated on the south-eastern shoreline of Wollaston Lake (known in Dene as "Axe" Lake) in the Athabasca region of northern Saskatchewan, approximately 724 km northwest of Prince Albert (PAGC 2008). The Hatchet Lake Denesuline First Nation has total of 1,659 registered members, with 1,276 residing on the reserve and 377 members residing at locations off reserve (AANDC 2012). The northern settlement of Wollaston Lake has a population of 129 (SMMA 2012). Access to Hatchet Lake and Wollaston Lake is by ice road in the winter and by barge during the open water season. Year-round access is provided by two airline companies that operate scheduled flights to and from the surrounding communities and southern Saskatchewan.

Traditionally, the people lived as a hunting and gathering society, primarily barren-ground caribou. They still follow the seasonal caribou hunting patterns today. The majority of residents are Dene; however, during the 1950s some people of Cree-Metis ancestry moved to the northern settlement of Wollaston Lake (PAGC 2012).

2.1.5 Stony Rapids

Stony Rapids is a northern hamlet in Saskatchewan with a total population of 243 residents (SC 2012). The community is located on the shoreline of the Fond du Lac River, approximately 80 km south of the border to the Northwest Territories. The Fond du Lac River connects the community of Stony Rapids to the Fond du Lac Denesuline

First Nation, Uranium City, and Camsell Portage. An all-weather road also connects the community to the Black Lake Denesuline First Nation.

2.1.6 Uranium City

The history of Uranium City area dates back to the late 1930s when uranium ore was first discovered in the area. It was not until 1952 that the town of Uranium City was established as a base for uranium mining in the Beaverlodge area. Operations at Saskatchewan's first uranium mine began in May of 1953 and continued until June of 1982, by which time rising costs and failing ore grade made it unprofitable. Within a year following the closure of the mine, Uranium City changed from a resource town of almost 2,500 inhabitants to a northern settlement with approximately 150 residents (Bone 1998). Uranium City continued to serve as the regional base for a number of services including education, health care, and the RCMP headquarters for a number of years following the mine closure. Many public institutions closed in 1983 and the hospital closed in 2003. The current population is approximately 101 residents.

2.2 Uranium Operations

There are currently five active uranium mines in the Eastern Athabasca region. These include Key Lake, McArthur River, McClean Lake, Rabbit Lake, and Cigar Lake. In addition, the decommissioned Beaverlodge uranium mine and mill site is located within the region and nearby the community of Uranium City.

2.2.1 Key Lake

Cameco Corporation's (Cameco) Key Lake Operation is located in north-central Saskatchewan approximately 570 km north of Saskatoon. Mining at the Key Lake Operation began in 1982 with open pit mining of the Gaertner orebody followed by open pit mining of the Deilmann orebody beginning in 1986. Once stockpiles from the Deilmann orebody were consumed in late 1999, the mill began processing ore from the McArthur River Operation.

2.2.2 McArthur River

The McArthur River Operation is located approximately 270 km north of La Ronge and 80 km north of the Key Lake Operation. It is currently the world's largest, high-grade uranium deposit. McArthur River has been operational since 1999 and is managed and operated by Cameco. The operation includes underground mining, processing systems, an ore handling system, and camp infrastructure. Specialized mining equipment is used to extract the high-grade uranium ore and mineralized wastes are blended with high-grade ore to produce a slurry, which is trucked to the Key Lake Operation for processing.

2.2.3 McClean Lake

The McClean Lake Operation is located approximately 15 km west of Wollaston Lake in northern Saskatchewan. AREVA Resources Canada Inc. (AREVA) is the majority owner (70%) and operator of the McClean Lake Operation. Exploration activities started in the late 1970s, environmental assessment in the early 1990s, and the initiation of mining and mill operations in 1996 and 1999, respectively. The McClean Lake Operation currently comprises of three main areas: the JEB area, which includes the permanent camp and the JEB mill and tailing management facility; the Sue mining area, which includes the mined out Sue A/C, Sue B, and Sue E pits; and the Sink/Vulture Treated Effluent Management System (S/V TEMS).

2.2.4 Rabbit Lake

The Rabbit Lake Operation, owned and operated by Cameco, is the longest-operating uranium production facility in Saskatchewan (since 1975). It is located in northeastern Saskatchewan, on the west side of Wollaston Lake approximately 350 km north of La Ronge. The Rabbit Lake Operation includes the Eagle Point underground mine, Rabbit Lake mill, four mined-out open pit mines, of which the original Rabbit Lake pit is being used as the Rabbit Lake In-Pit Tailings Management Facility (RLTMF), the Rabbit Lake Above Ground Tailings Management Facility (AGTMF), overburden stockpiles, waste rock stockpiles, effluent treatment facilities, and camp infrastructure. Currently, uranium ore is sourced from the Eagle Point underground mine and hauled to the mill for processing.

2.2.5 Cigar Lake

The Cigar Lake Operation is located approximately 80 km west of Wollaston Lake and 40 km inside the eastern margin of the Athabasca Basin region of northern Saskatchewan. The Operation involves the construction, mining operation, and eventual decommissioning of what is currently the world's second largest known high-grade uranium deposit. The Operation is currently managed and operated by Cameco. The initial discovery of the Cigar Lake uranium deposit occurred in May 1981. Following the acquisition of the construction license in December 2004, underground construction activities commenced. Site construction activities were expected to take 24 months to 36 months; however, in 2006 and 2008 the mine experienced two inflow events that caused flooding of all underground workings of the Cigar Lake Project. Cigar Lake became operational in July 2014.

2.2.6 Other Properties

The decommissioned Eldorado uranium mining and milling operation is located approximately 8 km east of Uranium City north-east of Beaverlodge Lake in northern Saskatchewan. The mine operated for almost 30 years between 1953 and 1982. Decommissioning of the site occurred from 1983 to 1985 and transition phase monitoring continues today. Upon its inception as a publicly traded company, Cameco was assigned responsibility for the management and reclamation of the decommissioned site. Post-decommissioning activities include the ongoing monitoring and maintenance of the site, regular water quality monitoring at stations within the area, and a variety of special investigations to assess specific environmental concerns.

In addition, Beaverlodge Lake is the receiving environment for the discharges from at least nine other abandoned uranium mine sites and one former uranium mill tailings area (the Lorado Uranium Mining Ltd. mill site), which are managed by the Saskatchewan Research Council (SRC). SRC is managing Project Cleans, which is also responsible for the assessment and reclamation of the Gunnar uranium mine and mill site and over 30 abandoned satellite mines in the Uranium City area.

3.0 RATIONALE FOR STUDYING COUNTRY FOODS

The uranium mining and milling operations in northern Saskatchewan complete extensive environmental monitoring that routinely test the air, soil, vegetation, water, sediment,

benthic invertebrates, and fish in their local study areas. However, these monitoring programs do not answer the question of whether country foods that are fished, hunted, or gathered near communities located downstream of multiple uranium operations are safe to eat. Since country foods, such as fish, berries, and wild game are important food sources in northern communities, the EARMP community program was developed to conduct an extensive and long-term regional sampling program testing country foods. The following section further discusses some of the uses and benefits of traditional country foods by northern residents.

3.1 Traditional Use of Country Foods

Studies conducted across Canada have documented that harvesting, sharing, and preparing traditional country foods is an important part of the Aboriginal lifestyle (Wein et al. 1991; Wein and Freeman 1995; Kuhnlein and Receveur 1996; Receveur et al. 1997; AFN 2007). Traditional country food studies conducted in Hatchet Lake and Uranium City established that fish, berries, and wild game are important food sources for communities located in northern Saskatchewan (CanNorth 1999, 2011).

Studies in northern Saskatchewan have indicated that Hatchet Lake residents have a strong dependence on barren-ground caribou meat (especially during the winter months) whereas Uranium City residents rely more on moose and birds (CanNorth 1999, 2011). Uranium City residents have comparable meat/bird (grams per day) consumption values to the residents from similar regions such as Fort Smith, Northwest Territories and Fort Chipewyan, Alberta (CanNorth 2011). The more frequent caribou meat consumption in Hatchet Lake may be explained by availability, cultural differences, and/or preference of Hatchet Lake residents for caribou. A number of factors play a role in the differences in consumption patterns such as population size, road access, proximity to animal migration routes, presence of hunters, trappers, or fishermen, age and gender, costs and availability of market foods, and access to transportation with the south (Wein et al. 1991; Blanchet et al. 2000; Batal et al. 2005).

3.2 Health Benefits of Traditional Country Foods

Harvesting and consuming traditional foods are integral components of good health among Aboriginal people, influencing both physical health and social well-being. The act of hunting and gathering traditional foods is an important aspect of physical activity.

Hunting, fishing, and berry picking also provides socio-cultural benefits to community members including mental health, cultural identity, and morale (AFN 2007). Gathering and eating traditional country foods can help reduce the risk of diabetes, heart disease, and obesity, especially when the foods are cooked in traditional ways (PHU AHA 2005).

Several health benefits of consuming traditional country foods have been documented across northern Canada. Fish are an important part of a healthy diet containing high-quality protein, Vitamin B, omega-3 fatty acids, other essential nutrients, and low amounts of saturated fats (NWT 2011). Fatty fish, such as lake trout, are especially high in omega 3 fatty acids and are considered important for heart health and brain and eye development. Additionally, fish eggs are an excellent source of protein, Vitamin C, B vitamins, and iron (NWT 2002; NWT 2011). The skin of the fish and soups cooked with fish head and bones are good sources of calcium (Receveur et al. 1997; NWT 2011).

Wild game such as moose and caribou are an important source of vitamins, minerals, and protein and have less saturated fats than store bought meats (PHU AHA 2005). The fat content of barren-ground caribou meat is very low (1%) compared to beef, pork, or poultry (12% to 40%) (NWT 2002). Wild game are also high in essential nutrients such as iron, zinc, copper, magnesium, and phosphorous (Kuhnlein et al 1995; Receveur et al. 1997). Soups and/or stews cooked with bones for broth are high in calcium (Receveur et al. 1997), while many organ meats including liver contain high levels of iron needed for healthy blood and Vitamin A needed for healthy bones, skin, and teeth (HWC 1987; NWT 2002).

Traditional plants such as cranberries, blueberries, and Labrador tea are often used in both food and medicine (CanNorth 1999, 2011) and may potentially offer benefits through diet. Wild plants are excellent sources of Vitamin C, fibre, and carbohydrates (Johnson et al. 1995; NWT 2002). For example, rose hips, consumed by many First Nations in a variety of medicinal and food preparations, are high in Vitamin C and demonstrate antibacterial and antioxidant properties (Yi et al. 2007).

3.3 Canada Food Guide – First Nations, Inuit, and Métis

In 2007, Health Canada introduced a newly tailored Canada Food Guide *"Eating Well with Canada's Food Guide - First Nations, Inuit and Métis" (HC 2007)* that includes both traditional country foods and store-bought foods that are generally available and

accessible across Canada. This tailored food guide has recommendations for healthy eating based on science and recognizes the importance of traditional/country and store-bought foods for First Nations, Inuit, and Métis today. In addition, the government of Northwest Territories (NWT 2005) has also established a food guide that is tailored towards traditional country foods. Both the Canada Food Guide and the Northwest Territories Food Guide contain recommendations on the number of servings[6] (grams per day) of wild meats, birds, plants, fish, and other staples such as bannock, wild rice, and traditional fats.

Choosing the amount and type of food recommended in Canada's Food Guide will help:

- children and teens grow and thrive;
- meet needs for vitamins, minerals, and other nutrients; and,
- lower risk of obesity, type 2 diabetes, heart disease, certain types of cancer, and, osteoporosis (weak and brittle bones).

For more information on Canada's Food Guide please visit www.healthcanada.gc.ca/foodguide or *"Eating Well with Canada's Food Guide - First Nations, Inuit and Métis"* http://www.hc-sc.gc.ca/fn-an/pubs/fnim-pnim/index-eng.php. For more information on the Northwest Territories Food guide please visit http://www.hss.gov.nt.ca/publications/posters-flyers/nwt-food-guide.

4.0 STUDY DESIGN AND OBJECTIVES

The EARMP community monitoring program objectives are to:

1. determine the safety of traditionally harvested food for local consumption;
2. establish long-term monitoring at community sampling areas to assess variability and potential changes over time;
3. build mutually beneficial relationships and engage and involve community members in the gathering of information for the program; and,

[6] It should be noted that the food guide serving size for meat and alternatives has decreased over time and each serving size recommended is 75 g, which is likely less than what most people consider a serving size. For this study, actual intake amounts were used from the area to complete the Human Health Risk Assessment.

4. communicate monitoring results to community members and other stakeholders through reporting, public media, and meetings.

The 2011/2012 and 2012/2013 data were used to establish baseline/current conditions for each species sampled in each community area. Each subsequent monitoring year's data will be compared to this baseline in order to assess potential changes over time or temporal trends in chemical concentrations of country foods routinely eaten by residents of the Eastern Athabasca region.

The study design for the EARMP community program will remain consistent over time, to the extent possible, in order to collect a consistent long-term data set. However, the program is also adaptive and may be refined in response to new information or changes associated with the development in the region. Some things to consider moving forward include:

- Community Concerns: The EARMP community program monitors endpoints of highest concern to the communities. Sampling components may be refined or expanded based on the needs of the community members.
- Regional Development: The development of additional uranium mining and milling operations in the region may also influence the overall design of the program.
- EARMP Community Program Results: Changes to the design of the EARMP community program may occur based on results and conclusions from each monitoring year.

A key aspect of a successful community monitoring program is that the sampling locations and media are selected based on their importance to the communities and the sampling is completed by, or with, local residents. It also helps to build trust between the residents of communities and industrial operators in the region. Traditional Ecological Knowledge (TEK) is an essential part of the program. The approach of the EARMP community program is summarized below inFigure **1** Figure **1**.

Figure **1.**

In addition to community input, chemicals of interest are selected based on those identified through the environmental assessment process and monitoring requirements in the region. Uranium mining and milling operations are subject to the *Canadian*

Environmental Assessment Act and regulated by the Canadian Nuclear Safety Commission, the Saskatchewan Ministry of Environment, and Environment Canada.

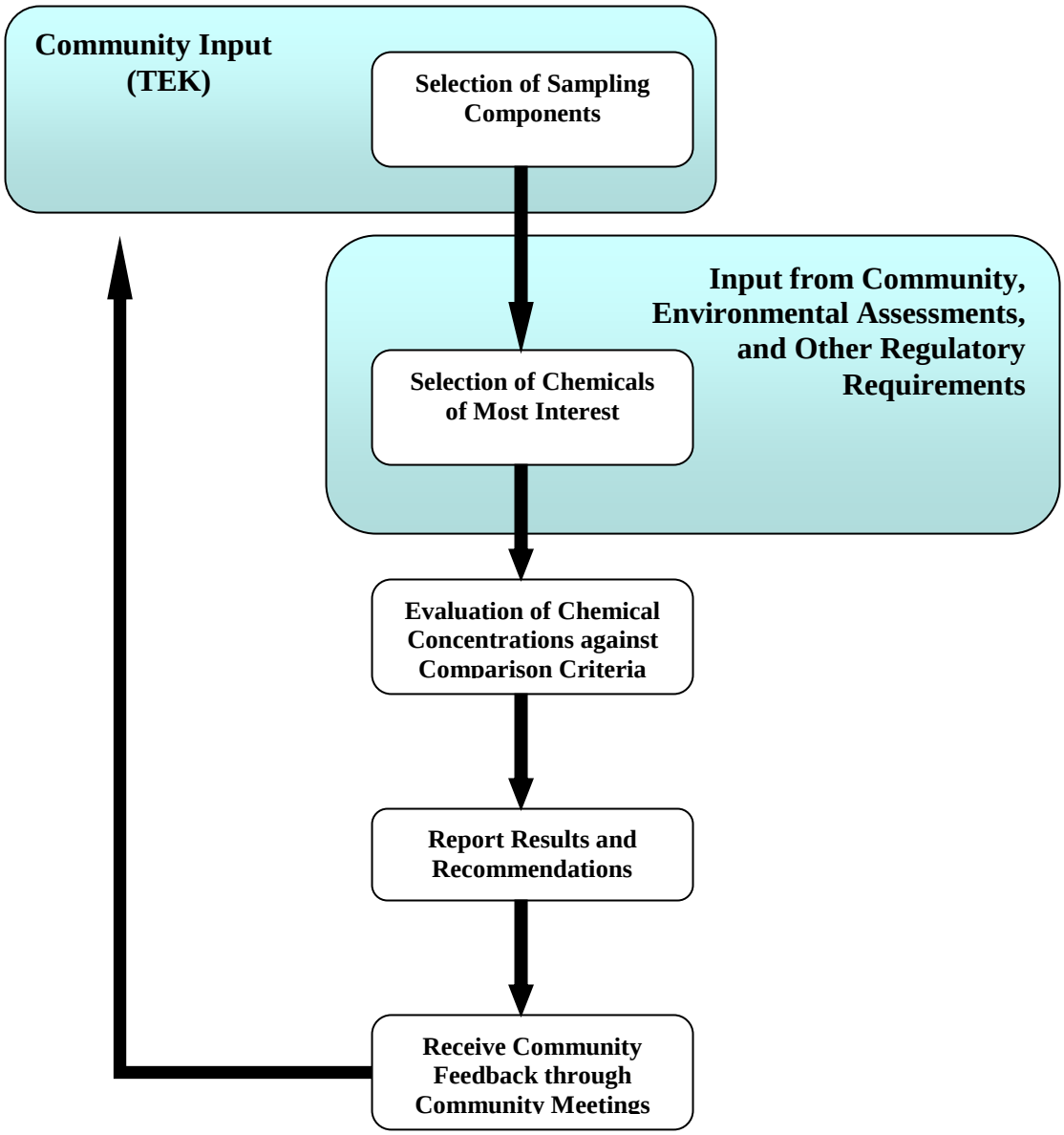

Figure 1.

Summary of the EARMP community monitoring program approach.

4.1 Sampling Components

Country foods were selected in consultation with community members and currently include water, fish (lake trout, lake whitefish, and northern pike), berries (blueberry and

bog cranberry), and mammals (moose, barren-ground caribou, and snowshoe hare[7]). However, sampling components are meant to be representative of what community members are consuming; therefore, they will likely vary from time to time throughout the long-term monitoring program to include other components (e.g., game birds).

Two dietary surveys have been completed for communities within the region: The Hatchet Lake Dietary Survey (CanNorth 1999) and the Uranium City Country Foods Study (CanNorth 2011). Country foods currently selected for the EARMP community program formed a large percentage of foods identified in these surveys.

4.2 Sampling Locations

Near each community, one station was established from which a water quality sample was obtained. The station locations were decided upon by the CanNorth staff member and the community members conducting the sampling and were determined by accessibility, water depth, and proximity to the community. Fish, berry, and mammal samples were obtained from locations that community members routinely fish, gather, and hunt their traditional country foods. This ensures the sampling program is testing the study areas most relevant to the communities.

4.3 Sampling Frequency

The EARMP community program is intended to be an annual sampling campaign (every fall/winter) for the first five years, after which the sampling frequency will be re-evaluated. Yearly sampling keeps the community program fresh in the mind of community members and allows for thorough training of community members for sample collection.

The target sample size is five samples from each community of each media type. However, some sampling components are harder to obtain, such as moose and barren-ground caribou; thus sample sizes may be lower at some communities in some years. Completing yearly sampling for at least the first five years will allow for a greater number of samples to be collected during the early years of the program. This will allow

[7] New country food as of 2013/2014.

for a comprehensive data set to be established to which future monitoring data can be compared.

4.4 Laboratory Analysis

All samples are analyzed by the Saskatchewan Research Council (SRC) in Saskatoon. The SRC Analytical Laboratories are certified and accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA). Accreditation ensures that procedures, facilities, and methods conform to ISO/IEC 17025, which is an internationally recognized standard. SRC has an extensive Quality Assurance/Quality Control (QA/QC) program to ensure reliable analytical results. With each set of samples run, SRC tests reference materials, duplicates, and spiked samples. Data results provided by SRC include full QA/QC reports for each sample submission.

Sample analyses completed by SRC included a full suite of parameters for each media type and are described TABLE .

TABLE 1

List of chemicals assessed in country foods for the EARMP community program.

Parameter		Water	Berries	Fish	Mammals
Inorganic Ions	Bicarbonate, Calcium, Carbonate, Chloride, Magnesium, Potassium, Sodium, Sulphate, Hydroxide	✓			
Metals and Trace Elements	Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Fluoride Iron, Lead, Manganese, Mercury*, Molybdenum, Nickel, Selenium, Silver, Strontium, Thallium, Tin, Titanium, Uranium, Vanadium, Zinc	✓	✓	✓	✓
Nutrients	Ammonia, Nitrate, Total Nitrogen, Total Kjeldahl Nitrogen, Total Organic Carbon, Phosphorus	✓			
Radionuclides	Lead-210, Polonium-210, Throium-230, Radium-226	✓	✓	✓	✓
Physical Properties	pH, Specific Conductance, Sum of Ions, Total Alkalinity, Total Dissolved Solids, Total Hardness, Total Suspended Solids, Turbidity	✓			
Physical Properties	% Moisture		✓	✓	✓

*Water and fish only.

Metals and trace elements analysis are completed by ICP-MS because it is a fast, multi-elemental technique similar to ICP-AES, but with better detection limits. For most elements, ICP-MS is able to achieve detection limits similar to or lower than Graphite

Furnace AAS (Wolf 2005). The analysis of metals and trace elements with ICP-MS also meets MMER requirements (EC 2012). However, it should be noted that even with the use of ICP-MS, concentrations of many metals and trace elements in the EARMP sampling media are at levels below the Method Detection Limit (MDL). In addition, MDL for radionuclides tend to vary based on the mass of the sample. For values that were below the MDL, it is not possible to determine the actual concentration; therefore, all values were set equal to the MDL for computing averages and standard deviations. This is a conservative approach as the actual concentrations could be substantially lower than the MDL.

4.5 Data Assessment Approach

4.5.1 Endpoints

Although a full suite of chemical parameters were measured for each sample, this report focuses on a smaller list of chemicals, which have been identified as the chemicals of most interest for uranium operations by regulatory agencies, environmental assessments, as well as other monitoring programs. TABLE summarizes the endpoints assessed for the EARMP Community Program.

TABLE 2

Chemical endpoints selected for the EARMP.

Reduced List of Chemicals	
Aluminum	Molybdenum
Ammonia*	Nickel
Arsenic	Polonium-210
Cadmium	Radium-226
Cobalt	Selenium
Copper	Thorium-230
Iron	Uranium
Lead	Vanadium
Lead-210	Zinc
Mercury**	

*For water only.
**Mercury is not associated with the uranium mining and milling process.

Supporting endpoints for the water quality assessment also included organic carbon, specific conductivity, total hardness, and pH.

While mercury is included in TABLE , it is not associated with uranium mining and milling operations. Monitoring programs completed in each mine site's local study area have repeatedly shown that mercury concentrations in the treated effluent are below the Metal Mining Effluent Regulations (MMER) criteria for monitoring[8] (EcoMetrix 2010a, 2010b; SENES 2010, 2012; AREVA 2012). Mercury occurs naturally in the environment and can be found at low levels in most soils and rocks. In northern Saskatchewan, natural deposits associated with lead, zinc, copper, silver, and gold are likely the cause of higher levels of mercury in fish in some lakes (SE 2011). Since mercury has been identified as a concern to community members in the Athabasca Region, it has been included in the assessment.

4.5.2 Comparison Criteria

To evaluate the community data, concentrations of the reduced list of chemicals are compared to:

- available guidelines;
- available regional reference data; and,
- available literature and/or Human Health Risk Assessments.

The above comparison criteria is used for each media type to establish if the country foods sampled in each community are within the expected background concentrations for the region, are below guidelines, and are considered safe to eat based on a Human Health Risk Assessment. As additional monitoring phases are completed, assessing changes in potential chemical concentrations over time will be an important component of the program. Data sources for the information used are described below.

4.5.3 Data Sources

4.5.3.1 Guidelines

Federal and provincial guidelines are available for some media types assessed in the EARMP community program. These include the Canadian Drinking Water Quality Guidelines (CDWQGs; HC 2012), the Canadian Water Quality Guidelines (CWQGs) for

[8] If the concentrations of total mercury is less than 0.1 µg/L in 12 consecutive treated effluent samples, monitoring is not required (MMER, Schedule 5, subsection 4(3))

the protection of freshwater aquatic life (CCME 2014), and the Saskatchewan Water Quality Guidelines (SWQG) for the protection of freshwater aquatic life (GS 2014). Since the SWQG are a direct adoption of the CWQGs, the CWQGs were taken as the primary source of information. For those chemicals where the values depend on hardness, the hardness concentration from each location was used to establish the guideline. TABLE summarizes the guidelines used for comparison to the EARMP community data.

TABLE 3

Chemistry guidelines used for comparison to EARMP community data.

Chemical	Guideline	
	CDWQG (Drinking Water)	**CWQG (Environmental)**
Aluminum	0.2 mg/L	0.1[1] mg/L
Ammonia as nitrogen	-	2.68-26.65[2] mg/L
Arsenic	10 µg/L	5 µg/L
Cadmium	0.005 mg/L	0.00004-0.0001[3]mg/L
Copper	1.0 mg/L	0.002[3] mg/L
Iron	0.3 mg/L	0.3 mg/L
Lead	0.01 mg/L	0.001[3] mg/L
Lead-210	0.2 Bq/L	-
Mercury	1 µg/L	0.026 µg/L
Molybdenum	-	0.073 mg/L
Nickel	-	0.025[3] mg/L
pH	6.5 to 8.5	6.5 to 9.0
Radium-226	0.5 Bq/L	-
Selenium	0.01 mg/L	0.001 mg/L
Uranium	20 µg/L	15 µg/L
Zinc	5.0 mg/L	0.03 mg/L

[1]Adjusted to a pH > 6.5.
[2]Adjusted according to water temperature and pH of each waterbody.
[3]Adjusted to water hardness in each waterbody.

4.5.3.2 Regional Reference Data

Regional reference data are available from a number of sources. Reference water and fish chemistry data are available from CanNorth's database. Water and fish chemistry data from 28 reference lakes[9] north of Point's North sampled between 2006 and 2012

[9] Reference lakes selected were not influenced by upstream uranium mining and milling operations and included Alsask Lake, Bobby's Lake, Colette Lake, Cree Lake, David Lake, East Spur Lake, Fredette Lake, Henday Lake, Kazz Lake, Konner Lake, Lac Philip, Lake 2, Lake 8, Lake A, Lake B, Lake C, Lower Read Lake, Mallen Lake,

were utilized to generate the regional reference values. This included 193 water samples, 166 northern pike samples, 58 lake whitefish samples, and 30 lake trout samples. Water samples were only included for those lakes where fish tissue chemistry data were also available, for a total of 24 lakes. Northern pike data were available from 27 lakes, lake whitefish data were available from 11 lakes, and lake trout were available from 3 lakes. As more data become available, the regional reference data set will become more robust, particularly for the lake trout data set.

Historical data (2008 to 2011) available from the Athabasca Working Group (AWG) Environment Monitoring Program and the Uranium City Country Foods Program (CanNorth and SENES 2012) were utilized to generate the regional reference values for the berry data. Data from the AWG program were also used to establish regional reference ranges for the moose and barren-ground caribou data. In most cases, data from 2000 to 2010 were included in order to have adequate samples sizes; however, there were some situations where obvious and consistent changes in MDLs precluded earlier data from being included. Finally, moose data available from a study completed by Thomas et al. (2005) was used to develop a regional reference range for polonium-210 since AWG data are not available for this parameter. Only those moose samples collected outside uranium mining and milling areas were used from this data set; this included 19 moose samples collected from Meadow Lake, Saskatchewan and 2 moose samples collected near Edmonton, Alberta. Detailed information on the data used to generate the reference ranges, including the sample sizes, is provided in the APPENDIX B tables.

4.5.3.4 Human Health Risk Assessment

Human Health Risk Assessment is a scientific procedure that is used to assess the potential for adverse health effects to humans caused by a selected group of chemicals that are a concern. Risk assessments involve the application of a staged, formal, and reproducible process that incorporates procedures accepted by regulatory authorities. Through the completion of a Human Health Risk Assessment, it is possible to answer one of the primary questions of the EARMP community program: are country foods safe to eat?

Martin Lake, Milliken Lake, Moon Lake, Pasfield Lake, Read Lake, Riou Lake, Ryan Lake, Slush Lake, Wapata Lake, West Spur Lake, and White Lake.

A Human Health Risk Assessment was completed by SENES Consultants Ltd. using the 2011/2012 and 2012/2013 EARMP data and determined that the country foods were safe to eat in all communities assessed. In subsequent monitoring phases, if the levels of chemicals remain within the range of those measured during the baseline conditions, the Human Health Risk Assessment can be used as a basis for concluding if the country foods remain safe to eat. It should be noted that the Human Health Risk Assessment was completed using chemical endpoints typically used for assessments associated with uranium mining. Aluminum, cadmium, iron, vanadium, and zinc, which are chemical endpoints identified for the EARMP community program, were not included in the assessment. As more data become available, and potentially new types of country foods assessed, it may be necessary to complete a new Human Health Risk Assessment.

4.5.4 Data Presentation

The EARMP community data is presented using both summary tables and figures. Descriptive statistics (average, standard deviation, number of samples, and number of values below the MDL) are calculated and reported for each chemical, media, and study area. A graphical presentation of the data is used to compare chemical concentrations to guidelines, the regional reference range, and baseline levels. Data are only graphed if >50% of the values are above the MDL.

The regional reference range is defined as within two standard deviations of the average. Assuming a normal distribution, 95% of the data from the regional reference areas would be expected to fall within this range. Thus, this provides a good reference to determine if the EARMP community data falls within the expected concentrations for the region.

Figure 2. shows a hypothetical figure that will be used to assess levels of chemicals in country foods. This figure provides information on guidelines values, the regional reference range, and temporal changes in a single image for each chemical in each sampling component.

The blue line represents a guideline concentration (e.g., drinking water guidelines). The shaded area represents the regional reference range (i.e., reference average ± 2 standard deviations). The average concentration in the EARMP community sample is shown as a circle for the baseline year and a triangle for those sampling years following the baseline data collection. The error bars represent one standard deviation. The graph will be a

very useful visual tool for assessing the EARMP community data against the comparison criteria at a glance. It will also allow for a qualitative assessment of increasing or decreasing concentrations of individual chemicals over time in each community.

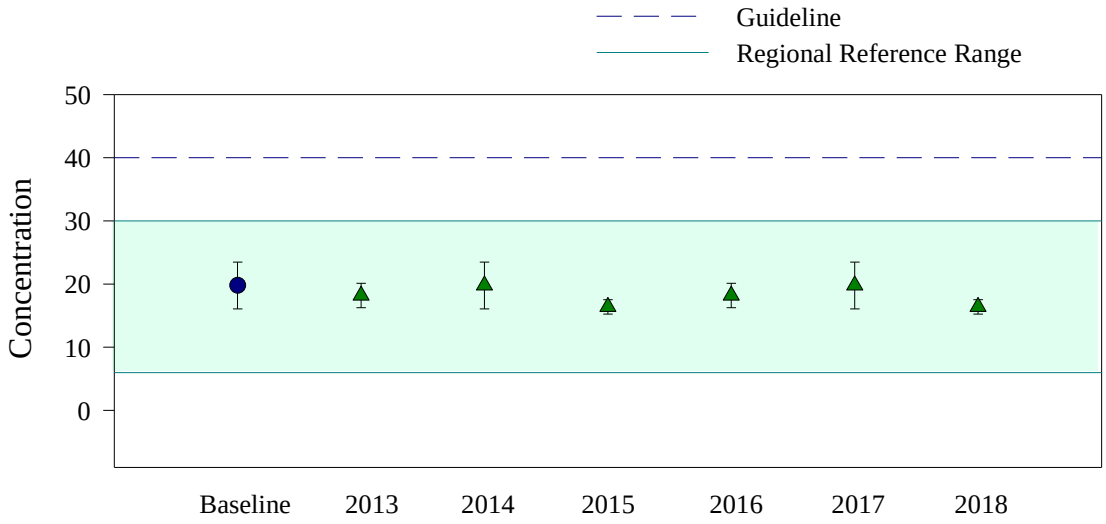

Figure 2.

Example of how the EARMP community program results will be presented graphically during future monitoring campaigns.

5.0 REPORTING AND COMMUNICATION PLAN

A report will be completed to assess the EARMP community data following each monitoring year. The report will be structured so that the most relevant information is presented in the main document, with the detailed analysis presented in appendices. This will allow all potential audiences access to the information most relevant to them. The report, along with the raw data, will be available for download from the EARMP website: www.earmp.ca

In addition to the report, community visits may be completed to present the results of the monitoring program. Community visits may include presentations, distribution of summary brochures/calendars, school visits, and/or ads. The community visits will be an opportunity to receive feedback on the program and encourage to further involvement from community members. Feedback on the program can also be provided through the EARMP website. Since 2012, the EARMP has taken the opportunity to engage communities at least annually about their environment while also distributing information about the new project.

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APPENDIX B

DETAILED DATA ANALYSIS

APPENDIX B: DETAILED DATA ANALYSIS

1.0 WATER QUALITY

To evaluate the 2013 EARMP community water quality data, concentrations of the reduced chemical list were compared to:

1. Canadian Drinking Water Quality Guidelines (CDWQG; HC 2012) and the Canadian Water Quality Guidelines (CWQG) for the protection of freshwater aquatic life (CCME 2014);
2. regional reference data from CanNorth's database; and,
3. the 2011/2012 baseline dataset.

Summaries of available guidelines, regional reference data, and the 2011 to 2013 EARMP community data are presented in Appendix B, Figure 1 and Table 1. Data were graphed if concentrations of a certain chemical were above the MDL in at least one community. If available, the CDWQG are presented on the graphs since the EARMP community program is most concerned with human health. If CDWQG are not available for a certain chemical, then the CWQG were included on the graph. The raw water chemistry results are presented in APPENDIX C, Table 1.

In 2013, concentrations of most chemicals were very low and in the case of mercury, selenium, lead-210, polonium-210, radium-226, thorium-230, cobalt, and vanadium, the concentrations were too low for the laboratory to measure in all of the samples (i.e., below the method detection limit (MDL)). All chemical concentrations measured near the communities were below available CDWQG or CWQG (Appendix B, Figure 1 and Table 1). In addition, all chemicals were within the expected range for the region or similar to those measured during the baseline years. As there has been no apparent increase in the concentrations of the chemicals assessed in the community water samples and the last Human Health Risk Assessment indicated there was no risk, there are no concerns associated with the 2013 EARMP community water quality.

2.0 FISH CHEMISTRY

To evaluate the EARMP community fish chemistry data, concentrations of the reduced chemical list were compared to:

1. regional reference data; and,
2. the 2011/2012 baseline dataset.

Lake trout and lake whitefish samples were collected from each community in 2013; however, no northern pike were sampled in 2013. Five samples of each species were collected from each community, with the exception of Uranium City, where the lake whitefish sample size was three. A summary of fish descriptive statistics (length, weight, and age) is provided in Appendix B, Figure 2. Summaries of available chemical concentrations measured in regional reference data, baseline data, and the 2013 EARMP community data are presented in Appendix B, Figures 3 and 4 and Table 2. Data were graphed if >50% of the concentrations for a certain chemical were above the MDL in at least one community. The raw fish chemistry results are presented in APPENDIX C, Tables 2 to 7.

Chemical concentrations in the community fish samples were often so low that the laboratory could not measure the level. This was the case for aluminum, cadmium, lead, molybdenum, nickel, uranium, lead-210, thorium-230, and vanadium in over half of the samples assessed in all of the communities.

Average arsenic concentrations at some communities were higher than the regional reference range (Appendix B, Figures 3 and 4). Average arsenic concentrations were slightly higher in lake whitefish sampled in Camsell Portage and Uranium City when compared to the regional reference range, as well as in lake trout from Stony Rapids. However, in all cases, arsenic concentrations were comparable to baseline conditions measured in at least one community, and as such are not a concern (Appendix B, Figures 3 and 4). Other concentrations that were slightly above the regional reference range in the 2013 fish included mercury in lake trout (0.40 ± 0.084 µg/) from Black Lake and radium-226 in lake whitefish (0.00028 ± 0.00040) from Wollaston Lake (Appendix B, Figures 3 to 4). Both concentrations were comparable to their baseline levels for these two communities.

No fish were collected from Crackingstone Inlet of Lake Athabasca for the community of Uranium City in 2013. However, selenium values in the lake trout and lake whitefish collected from Prospectors Bay of Lake Athabasca were within the regional reference range and were comparable to the values from previous years. Additional fish sampling in Crackingstone Bay will take place during the technical sampling program in 2015.

3.0 BERRY CHEMISTRY

To evaluate the EARMP community berry chemistry data, concentrations of the reduced chemical list were compared to:

1. regional reference data; and,
2. the 2011/2012 baseline dataset.

Summaries of available chemical concentrations measured in regional reference data, baseline data, and the 2013 EARMP community data are presented in Appendix B, Figures 5 and 6 and Tables 3 and 4. Data were graphed if >50% of the concentrations for a certain chemical were above the MDL in at least one community. The raw berry chemistry results are presented in APPENDIX C, Tables 8 and 9.

Similar to the water and fish data, levels of chemicals in the blueberries were often too low for the laboratory to measure. This included levels of cadmium, selenium, uranium, thorium-230, arsenic, and vanadium, which were below measurable levels in more than half of the samples from most communities. Aluminum and radium-226 levels were higher in 2013 blueberry samples from Stony Rapids as compared to both the regional reference range and the baseline monitoring data. Although higher than baseline levels measured in Stony Rapids, the radium-226 levels were within the range of baseline levels measured within other communities assessed in northern Saskatchewan for which the 2013 Human Health Risk Assessment indicated the berries did not pose a risk to human health (SENES 2013).

The aluminum concentrations in the blueberry samples from Stony Rapids are elevated above expected levels. Concentrations were confirmed with the laboratory and are correct. Aluminum is a common additive to food, as such; the European Union has established a tolerable weekly intake of 1 mg aluminum/kg body weight (EFSA 2008). Given the European Union tolerable weekly intake, the aluminum concentrations found in the Stony Rapids blueberries are not cause for immediate concern. However, special attention will be made to aluminum concentrations in blueberry samples from Stony Rapids in 2014.

In the cranberries from Uranium City, the level of chemicals were generally low, with selenium, uranium, lead-210, thorium-230, arsenic, and vanadium at levels too low to

measure in more than half of the samples. Lead levels were slightly higher than the expected level for the region; however, this was the result of one of the five samples containing higher levels as compared to the others. Given that four of the five samples contained concentrations similar to those measured in the baseline years and within the regional reference range, it is not anticipated that lead levels would be a cause for concern.

4.0 MAMMAL CHEMISTRY

To evaluate the EARMP community moose and barren-ground caribou chemistry data, concentrations of the reduced chemical list were compared to:

1. regional reference data; and,
2. the 2011/2012 baseline dataset.

Summaries of available chemical concentrations measured in regional reference data, baseline data, and the 2013/2014 EARMP community data are presented in Appendix B, Figures 7 and 8, and Tables 5 and 6. Data were graphed if >50% of the concentrations for a certain chemical were above the MDL in at least one community. The raw mammal chemistry results are presented in APPENDIX C, Tables 10 to 12.

Concentrations of chemicals that were too low for the laboratory to measure varied only slightly between the barren-ground caribou and moose meat samples. In barren-ground caribou meat, levels of molybdenum, uranium, lead-210, thorium-230, and vanadium were below MDLs in more than half of the samples in each community. In moose meat, the same chemicals as well as nickel and arsenic were below MDLs.

Average radium-226 levels in barren-ground caribou from Black Lake and Stony Rapids appear to have decreased to below the regional reference range as compared to the baseline assessment. However, the results are skewed because of differences in MDLs between years (APPENDIX C, Table 10). The average cadmium concentration in barren-ground caribou from Fond du Lac did decrease to below the reference range as compared to the baseline assessment. Conversely, nickel concentrations in barren-ground caribou from Stony Rapids are elevated compared to baseline conditions and the regional reference range (Appendix B, Table 7). To further put these values in perspective, nickel concentrations in supermarket meat (combination of steak, roast beef, ground beef, fresh

pork, cured pork, and/or lamb) collected between 2005 and 2007 and assessed as part of Health Canada's total dietary study were examined (HC 2011). The average nickel concentration in supermarket meat was 0.43 µg/g. The nickel concentrations observed in the barren-ground caribou meat from Stony Rapids in 2013 was considerably lower than this, measuring 0.08 ± 0.086 µg/g, indicating the observed nickel levels are not a cause for concern.

In addition, to the ungulate mammal chemistry, snowshoe hare samples were submitted by community members from Camsell Portage (three samples) and Uranium City (two samples). These data are presented in Appendix B, Table 7 and generally indicate low levels (near or below the MDLs) of most chemicals. Furthermore, concentrations are similar to those measured in 2011 in the same region for a separate country foods sampling program (CanNorth and SENES 2012).

Given that chemical concentrations tend to be below the regional reference range and similar to or lower than those measured during the baseline assessment; chemicals in mammals assessed from the EARMP communities meat are not a concern.

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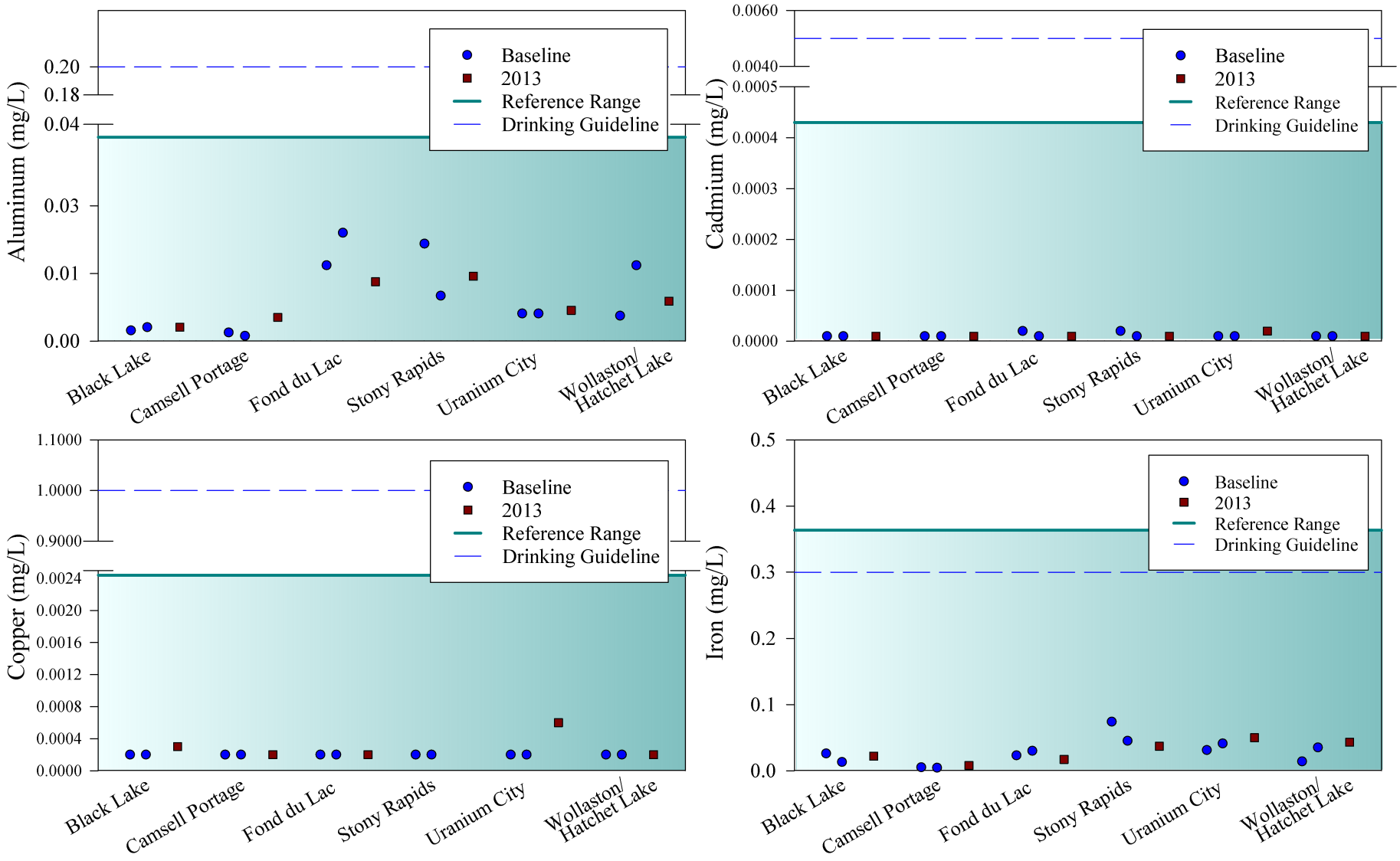

Figure 1.
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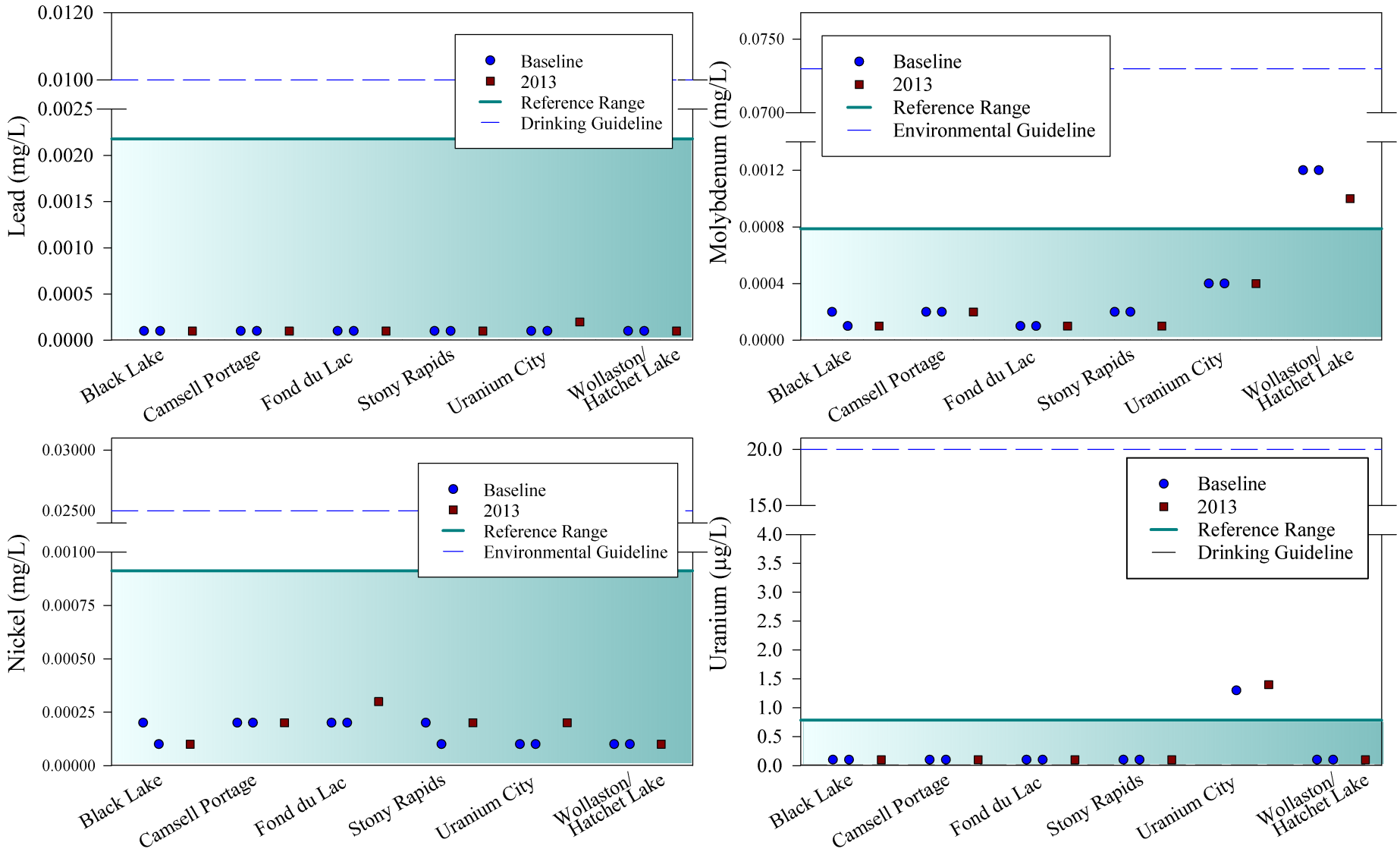

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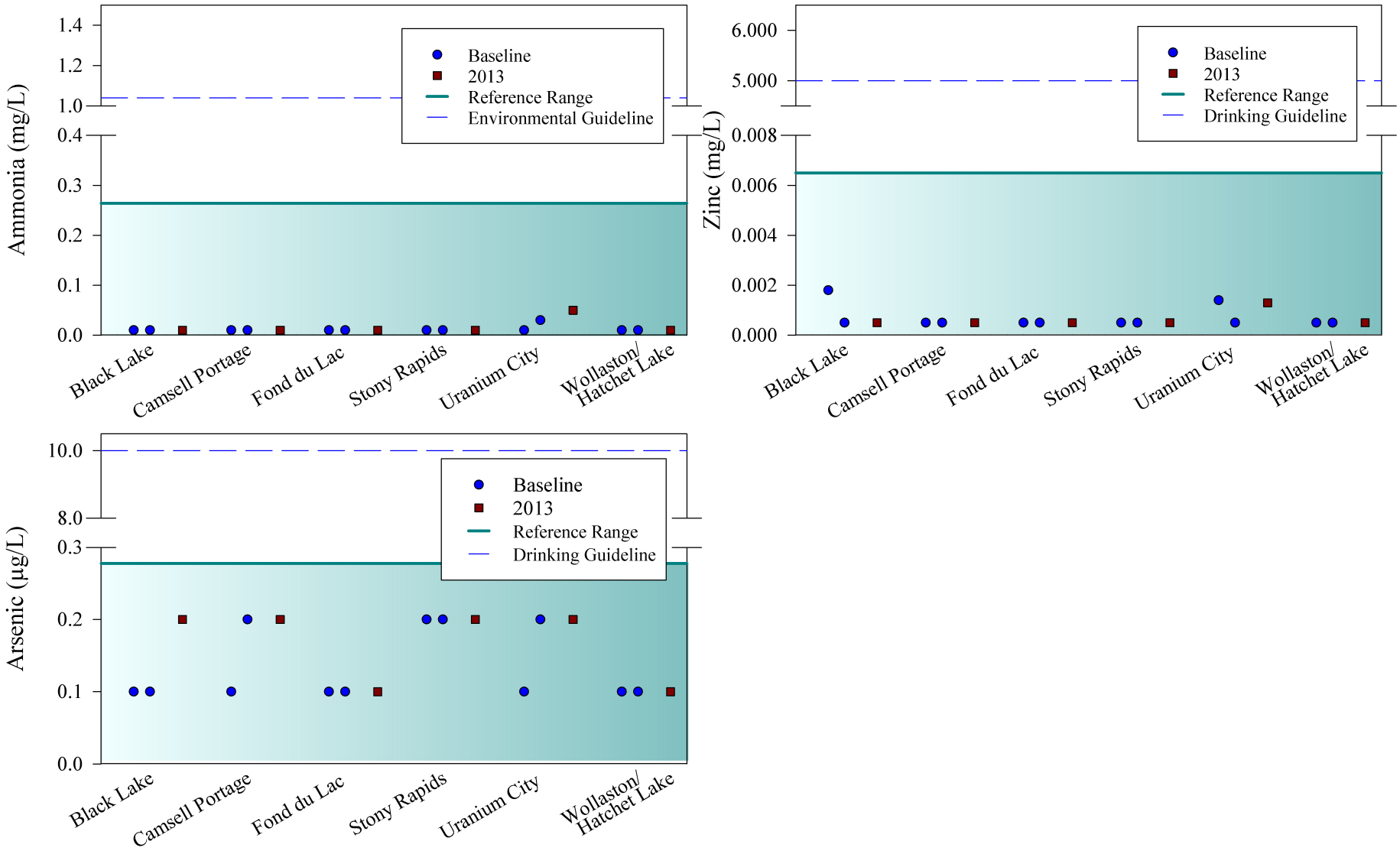

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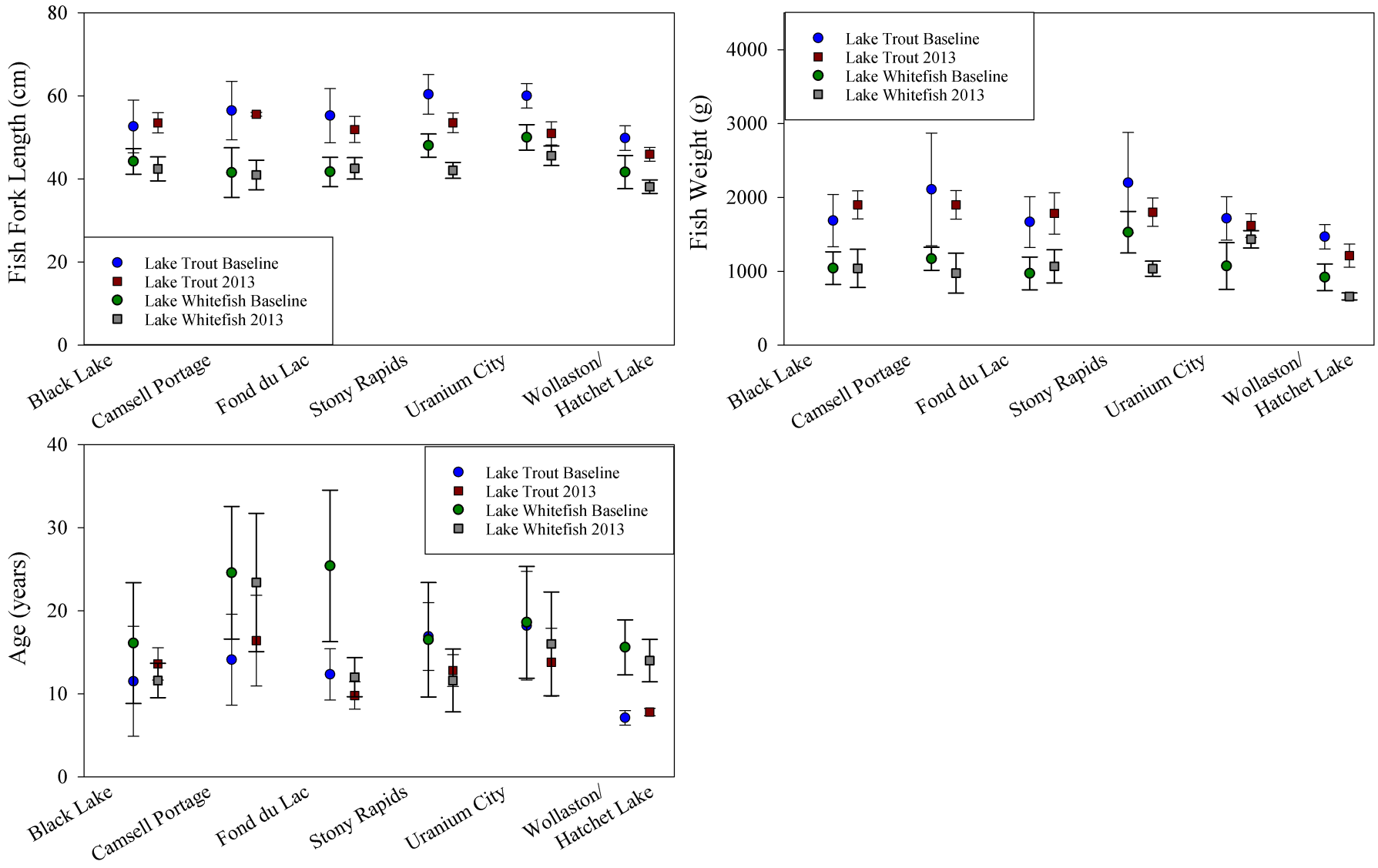

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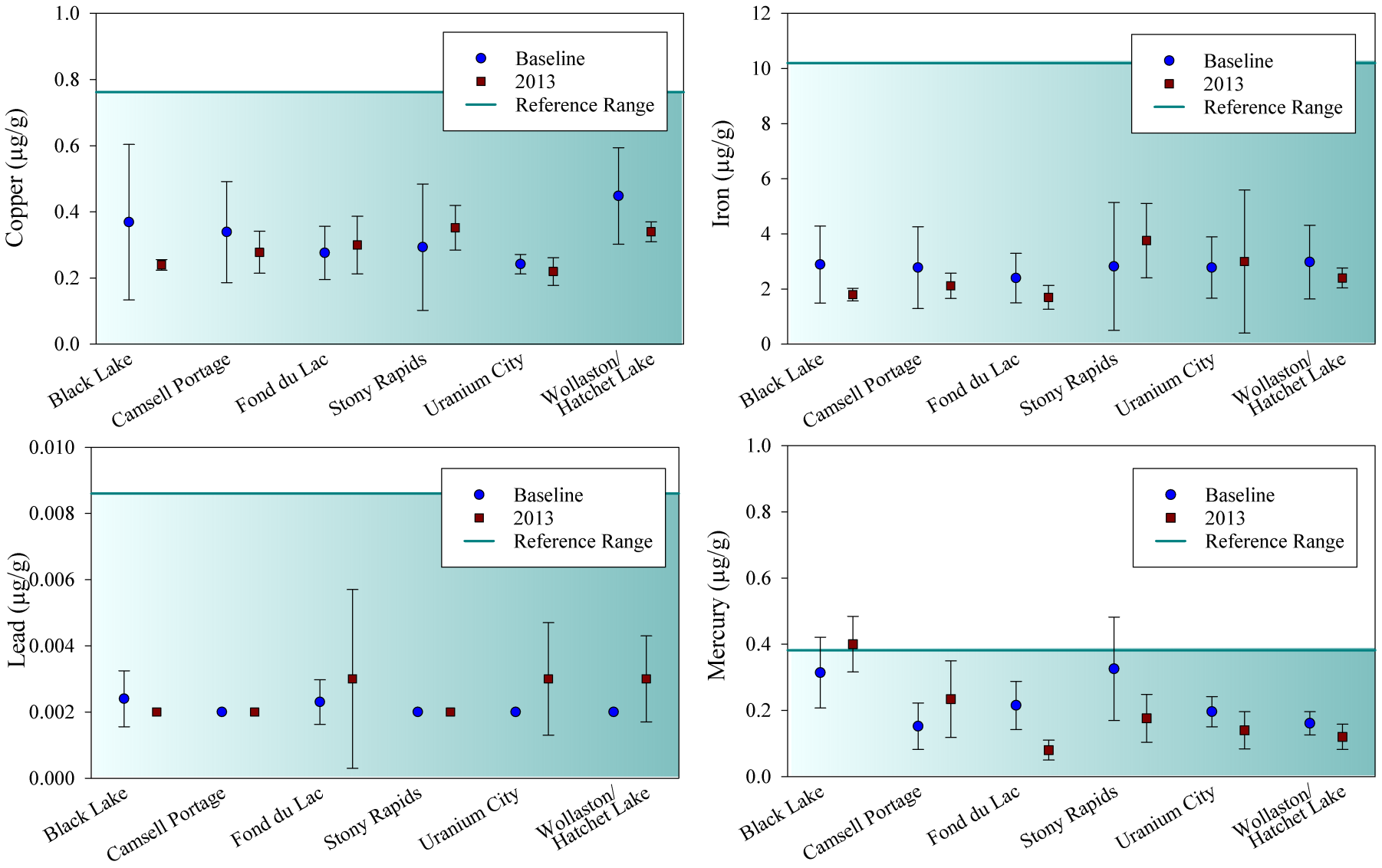
Lake trout and lake whitefish length, weight, and age from the EARMP communities, 2011 to 2013.



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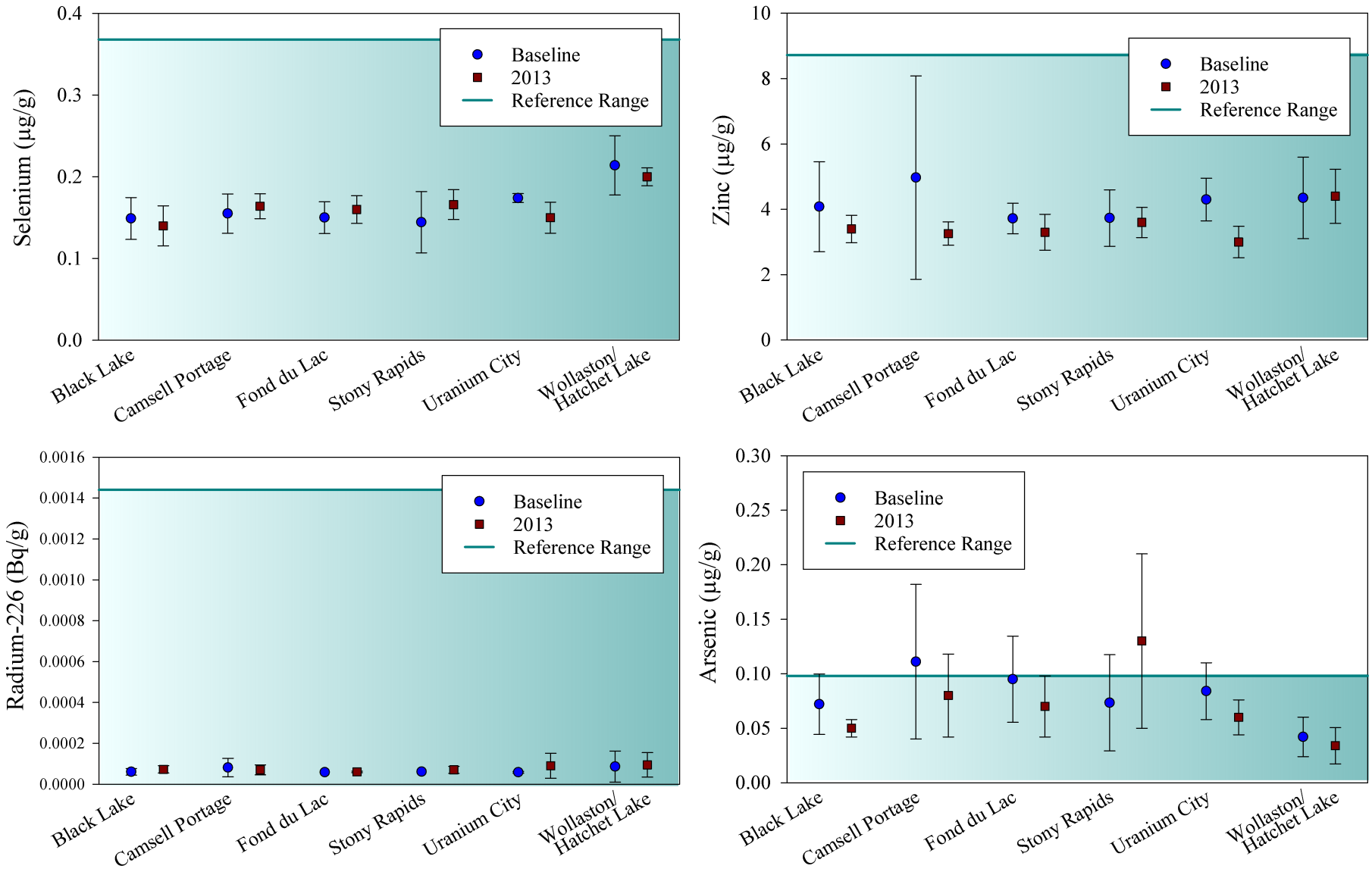

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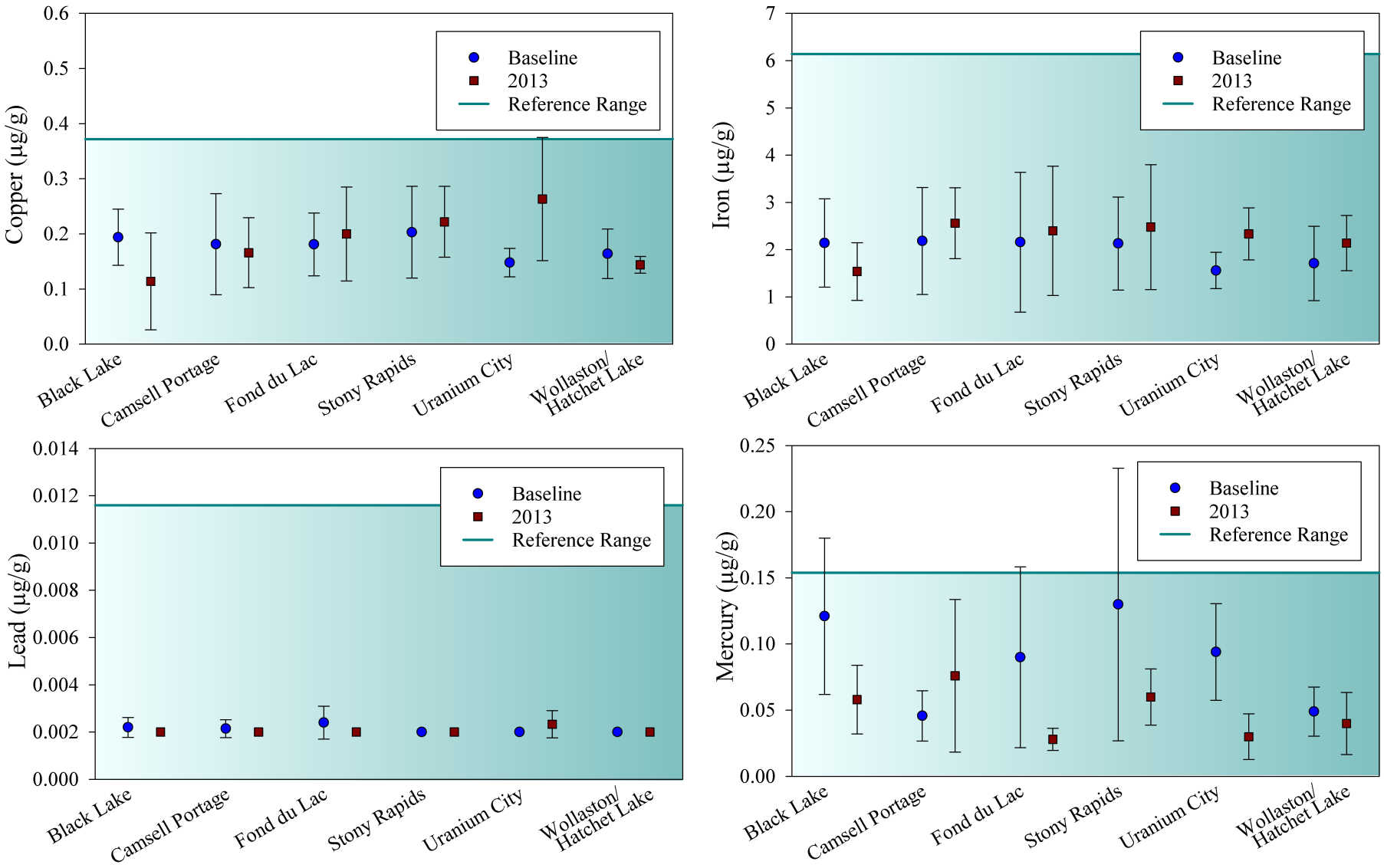

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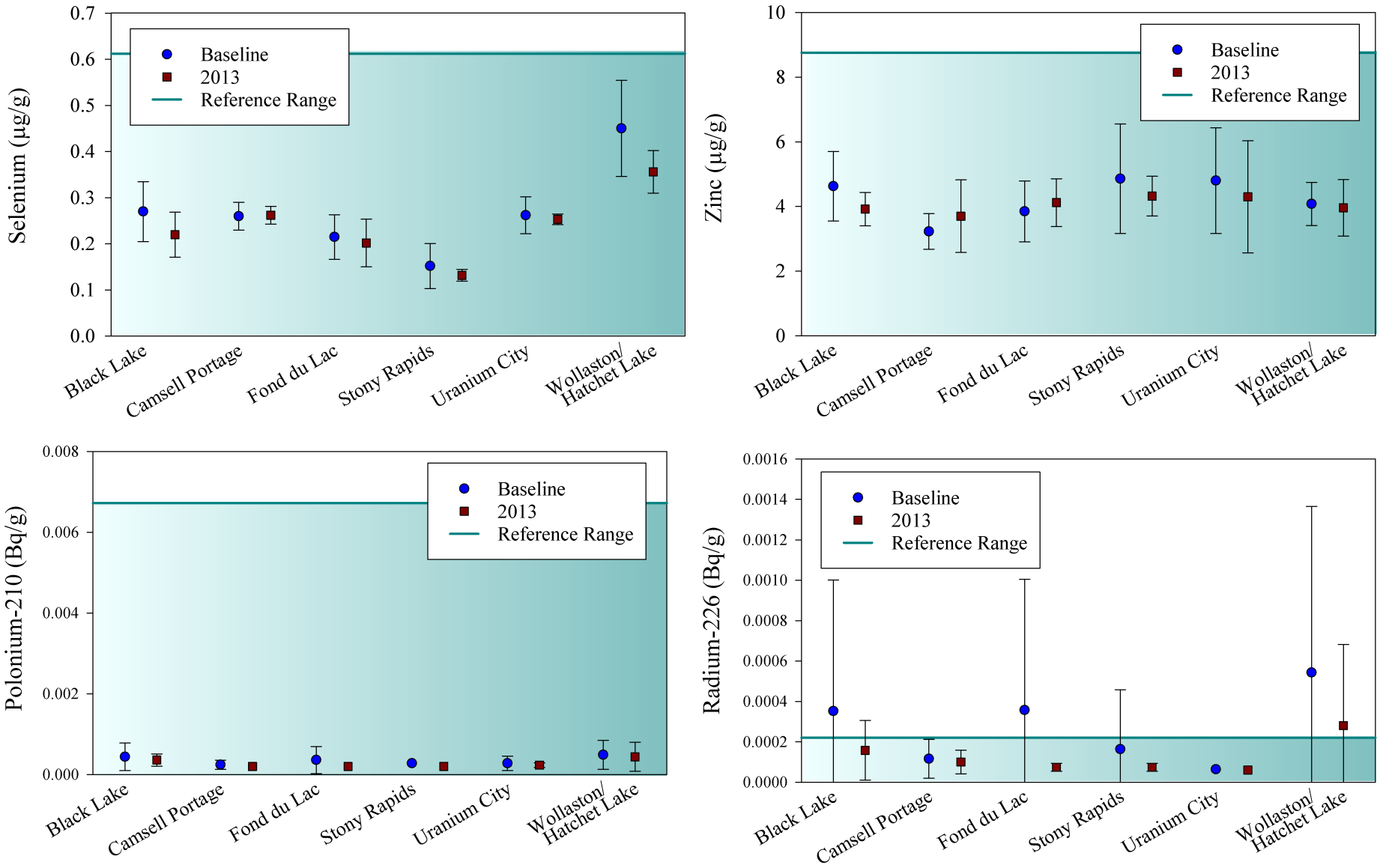

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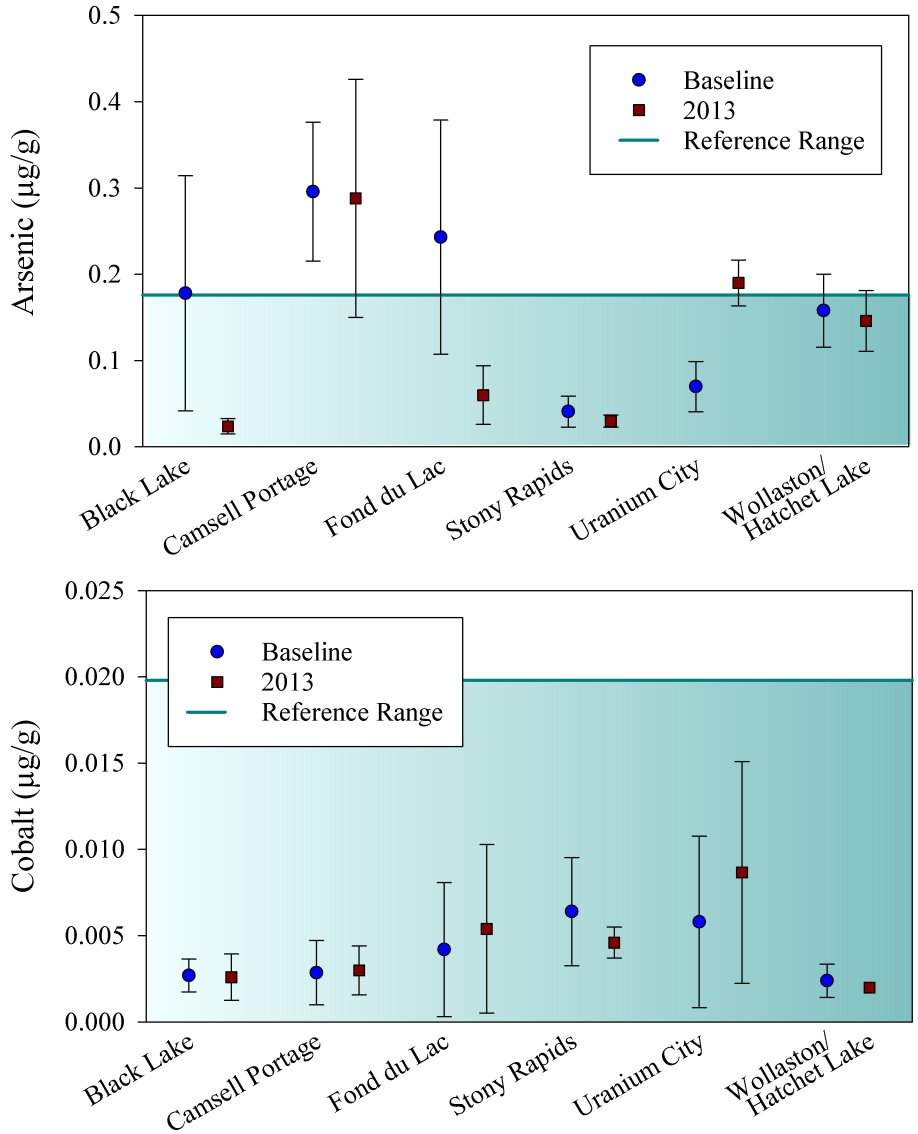

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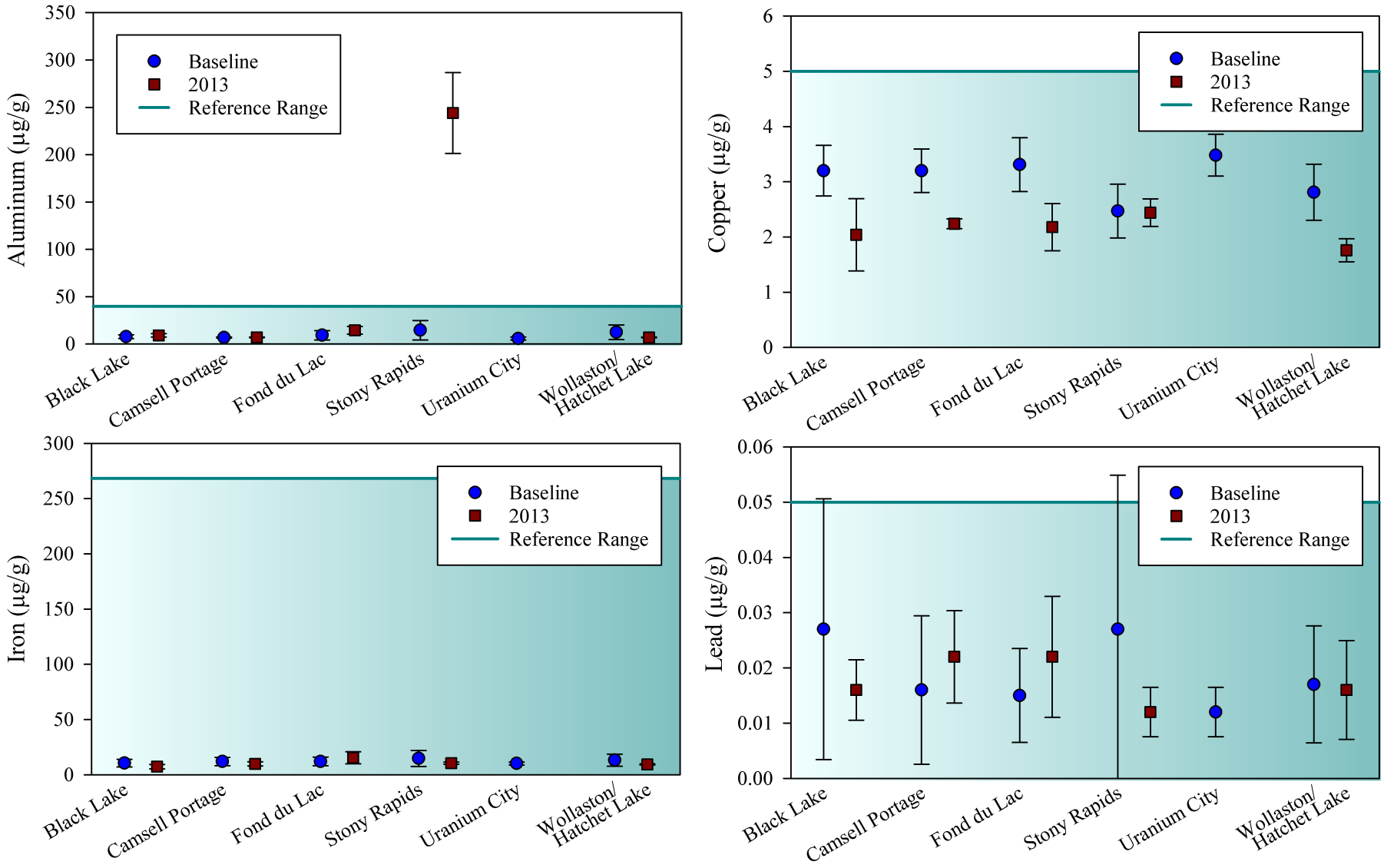

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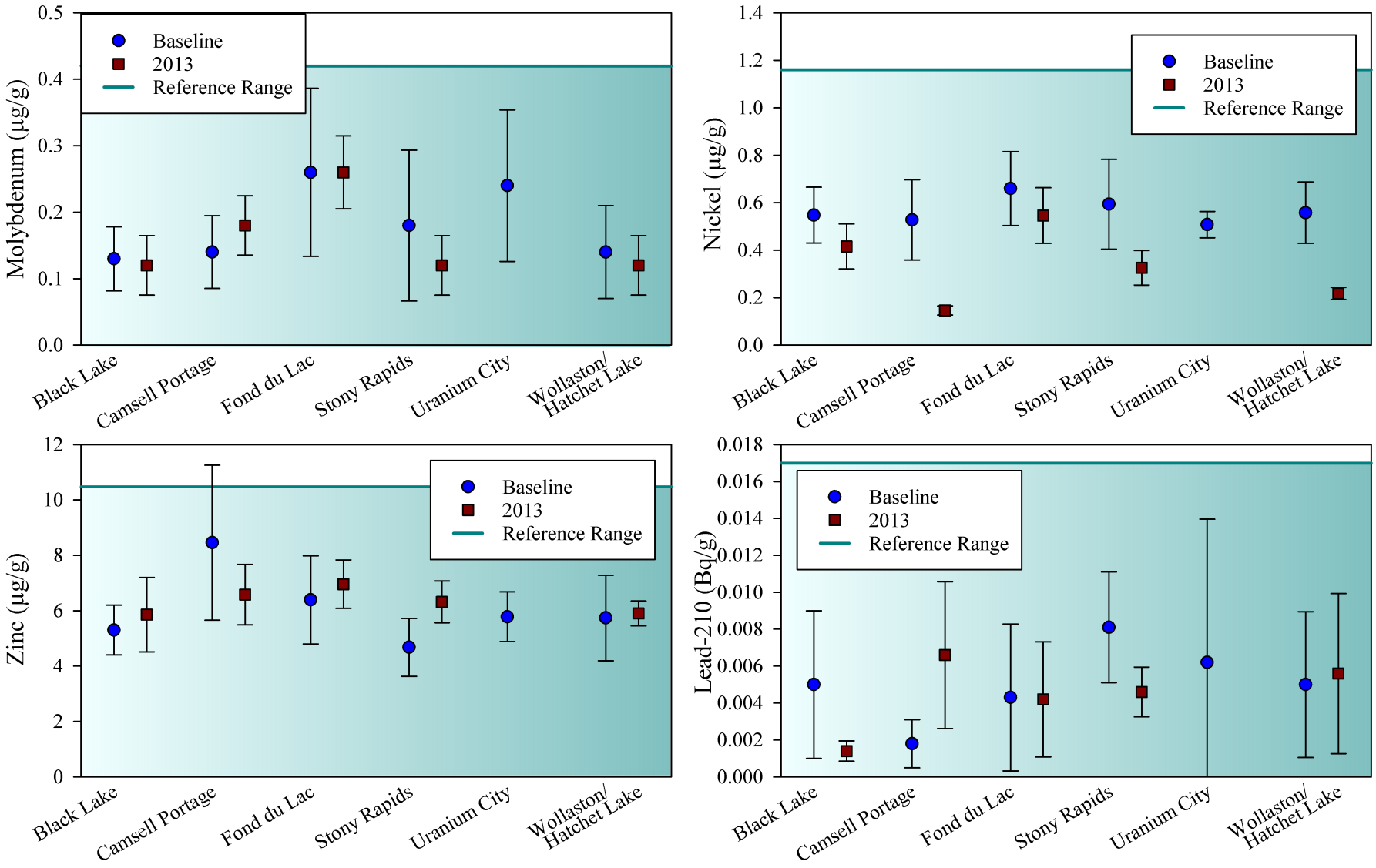
Chemicals in blueberries from the EARMP community study areas collected in 2013.



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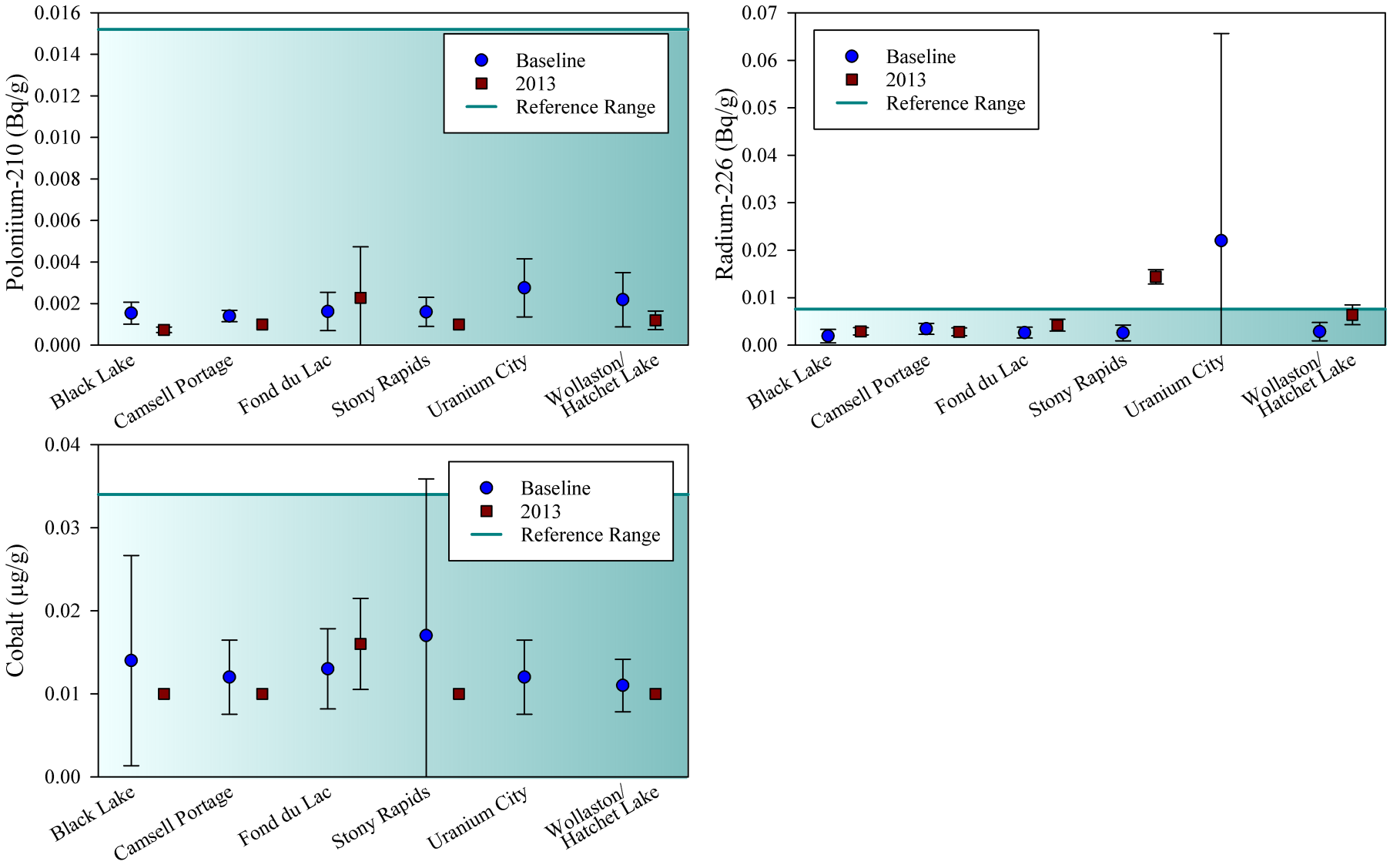

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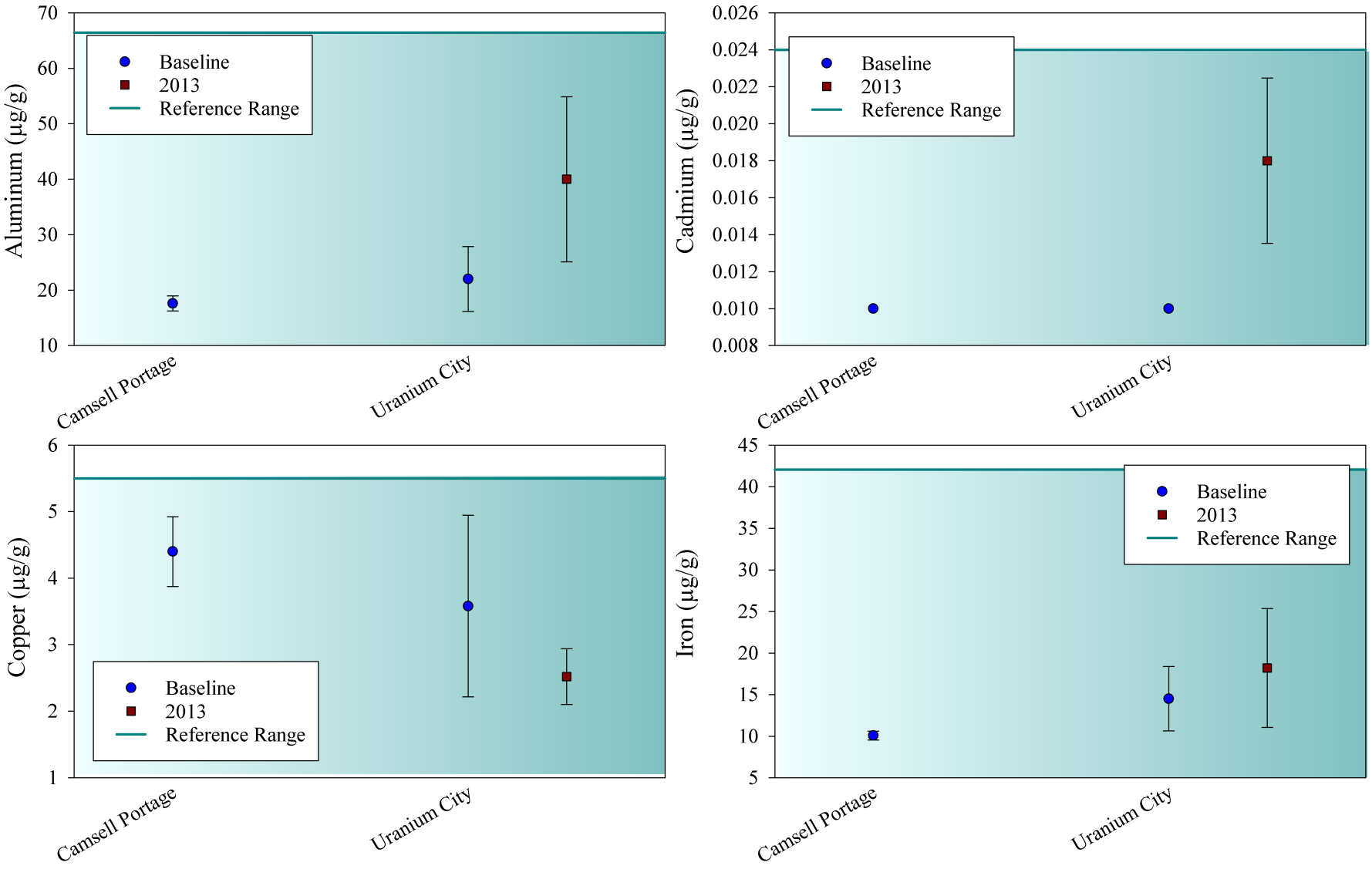
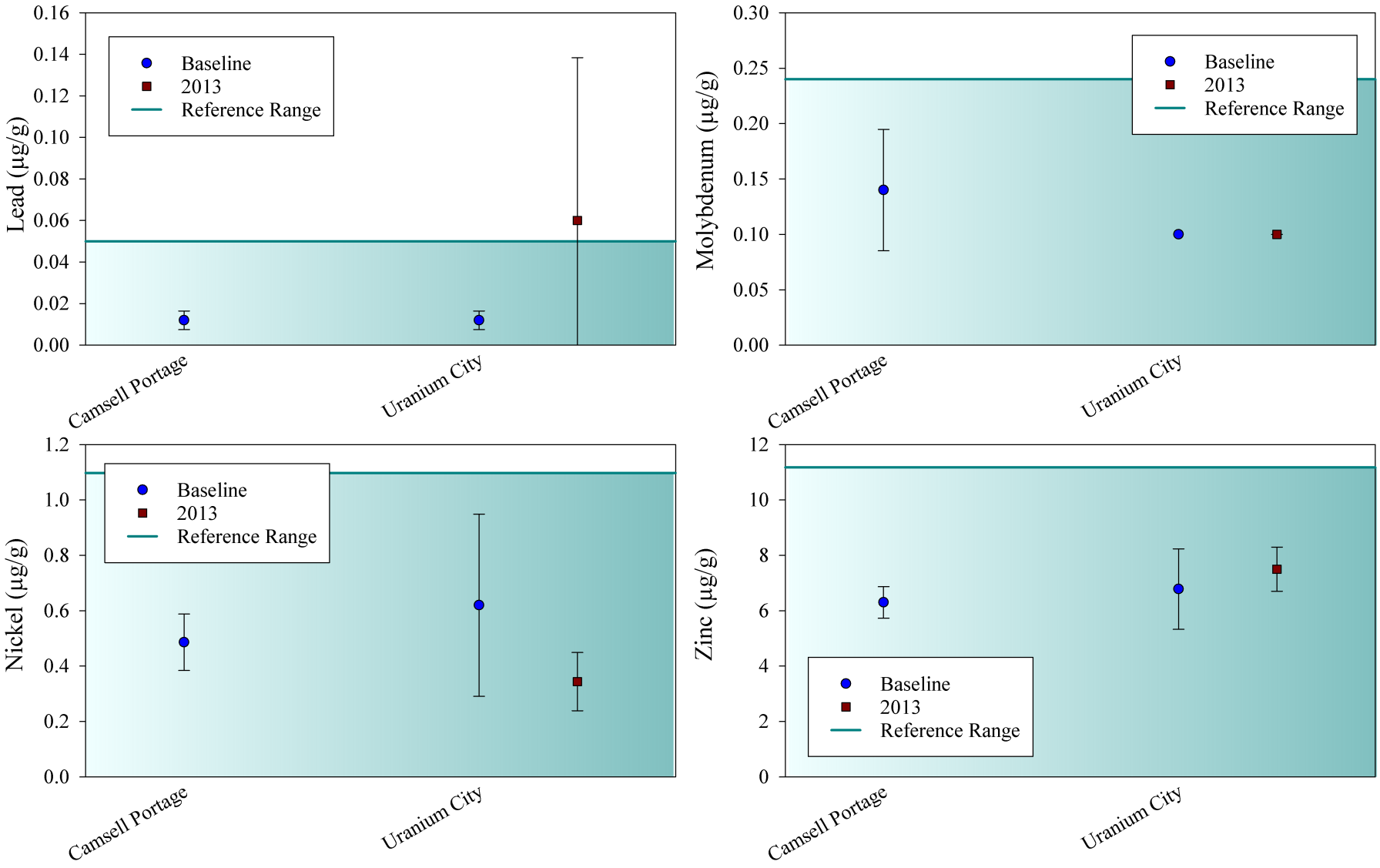


Figure 6.
Chemicals in cranberries from the EARMP community study areas collected in 2013.



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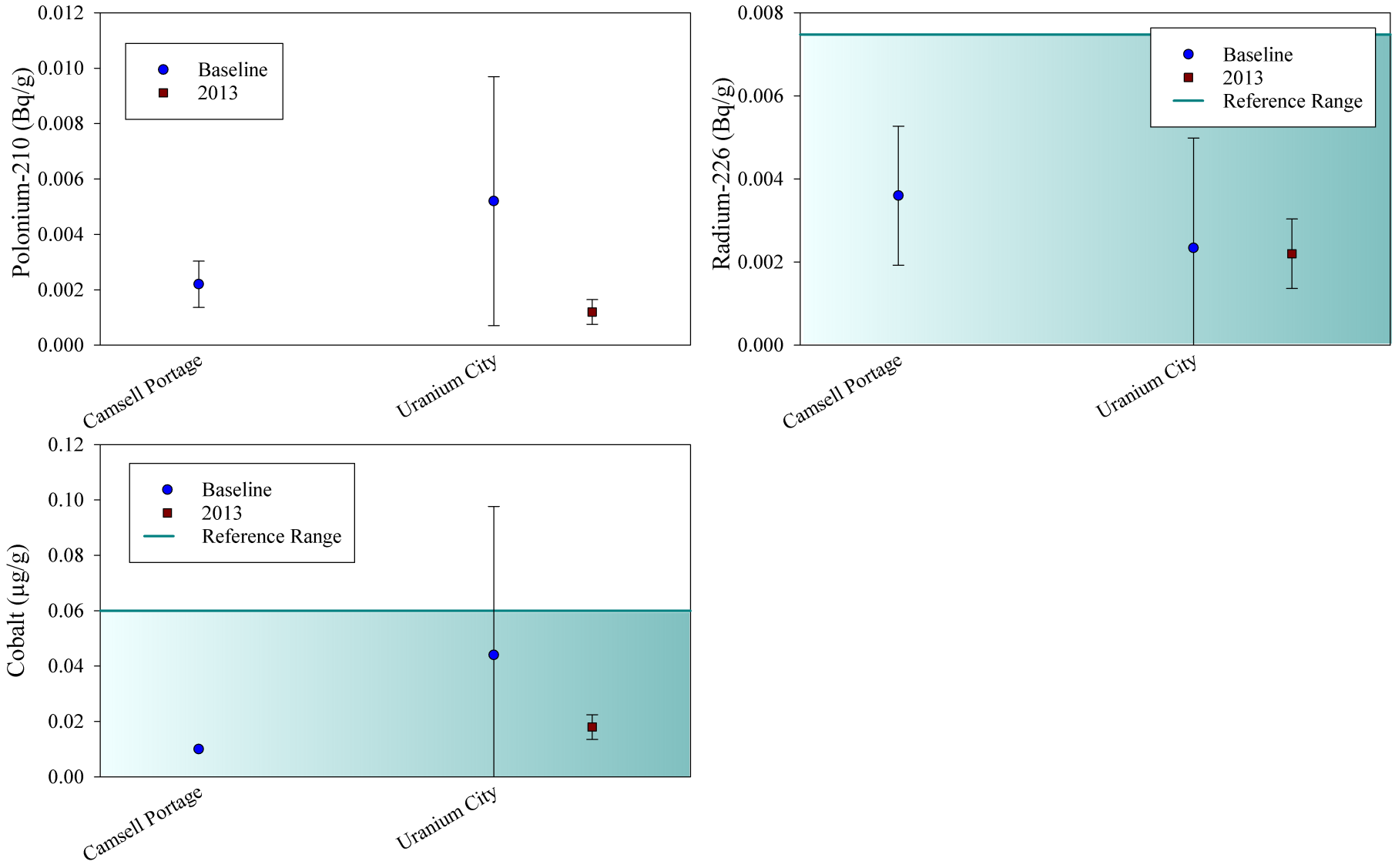

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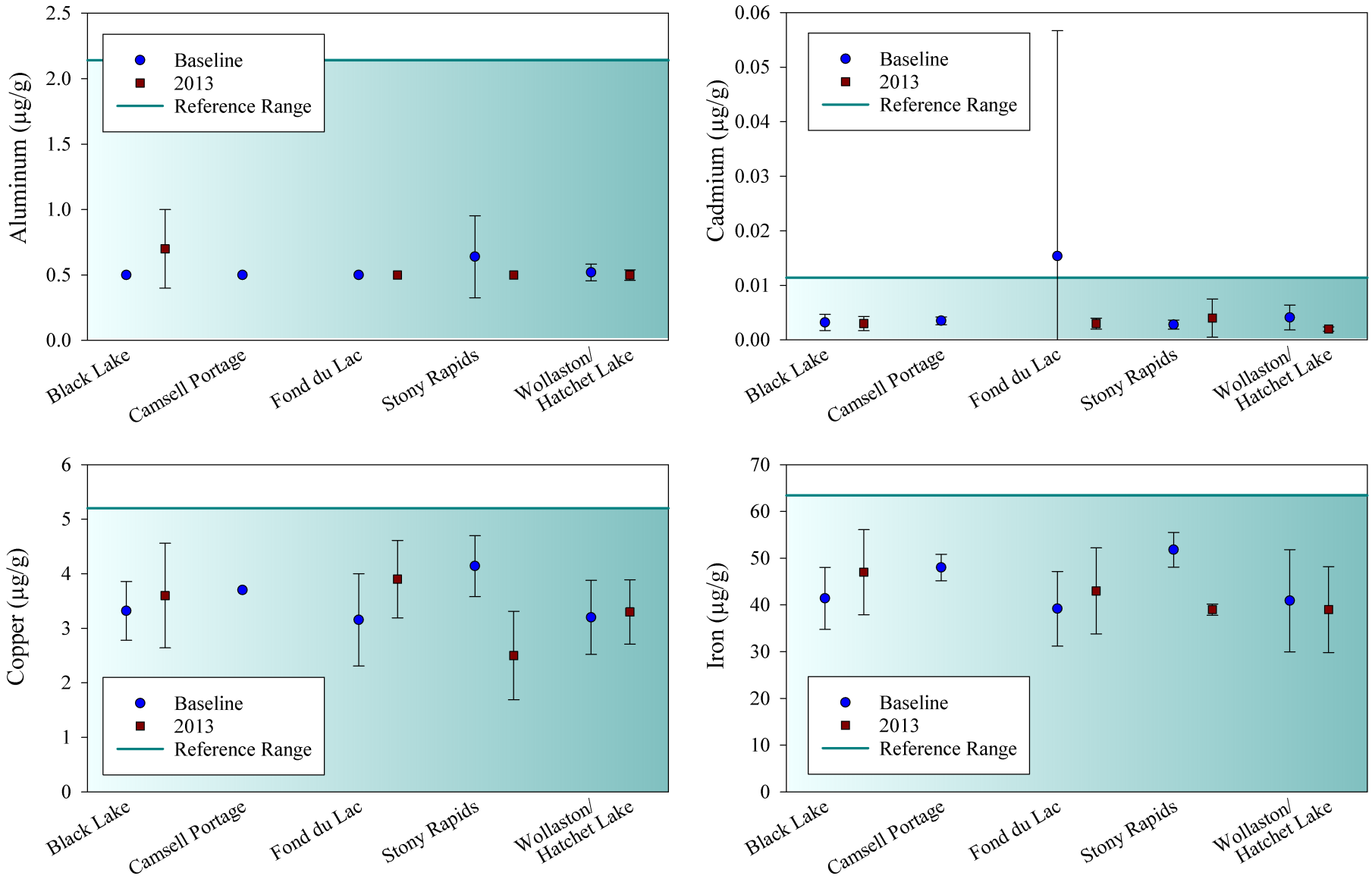
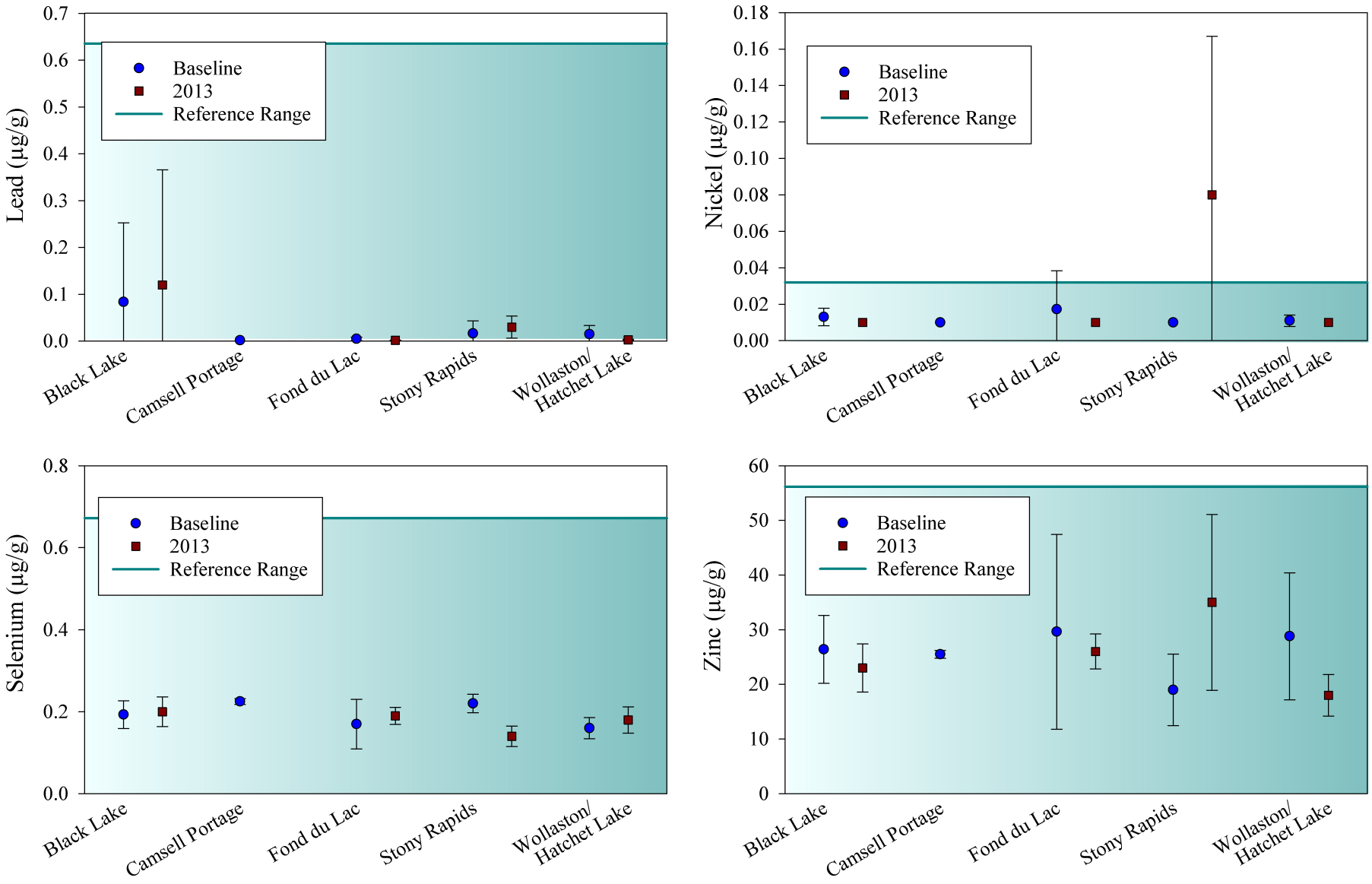


Figure 7.
Chemicals in barren-ground caribou from the EARMP community study areas collected in 2013.



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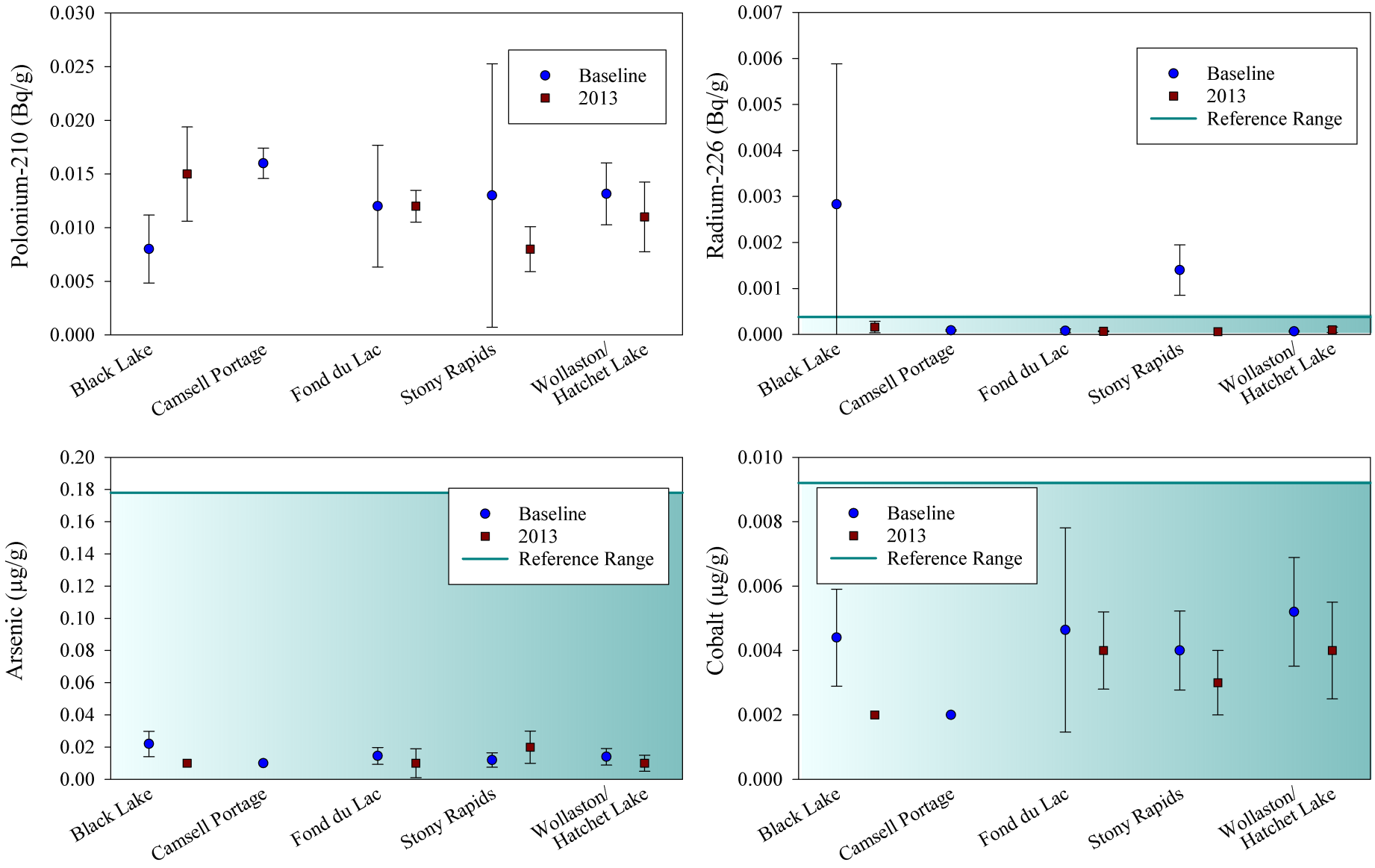

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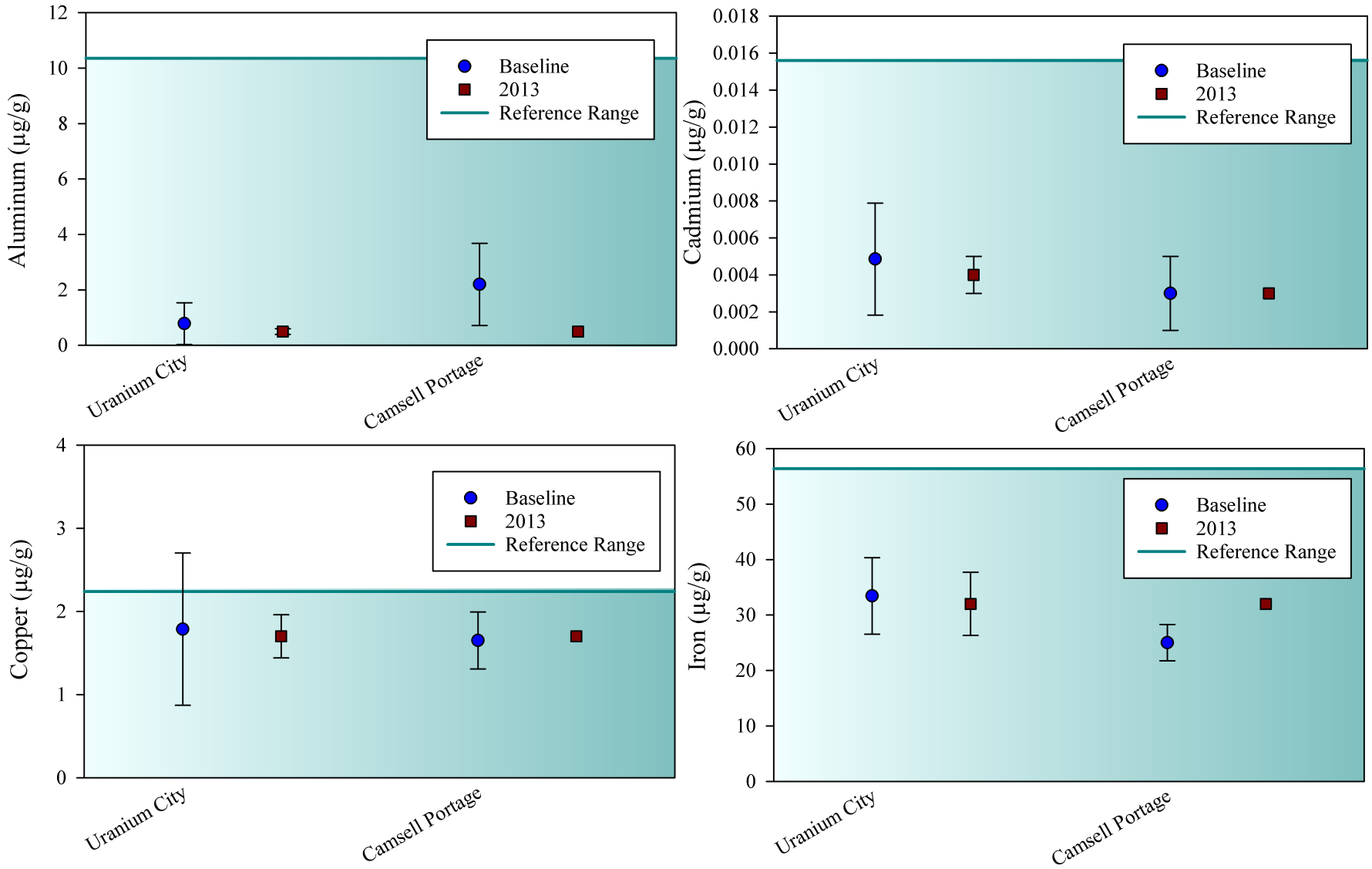

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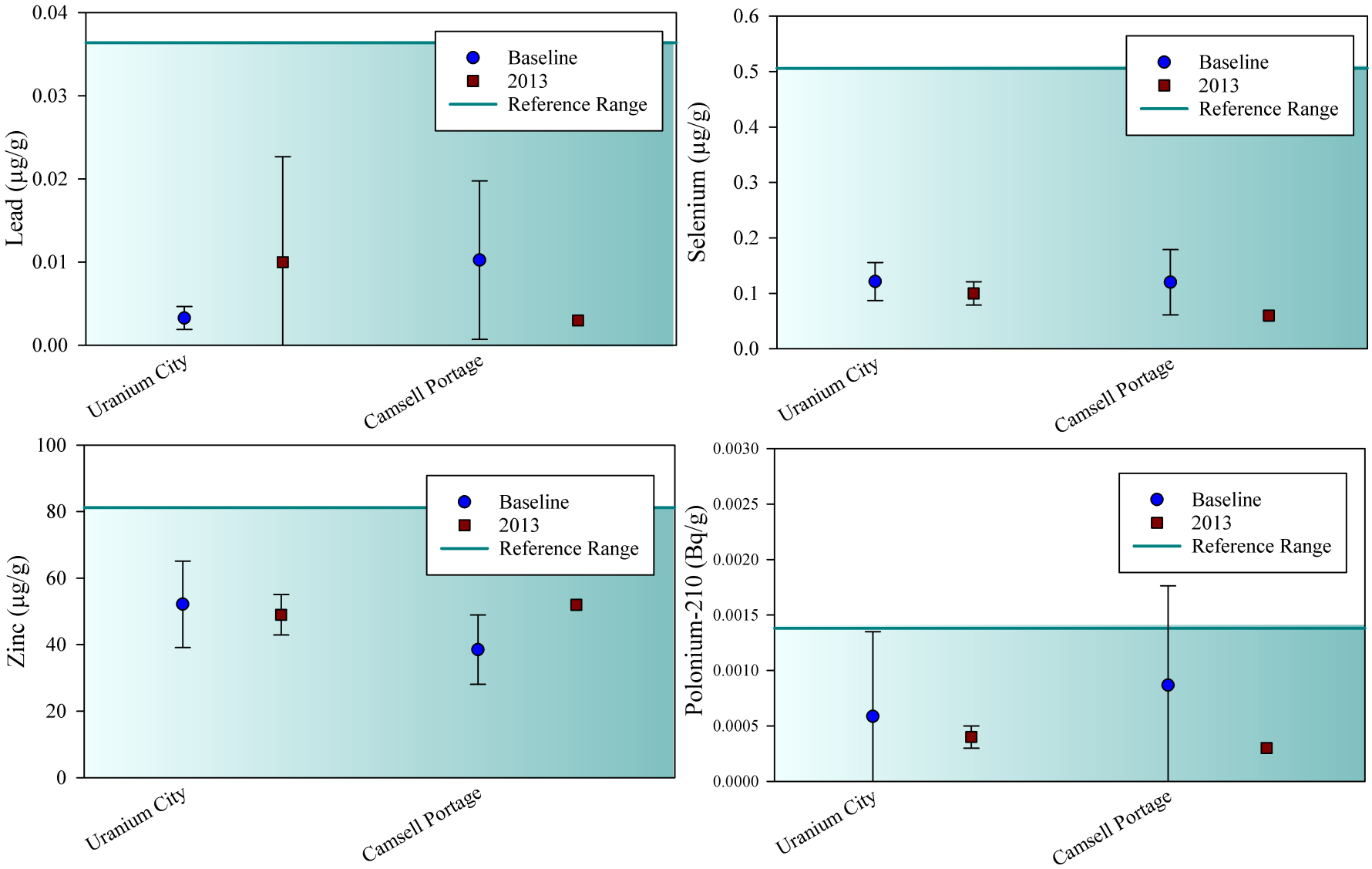
Chemicals in moose from the EARMP community study areas collected in 2013.



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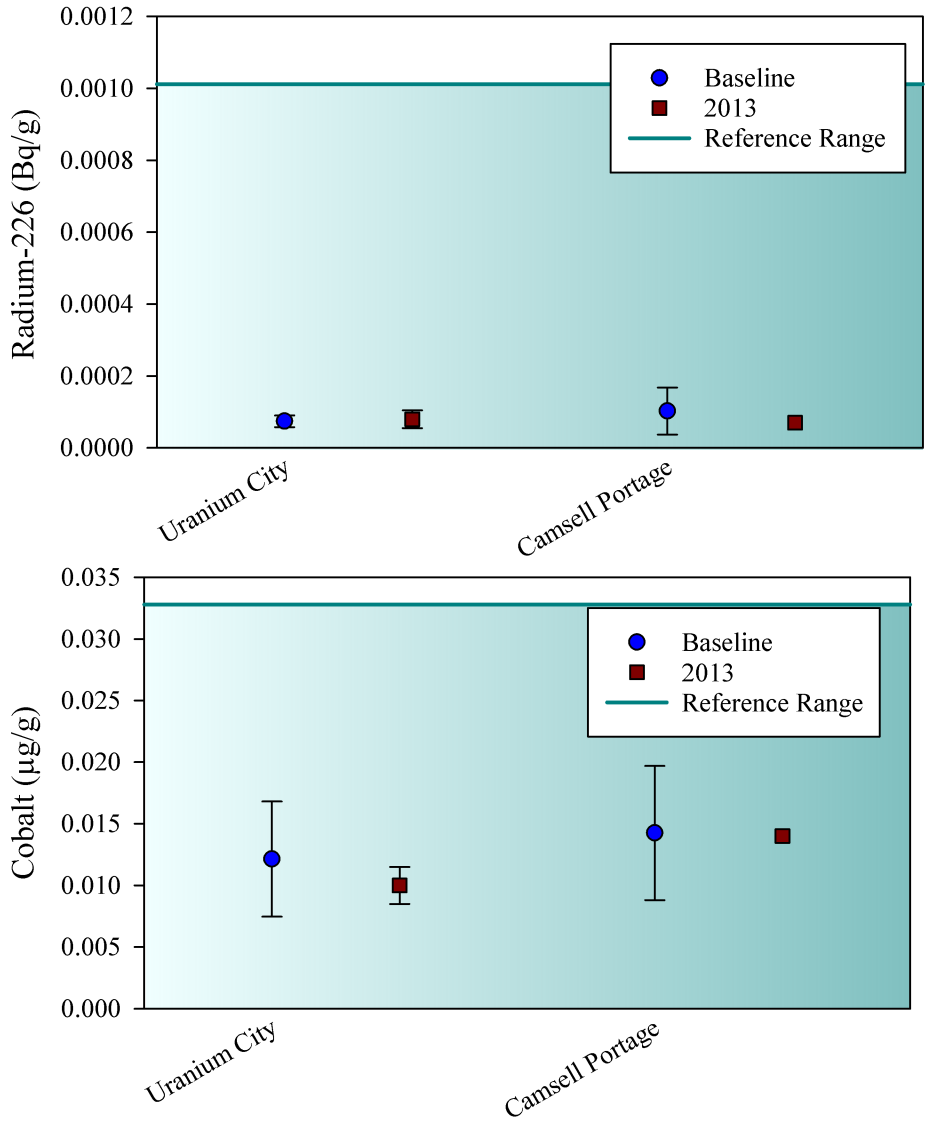

Figure 8.
Chemicals in moose from the EARMP community study areas collected in 2013.

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APPENDIX B, TABLE 1

Summary water chemistry results for the EARMP community program.

Chemical[1]	Guidelines		Regional Reference[4]		Black Lake			Camsell Portage			Fond du Lac		
	CDWQ[2]	CWQG[3]	Average	SD	2011	2012	2013	2011	2012	2013	2011	2012	2013
Metals													
Aluminum	0.2	0.1[5]	0.0090	0.01435	0.0020	0.0026	0.0026	0.0016	0.0010	0.0044	0.0140	0.0200	0.011
Cadmium	0.005	0.00004-0.0001[6]	0.00011	0.00016	0.00001	0.00001	<0.00001	0.00001	0.00001	<0.00001	0.00002	<0.00001	0.00001
Copper	1	0.002[6]	0.0003	0.00107	<0.0002	<0.0002	0.0003	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Iron	0.3	0.3	0.130	0.1167	0.026	0.013	0.022	0.0049	0.0044	0.0078	0.023	0.03	0.017
Lead	0.01	0.001[6]	0.0003	0.00094	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Mercury (µg/L)	1	0.026	0.05	0.016	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum	-	0.073	0.0002	0.00029	0.0002	0.0001	0.0001	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001
Nickel	-	0.025[6]	0.0002	0.00037	0.0002	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003
Selenium	0.01	0.001	0.0001	0.00005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Uranium (µg/L)	20	15	0.2	0.31	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1
Zinc	5	0.03	0.0021	0.00219	0.0018	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Nutrients													
Ammonia as N	-	2.68-26.65[7]	0.06	0.10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Organic carbon	-	-	3.3	1.8	2.5	3.8	2.9	2.8	3.5	3.2	2.7	1.9	3.2
Physical Properties													
pH (pH units)	6.5-8.5	6.5-9.0	7.03	0.38	7.12	7.18	7.38	7.46	7.50	7.71	7.22	7.14	6.86
Sp. Cond. (µS/cm)	-	-	33	28.6	40	38	38	66	69	69	39	44	42
Total hardness	-	-	12	13.5	14	13	14	26	26	27	14	15	15
Radionuclides													
Lead-210 (Bq/L)	0.2	-	0.02	0.004	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02
Polonium-210 (Bq/L)	-	-	0.006	0.0014	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226 (Bq/L)	0.5	-	0.006	0.0064	<0.005	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Thorium-230 (Bq/L)	-	-	0.01	0.007	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01
Trace Elements													
Arsenic (µg/L)	10	5	0.1	0.07	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1
Cobalt	-	-	0.0001	0.00016	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	-	-	0.0001	0.00016	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

APPENDIX B, TABLE 1

Summary water chemistry results for the EARMP community program.

Chemical[1]	Guidelines		Regional Reference[4]		Stony Rapids			Uranium City			Wollaston Lake/ Hatchet Lake		
	CDWQ[2]	CWQG[3]	Average	SD	2011	2012	2013	2011	2012	2013	2011	2012	2013
Metals													
Aluminum	0.2	0.1[5]	0.0090	0.01435	0.0180	0.0084	0.012	0.0051	0.0051	0.0057	0.0047	0.0140	0.0074
Cadmium	0.005	0.00004-0.0001[6]	0.00011	0.00016	0.00002	<0.00001	0.00001	0.00001	0.00001	0.00002	0.00001	<0.00001	<0.00001
Copper	1	0.002[6]	0.0003	0.00107	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0006	<0.0002	<0.0002	<0.0002
Iron	0.3	0.3	0.130	0.1167	0.074	0.045	0.037	0.031	0.041	0.05	0.014	0.035	0.043
Lead	0.01	0.001[6]	0.0003	0.00094	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001
Mercury (µg/L)	1	0.026	0.05	0.016	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum	-	0.073	0.0002	0.00029	0.0002	0.0002	0.0001	0.0004	0.0004	0.0004	0.0012	0.0012	0.001
Nickel	-	0.025[6]	0.0002	0.00037	0.0002	0.0001	0.0002	0.0001	0.0001	0.0002	0.0001	0.0001	0.0001
Selenium	0.01	0.001	0.0001	0.00005	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Uranium (µg/L)	20	15	0.2	0.31	<0.1	<0.1	<0.1	3.5	1.3	1.4	<0.1	<0.1	<0.1
Zinc	5	0.03	0.0021	0.00219	<0.0005	<0.0005	<0.0005	0.0014	<0.0005	0.0013	<0.0005	<0.0005	<0.0005
Nutrients													
Ammonia as N	-	0.85-26.65[7]	0.06	0.10	<0.01	<0.01	0.05	<0.01	0.03	0.05	<0.01	<0.01	<0.01
Organic carbon	-	-	3.3	1.8	2.7	3.8	4.1	7.4	9.9	7.6	2.5	3	2.8
Physical Properties													
pH (pH units)	6.5-8.5	6.5-9.0	7.03	0.38	7.30	7.30	7.38	7.75	7.72	7.94	7.10	7.12	7.37
Sp. Cond. (µS/cm)	-	-	33	28.6	39	40	36	114	112	113	34	37	34
Total hardness	-	-	12	13.5	13	14	13	49	52	56	13	13	13
Radionuclides													
Lead-210 (Bq/L)	0.2	-	0.02	0.004	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Polonium-210 (Bq/L)	-	-	0.006	0.0014	<0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226 (Bq/L)	0.5	-	0.006	0.0064	<0.005	0.01	<0.005	0.008	0.01	<0.005	<0.005	0.009	<0.005
Thorium-230 (Bq/L)	-	-	0.01	0.007	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Trace Elements													
Arsenic (µg/L)	10	5	0.1	0.07	0.2	0.2	0.2	0.1	0.2	0.2	<0.1	<0.1	0.1
Cobalt	-	-	0.0001	0.00016	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	-	-	0.0001	0.00016	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

[1]All values are in mg/L, unless specified otherwise.

[2]CDWQ = Guidelines for Canadian drinking water quality (HC 2012).

[3]CWQG = Canadian water quality guidelines for the protection of aquatic life (CCME 2014); guideline values for long-term exposure.

[4]Water chemistry data from reference lakes north of Point's North sampled between 2006 and 2013 were utilized to generate the regional reference values (n = 193 samples from 24 lakes).

[5]Adjusted according to water pH of each waterbody.

[6]Adjusted according to water hardness of each waterbody.

[7]Adjusted according to A water temperature of approximately 10°C and pH of each waterbody.

Values less than the method detection limit (MDL) were set equal to the MDL when calculating summary statistics.

SD = standard deviation.

APPENDIX B, TABLE 2

Summary fish flesh chemistry results for the EARMP community program.

Chemical[1]	Black Lake (Black Lake)															
	Lake Trout								Lake Whitefish							
	Regional Reference		Baseline		2013				Regional Reference		Baseline		2013			
	Average	S.D.	Average	S.D.	Average	S.D.	n < MDL	n	Average	S.D.	Average	S.D.	Average	S.D.	<MDL	N
Metals																
Aluminum	0.44	0.161	0.38	0.316	0.50	-	5	5	0.38	0.316	0.5	-	0.5	-	5	5
Cadmium	0.002	-	0.002	0	0.002	-	5	5	0.002	0	0.002	-	0.002	-	5	5
Copper	0.35	0.199	0.21	0.081	0.24	0.016	0	5	0.21	0.081	0.17	0.073	0.114	0.0879	0	5
Iron	4.5	2.85	2.8	1.67	1.8	0.23	0	5	2.8	1.67	1.9	0.87	1.54	0.611	0	5
Lead	0.003	0.0028	0.003	0.0043	0.002	-	5	5	0.003	0.0043	0.002	0.00035	0.002	-	5	5
Mercury	0.15	0.116	0.06	0.047	0.40	0.084	0	5	0.06	0.047	0.10	0.058	0.058	0.0259	0	5
Molybdenum	0.02	0.007	0.02	-	0.02	-	5	5	0.02	-	0.02	-	0.02	-	5	5
Nickel	0.01	0.006	0.01	0.009	0.01	-	5	5	0.01	0.009	0.01	0	0.01	-	5	5
Selenium	0.25	0.059	0.30	0.156	0.14	0.024	0	5	0.30	0.156	0.25	0.063	0.22	0.048	0	5
Uranium	0.002	0.0017	0.001	0.0010	0.001	-	5	5	0.001	0.0010	0.001	0.00026	0.001	-	5	5
Zinc	4.6	2.06	4.9	1.93	3.4	0.42	0	5	4.9	1.93	4.4	0.97	3.92	0.517	0	5
Radionuclides																
Lead-210 (Bq/g)	0.009	0.0125	0.001	0.0015	0.001	-	5	5	0.001	0.0015	0.001	0.0011	0.001	0	4	5
Polonium-210 (Bq/g)	0.0005	0.00037	0.0021	0.00231	0.0002	-	5	5	0.0021	0.00231	0.0004	0.00029	0.00036	0.000152	0	5
Radium-226 (Bq/g)	0.0004	0.00052	0.00009	0.000065	0.000072	0.0000179	4	5	0.00009	0.000065	0.0003	0.00054	0.00016	0.000148	3	5
Thorium-230 (Bq/g)	0.0002	0.00041	0.0002	0.00029	0.0001	0.00004	5	5	0.0002	0.00029	0.0004	0.00067	0.0001	0.00004	4	5
Trace Elements																
Arsenic	0.04	0.029	0.05	0.063	0.05	0.008	0	5	0.05	0.063	0.13	0.133	0.024	0.0089	0	5
Cobalt	0.003	0.0009	0.005	0.0074	0.002	-	5	5	0.005	0.0074	0.003	0.0010	0.0026	0.00134	2	5
Vanadium	0.02	-	0.02	-	0.02	-	5	5	0.02	-	0.02	-	0.02	-	5	5

APPENDIX B, TABLE 2

Summary fish flesh chemistry results for the EARMP community program.

Chemical[1]	Camsell Portage (Ellis Bay)															
	Lake Trout								Lake Whitefish							
	Regional Reference		Baseline		2013				Regional Reference		Baseline		2013			
	Average	S.D.	Average	S.D.	Average	S.D.	<MDL	N	Average	S.D.	Average	S.D.	Average	S.D.	<MDL	N
Metals																
Aluminum	0.44	0.161	0.5	-	0.5	-	5	5	0.38	0.316	0.5	-	0.50	-	5	5
Cadmium	0.002	-	0.002	-	0.002	-	5	5	0.002	0	0.002	-	0.002	-	5	5
Copper	0.35	0.199	0.32	0.126	0.278	0.0634	0	5	0.21	0.081	0.18	0.078	0.17	0.063	0	5
Iron	4.5	2.85	2.6	1.21	2.12	0.455	0	5	2.8	1.67	2.3	0.97	2.6	0.75	0	5
Lead	0.003	0.0028	0.002	-	0.002	-	5	5	0.003	0.0043	0.002	0.0003	0.002	-	5	5
Mercury	0.15	0.116	0.18	0.090	0.234	0.1159	0	5	0.06	0.047	0.058	0.0406	0.08	0.058	0	5
Molybdenum	0.02	0.007	0.02	-	0.02	-	5	5	0.02	-	0.02	-	0.02	-	5	5
Nickel	0.01	0.006	0.01	0.011	0.018	0.0179	4	5	0.01	0.009	0.01	0.003	0.01	-	5	5
Selenium	0.25	0.059	0.16	0.0207	0.164	0.0152	0	5	0.30	0.156	0.26	0.025	0.26	0.019	0	5
Uranium	0.002	0.0017	0.0019	0.00324	0.001	-	5	5	0.001	0.0010	0.002	0.0011	0.003	0.0011	1	5
Zinc	4.6	2.06	4.4	2.55	3.26	0.358	0	5	4.9	1.93	3.4	0.83	3.7	1.12	0	5
Radionuclides																
Lead-210 (Bq/g)	0.009	0.0125	0.001	-	0.001	-	5	5	0.001	0.0015	0.001	0.0003	0.001	-	5	5
Polonium-210 (Bq/g)	0.0005	0.00037	0.0002	0.00012	0.0002	-	5	5	0.0021	0.00231	0.0002	0.00009	0.0002	-	5	5
Radium-226 (Bq/g)	0.0004	0.00052	0.0001	0.00004	0.00007	0.000024	3	5	0.00009	0.000065	0.0001	0.00008	0.0001	0.00006	3	5
Thorium-230 (Bq/g)	0.0002	0.00041	0.0001	-	0.000096	0.0000089	5	5	0.0002	0.00029	0.0001	-	0.00014	-	5	5
Trace Elements																
Arsenic	0.04	0.029	0.10	0.061	0.08	0.038	0	5	0.05	0.063	0.29	0.102	0.288	0.1377	0	5
Cobalt	0.003	0.0009	0.002	0.0003	0.002	0	4	5	0.005	0.0074	0.003	0.0016	0.003	0.0014	2	5
Vanadium	0.02	-	0.02	-	0.02	-	5	5	0.02	-	0.02	-	0.02	-	5	5

APPENDIX B, TABLE 2

Summary fish flesh chemistry results for the EARMP community program.

Chemical[1]	Fond du Lac (Fond du Lac River)															
	Lake Trout								Lake Whitefish							
	Regional Reference		Baseline		2013				Regional Reference		Baseline		2013			
	Average	S.D.	Average	S.D.	Average	S.D.	<MDL	N	Average	S.D.	Average	S.D.	Average	S.D.	<MDL	N
Metals																
Aluminum	0.44	0.161	0.5	-	0.50	-	5	5	0.38	0.316	0.6	0.25	0.5	-	5	5
Cadmium	0.002	-	0.002	-	0.002	-	5	5	0.002	0	0.002	0.0013	0.002	0	4	5
Copper	0.35	0.199	0.28	0.081	0.30	0.087	0	5	0.21	0.081	0.18	0.057	0.2	0.09	0	5
Iron	4.5	2.85	2.4	0.90	1.7	0.43	0	5	2.8	1.67	2.2	1.48	2.4	1.37	0	5
Lead	0.003	0.0028	0.002	0.0007	0.003	0.0027	4	5	0.003	0.0043	0.002	0.0007	0.002	-	5	5
Mercury	0.15	0.116	0.22	0.073	0.08	0.030	0	5	0.06	0.047	0.09	0.068	0.028	0.0084	0	5
Molybdenum	0.02	0.007	0.02	-	0.02	-	5	5	0.02	-	0.02	-	0.02	-	5	5
Nickel	0.01	0.006	0.01	-	0.01	0.005	3	5	0.01	0.009	0.01	0.003	0.01	0	4	5
Selenium	0.25	0.059	0.15	0.019	0.16	0.017	0	5	0.30	0.156	0.22	0.048	0.202	0.0517	0	5
Uranium	0.002	0.0017	0.001	0.0003	0.001	-	5	5	0.001	0.0010	0.001	0.0007	0.001	-	5	5
Zinc	4.6	2.06	3.7	0.47	3.3	0.55	0	5	4.9	1.93	3.9	0.94	4.12	0.740	0	5
Radionuclides																
Lead-210 (Bq/g)	0.009	0.0125	0.001	0.0004	0.001	-	5	5	0.001	0.0015	0.004	-	0.001	-	5	5
Polonium-210 (Bq/g)	0.0005	0.00037	0.0002	-	0.0002	-	5	5	0.0021	0.00231	0.0004	0.00034	0.0002	-	5	5
Radium-226 (Bq/g)	0.0004	0.00052	0.00006	-	0.00006	0.000004	5	5	0.00009	0.000065	0.0004	0.00065	0.000074	0.0000195	4	5
Thorium-230 (Bq/g)	0.0002	0.00041	0.0001	-	0.0001	-	5	5	0.0002	0.00029	0.002	-	0.00012	-	5	5
Trace Elements																
Arsenic	0.04	0.029	0.10	0.040	0.07	0.028	0	5	0.05	0.063	0.24	0.136	0.06	0.034	0	5
Cobalt	0.003	0.0009	0.002	-	0.002	-	5	5	0.005	0.0074	0.004	0.0039	0.0054	0.00488	1	5
Vanadium	0.02	-	0.02	-	0.02	-	5	5	0.02	-	0.02	-	0.02	-	5	5

APPENDIX B, TABLE 2

Summary fish flesh chemistry results for the EARMP community program.

Chemical[1]	Stony Rapids (Fond du Lac River)															
	Lake Trout								Lake Whitefish							
	Regional Reference		Baseline		2013				Regional Reference		Baseline		2013			
	Average	S.D.	Average	S.D.	Average	S.D.	<MDL	N	Average	S.D.	Average	S.D.	Average	S.D.	<MDL	N
Metals																
Aluminum	0.44	0.161	0.5	-	0.5	-	5	5	0.38	0.316	0.5	-	0.50	-	5	5
Cadmium	0.002	-	0.002	-	0.002	-	5	5	0.002	0	0.002	-	0.002	-	5	5
Copper	0.35	0.199	0.29	0.191	0.352	0.0676	0	5	0.21	0.081	0.20	0.083	0.22	0.064	0	5
Iron	4.5	2.85	2.8	2.32	3.76	1.348	0	5	2.8	1.67	2.1	0.98	2.5	1.32	0	5
Lead	0.003	0.0028	0.002	-	0.002	-	5	5	0.003	0.0043	0.002	-	0.002	-	5	5
Mercury	0.15	0.116	0.33	0.156	0.176	0.0723	0	5	0.06	0.047	0.13	0.103	0.06	0.021	0	5
Molybdenum	0.02	0.007	0.02	-	0.02	-	5	5	0.02	-	0.02	-	0.02	-	5	5
Nickel	0.01	0.006	0.01	0	0.01	0	4	5	0.01	0.009	0.01	0.013	0.01	-	5	5
Selenium	0.25	0.059	0.14	0.037	0.166	0.0182	0	5	0.30	0.156	0.15	0.049	0.13	0.013	0	5
Uranium	0.002	0.0017	0.001	0.0003	0.001	-	5	5	0.001	0.0010	0.001	0	0.001	-	5	5
Zinc	4.6	2.06	3.7	0.86	3.6	0.46	0	5	4.9	1.93	4.9	1.70	4.3	0.61	0	5
Radionuclides																
Lead-210 (Bq/g)	0.009	0.0125	0.001	0	0.001	0	4	5	0.001	0.0015	0.001	-	0.001	-	5	5
Polonium-210 (Bq/g)	0.0005	0.00037	0.0002	0.00007	0.0002	0.00004	3	5	0.0021	0.00231	0.0003	-	0.0002	0	4	5
Radium-226 (Bq/g)	0.0004	0.00052	0.00006	-	0.00007	0.000017	4	5	0.00009	0.000065	0.00016	0.000295	0.00007	0.000019	3	5
Thorium-230 (Bq/g)	0.0002	0.00041	0.0001	-	0.0001	-	5	5	0.0002	0.00029	0.0003	0.00060	0.0001	-	5	5
Trace Elements																
Arsenic	0.04	0.029	0.07	0.044	0.13	0.080	0	5	0.05	0.063	0.04	0.018	0.03	0.007	0	5
Cobalt	0.003	0.0009	0.002	0	0.002	-	5	5	0.005	0.0074	0.006	0.0031	0.005	0.0009	0	5
Vanadium	0.02	-	0.02	-	0.02	-	5	5	0.02	-	0.02	-	0.02	-	5	5

APPENDIX B, TABLE 2

Summary fish flesh chemistry results for the EARMP community program.

Chemical[1]	Uranium City (Prospector Bay)															
	Lake Trout								Lake Whitefish							
	Regional Reference		Baseline		2013				Regional Reference		Baseline		2013			
	Average	S.D.	Average	S.D.	Average	S.D.	<MDL	N	Average	S.D.	Average	S.D.	Average	S.D.	<MDL	N
Metals																
Aluminum	0.44	0.161	0.5	-	0.50	-	5	5	0.38	0.316	0.5	-	0.5	-	3	3
Cadmium	0.002	-	0.002	-	0.002	-	5	5	0.002	0	0.002	0	0.002	0	2	3
Copper	0.35	0.199	0.23	0.0353	0.22	0.042	0	5	0.21	0.081	0.19	0.087	0.26	0.112	0	3
Iron	4.5	2.85	2.9	1.88	3.0	2.59	0	5	2.8	1.67	1.9	0.58	2.33	0.551	0	3
Lead	0.003	0.0028	0.003	0.0013	0.003	0.0017	1	5	0.003	0.0043	0.002	0.0004	0.0023	0.00058	1	3
Mercury	0.15	0.116	0.17	0.056	0.14	0.056	0	5	0.06	0.047	0.070	0.0441	0.03	0.017	0	3
Molybdenum	0.02	0.007	0.02	-	0.02	-	5	5	0.02	-	0.02	-	0.02	-	3	3
Nickel	0.01	0.006	0.01	0.0032	0.01	0.004	4	5	0.01	0.009	0.01	0	0.01	1.646E-10	2	3
Selenium	0.25	0.059	0.16	0.0181	0.15	0.019	0	5	0.30	0.156	0.26	0.031	0.25	0.012	0	3
Uranium	0.002	0.0017	0.001	-	0.001	-	5	5	0.001	0.0010	0.001	-	0.001	-	3	3
Zinc	4.6	2.06	3.7	0.87	3.0	0.48	0	5	4.9	1.93	4.6	1.57	4.3	1.73	0	3
Radionuclides																
Lead-210 (Bq/g)	0.009	0.0125	0.001	-	0.001	-	5	5	0.001	0.0015	0.001	-	0.001	-	3	3
Polonium-210 (Bq/g)	0.0005	0.00037	0.0002	0	0.0002	0	4	5	0.0021	0.00231	0.0003	0.00014	0.00023	0.000058	2	3
Radium-226 (Bq/g)	0.0004	0.00052	0.00008	0.000045	0.00009	0.000061	3	5	0.00009	0.000065	0.00006	0.000009	0.00006	0	2	3
Thorium-230 (Bq/g)	0.0002	0.00041	0.0001	0.00003	0.0001	0.00004	4	5	0.0002	0.00029	0.0001	-	0.0001	-	3	3
Trace Elements																
Arsenic	0.04	0.029	0.071	0.0247	0.06	0.016	0	5	0.05	0.063	0.12	0.067	0.19	0.026	0	3
Cobalt	0.003	0.0009	0.002	-	0.002	-	5	5	0.005	0.0074	0.0069	0.00530	0.0087	0.00643	0	3
Vanadium	0.02	-	0.02	-	0.02	-	5	5	0.02	-	0.02	-	0.02	-	3	3

APPENDIX B, TABLE 2

Summary fish flesh chemistry results for the EARMP community program.

Chemical[1]	Wollaston Lake/Hatchet Lake (Wollaston Lake)															
	Lake Trout								Lake Whitefish							
	Regional Reference		Baseline		2013				Regional Reference		Baseline		2013			
	Average	S.D.	Average	S.D.	Average	S.D.	<MDL	N	Average	S.D.	Average	S.D.	Average	S.D.	<MDL	N
Metals																
Aluminum	0.44	0.161	0.5	-	0.50	-	5	5	0.38	0.316	0.5	-	0.5	-	5	5
Cadmium	0.002	-	0.002	-	0.002	-	5	5	0.002	0	0.002	-	0.002	-	5	5
Copper	0.35	0.199	0.45	0.146	0.34	0.030	0	5	0.21	0.081	0.16	0.045	0.144	0.0152	0	5
Iron	4.5	2.85	3.0	1.34	2.4	0.36	0	5	2.8	1.67	1.7	0.79	2.14	0.586	0	5
Lead	0.003	0.0028	0.002	-	0.003	0.0013	4	5	0.003	0.0043	0.002	0	0.002	0	4	5
Mercury	0.15	0.116	0.16	0.035	0.12	0.038	0	5	0.06	0.047	0.05	0.019	0.04	0.023	0	5
Molybdenum	0.02	0.007	0.02	-	0.02	-	5	5	0.02	-	0.02	-	0.02	-	5	5
Nickel	0.01	0.006	0.01	0.003	0.01	-	5	5	0.01	0.009	0.01	-	0.012	0.0045	3	5
Selenium	0.25	0.059	0.21	0.036	0.20	0.011	0	5	0.30	0.156	0.45	0.104	0.356	0.0462	0	5
Uranium	0.002	0.0017	0.001	-	0.001	0.0004	4	5	0.001	0.0010	0.001	-	0.001	-	5	5
Zinc	4.6	2.06	4.4	1.25	4.4	0.83	0	5	4.9	1.93	4.1	0.67	3.96	0.876	0	5
Radionuclides																
Lead-210 (Bq/g)	0.009	0.0125	0.001	0	0.001	-	5	5	0.001	0.0015	0.002	-	0.00086	0.000313	4	5
Polonium-210 (Bq/g)	0.0005	0.00037	0.0002	-	0.0002	-	5	5	0.0021	0.00231	0.0005	0.00036	0.00044	0.000358	3	5
Radium-226 (Bq/g)	0.0004	0.00052	0.00009	0.000076	0.000094	0.0000598	2	5	0.00009	0.000065	0.0005	0.00082	0.00028	0.000402	2	5
Thorium-230 (Bq/g)	0.0002	0.00041	0.0001	-	0.0001	-	5	5	0.0002	0.00029	0.0007	-	0.0001	-	5	5
Trace Elements																
Arsenic	0.04	0.029	0.04	0.018	0.034	0.0167	0	5	0.05	0.063	0.16	0.042	0.146	0.0351	0	5
Cobalt	0.003	0.0009	0.002	-	0.002	-	5	5	0.005	0.0074	0.002	0.0010	0.002	0	4	5
Vanadium	0.02	-	0.02	-	0.02	-	5	5	0.02	-	0.02	-	0.02	-	5	5

[1]All concentrations are reported on a µg/g wet weight basis, except when specified otherwise.

Regional reference data are from reference lakes north of Point's North sampled between 2006 and 2012 (n = 30 for lake trout; n = 58 for lake whitefish; n = 166 for northern pike).

S.D. = Standard deviation; standard deviations of 0 signify "no variance between samples", not "a very small variance";while "-" indicates insufficient data to calculate S.D.

<MDL = number of samples with values below the laboratory method detection limit.

Values less than the MDL were set equal to the MDL when calculating summary statistics.

APPENDIX B, TABLE 3

Summary blueberry chemistry results for the EARMP community program.

Chemical[1]	Regional Reference[2]		Black Lake						Camsell Portage						Fond du Lac					
			Baseline		2013				Baseline		2013				Baseline		2013			
	Average	S.D.[3]	Average	S.D.	Average	S.D.	<MDL	N	Average	S.D.	Average	S.D.	<MDL	N	Average	S.D.	Average	S.D.	<MDL	N
Metals																				
Aluminum	14.6	12.63	7.9	2.07	9.2	1.8		5	7.0	0.57	7.1	0.39		5	9.4	4.88	14.6	4.04		5
Cadmium	0.01	0.002	0.01	-	0.01	0.004	3	5	0.01	-	0.01	-	5	5	0.01	-	0.01	-	5	5
Copper	3.4	0.80	3.2	0.46	2.0	0.65		5	3.2	0.39	2.2	0.09		5	3.3	0.49	2.2	0.43		5
Iron	40.1	114.18	10.6	3.47	7.4	1.95		5	12.1	3.68	10.0	1.87		5	12.1	3.90	15.4	5.50		5
Lead	0.02	0.015	0.03	0.024	0.02	0.005	2	5	0.02	0.013	0.02	0.008	1	5	0.02	0.008	0.02	0.011		5
Molybdenum	0.2	0.11	0.1	0.05	0.1	0.04	1	5	0.1	0.05	0.2	0.04		5	0.3	0.13	0.3	0.05		5
Nickel	0.64	0.260	0.55	0.117	0.42	0.095		5	0.53	0.169	0.15	0.019		5	0.66	0.156	0.55	0.117		5
Selenium	0.05	0.002	0.05	0.010	0.05	-	5	5	0.05	-	0.05	-	5	5	0.06	0.011	0.05	-	5	5
Uranium	0.01	-	0.01	-	0.01	0	4	5	0.02	0.031	0.01	-	5	5	0.01	0.003	0.01	-	5	5
Zinc	6.7	1.89	5.3	0.90	5.9	1.34		5	8.5	2.80	6.6	1.09		5	6.4	1.59	7.0	0.87		5
Radionuclides																				
Lead-210 (Bq/g)	0.006	0.0055	0.005	0.0040	0.001	0.0005	3	5	0.002	0.0013	0.007	0.0040	2	5	0.004	0.0040	0.004	0.0031	2	5
Polonium-210 (Bq/g)	0.006	0.0046	0.0015	0.00053	0.0007	0.00013		5	0.0014	0.00027	0.0010	0	4	5	0.0016	0.00092	0.0023	0.00246	1	5
Radium-226 (Bq/g)	0.003	0.0023	0.0019	0.00141	0.0029	0.00077		5	0.003	0.0012	0.0028	0.00084		5	0.003	0.0011	0.0042	0.0013		5
Thorium-230 (Bq/g)	0.002	0	0.002	0.0005	0.002	-	5	5	0.001	-	0.002	-	5	5	0.001	-	0.002	-	5	5
Trace Elements																				
Arsenic	0.05	-	0.05	-	0.05	-	5	5	0.05	-	0.05	-	5	5	0.05	-	0.05	-	5	5
Cobalt	0.02	0.007	0.01	0.013	0.01	0	4	5	0.01	0.004	0.01	-	5	5	0.01	0.005	0.02	0.005	1	5
Vanadium	0.1	-	0.1	-	0.1	-	5	5	0.1	-	0.1	-	5	5	0.1	-	0.1	-	5	5

APPENDIX B, TABLE 3

Summary blueberry chemistry results for the EARMP community program.

Chemical[1]	Regional Reference[2]		Stony Rapids						Wollaston Lake/ Hatchet Lake					
			Baseline		2013				Baseline		2013			
	Average	S.D.[3]	Average	S.D.	Average	S.D.	<MDL	N	Average	S.D.	Average	S.D.	<MDL	N
Metals														
Aluminum	14.6	12.63	14.7	10.21	244	43		5	12.5	7.77	7.0	0.32		5
Cadmium	0.01	0.002	0.01	0.003	0.01	-	5	5	0.01	-	0.01	-	5	5
Copper	3.4	0.80	2.5	0.49	2.4	0.25		5	2.8	0.51	1.8	0.21		5
Iron	40.1	114.18	14.9	7.18	10.6	0.91		5	13.3	5.51	9.4	0.55		5
Lead	0.02	0.015	0.03	0.028	0.01	0.004	3	5	0.02	0.011	0.02	0.009	3	5
Molybdenum	0.2	0.11	0.2	0.11	0.1	0.04	2	5	0.1	0.07	0.1	0.04	3	5
Nickel	0.64	0.260	0.59	0.189	0.33	0.073		5	0.56	0.129	0.22	0.026		5
Selenium	0.05	0.002	0.05	0	0.05	-	5	5	0.05	0	0.05	-	5	5
Uranium	0.01	-	0.01	0.004	0.01	-	5	5	0.01	0.003	0.01	-	5	5
Zinc	6.7	1.89	4.7	1.05	6.3	0.75		5	5.7	1.54	5.9	0.45		5
Radionuclides														
Lead-210 (Bq/g)	0.006	0.0055	0.008	0.0030	0.005	0.0013	4	5	0.0050	0.00394	0.006	0.0043	2	5
Polonium-210 (Bq/g)	0.006	0.0046	0.002	0.0007	0.001	0	3	5	0.0022	0.00131	0.0012	0.00045	4	5
Radium-226 (Bq/g)	0.003	0.0023	0.003	0.0017	0.014	0.0015		5	0.003	0.0019	0.0064	0.0021		5
Thorium-230 (Bq/g)	0.002	0	0.002	-	0.002	-	5	5	0.0016	-	0.002	-	5	5
Trace Elements														
Arsenic	0.05	-	0.05	-	0.05	-	5	5	0.05	-	0.05	-	5	5
Cobalt	0.02	0.007	0.02	0.019	0.01	-	5	5	0.01	0.003	0.01	0	3	5
Vanadium	0.1	-	0.1	-	0.1	-	5	5	0.1	-	0.1	-	5	5

[1]All concentrations are in µg/g on a dry weight basis, unless specified otherwise.

[2]Regional reference data are from the AWG program (2008 to 2010) and the Uranium City Country Foods program (2011). Data are not available from all communities in all years. Number of samples = 22, with the exception of polonium-210 and thorium-230 where only data from the Uranium City Country Foods program are

[3]S.D. = Standard deviation; standard deviations of 0 signify "no variance between samples", not "a very small variance".

<MDL = less than the laboratory method detection limit.

Values less than the MDL were set equal to the MDL when calculating summary statistics.

APPENDIX B, TABLE 4

Summary bog cranberry chemistry results for the EARMP community program, Uranium City.

Chemical[1]	Regional Reference[2]		Baseline		2013			
	Average	S.D.[3]	Average	S.D.	Average	S.D.	<MDL	N
Metals								
Aluminum	28.2	19.12	22	5.8	40	14.9	-	5
Cadmium	0.01	0.007	0.01	-	0.02	0.004	1	5
Copper	3.7	0.90	3.6	1.36	2.5	0.42	-	5
Iron	17.1	12.49	15	3.9	18	7.2	-	5
Lead	0.02	0.015	0.01	0.004	0.06	0.078	-	5
Molybdenum	0.1	0.07	0.1	-	0.1	0	1	5
Nickel	0.41	0.344	0.62	0.33	0.34	0.105	-	5
Selenium	0.05	0	0.05	-	0.05	-	5	5
Uranium	0.01	0.008	0.01	0.004	0.01	0.009	4	5
Zinc	7.5	1.84	6.8	1.45	7.5	0.80	-	5
Radionuclides								
Lead-210 (Bq/g)	0.003	0.0020	0.010	0.0055	0.007	0.0053	3	5
Polonium-210 (Bq/g)	-	-	0.005	0.0045	0.001	0.0004	1	5
Radium-226 (Bq/g)	0.0025	0.00249	0.002	0.0026	0.0022	0.0008	1	5
Thorium-230 (Bq/g)	-	-	0.002	-	0.002	-	5	5
Trace Elements								
Arsenic	0.05	0	0.05	-	0.05	-	5	5
Cobalt	0.02	0.020	0.04	0.054	0.02	0.004	-	5
Vanadium	0.1	0	0.1	-	0.1	-	5	5

[1]All concentrations are in µg/g on a dry weight basis, unless specified otherwise.

[2]Regional reference data are from the AWG program. Data used are from 2008 to 2011 (n=21); however, data are not available from all communities in all years.

[3]S.D. = Standard deviation; standard deviations of 0 signify "no variance between samples", not "a very small variance".
<MDL = less than the laboratory method detection limit.
Values less than the MDL were set equal to the MDL when calculating summary statistics.

APPENDIX B, TABLE 5

Summary barren-ground caribou flesh chemistry results for the EARMP community program.

Chemical[1]	Black Lake										
	Regional Reference[2]		Baseline		2013						
	Average	S.D.[3]	Average	S.D.	1	2	3	4	5	Average	S.D.
Metals											
Aluminum	0.6	0.77	0.5	0	<0.5	0.5	0.6	1.2	<0.5	0.7	0.3
Cadmium	0.006	0.0027	0.003	0.0015	0.002	<0.002	0.003	0.005	0.004	0.003	0.0013
Copper	3.0	1.10	3.3	0.54	4.6	3.3	3.2	2.4	4.6	3.6	0.96
Iron	41	11.2	41	6.6	49	38	58	37	52	47	9.1
Lead	0.096	0.2695	0.084	0.1688	<0.002	0.008	0.560	0.028	0.004	0.120	0.2460
Molybdenum[4]	0.05	0.009	0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	-
Nickel	0.02	0.006	0.01	0.005	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	-
Selenium	0.32	0.176	0.19	0.034	0.24	0.15	0.21	0.17	0.21	0.20	0.036
Uranium	0.002	0.0021	0.001	0	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	-
Zinc	32	12.1	26	6.2	19	21	23	30	20	23	4.4
Radionuclides											
Lead-210 (Bq/g)	0.001	0.0008	0.001	0	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	-
Polonium-210 (Bq/g)	-	-	0.008	0.0032	0.023	0.014	0.013	0.015	0.012	0.015	0.00439
Radium-226 (Bq/g)	0.00012	0.000131	0.0028	0.00305	<0.00006	0.00030	<0.00006	0.00030	0.00010	0.00016	0.000125
Thorium-230 (Bq/g)	-	-	0.0001	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	-
Trace Elements											
Arsenic	0.07	0.054	0.02	0.008	0.01	0.01	0.01	<0.01	<0.01	0.01	0
Cobalt	0.005	0.0021	0.004	0.0015	<0.002	0.002	0.002	<0.002	0.002	0.002	0
Vanadium[4]	0.04	0.013	0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	-

APPENDIX B, TABLE 5

Summary barren-ground caribou flesh chemistry results for the EARMP community program.

Chemical[1]	Fond du Lac										
	Regional Reference[2]		Baseline		2013						
	Average	S.D.[3]	Average	S.D.	1	2	3	4	5	Average	S.D.
Metals											
Aluminum	0.6	0.77	0.5	-	<0.5	<0.5	<0.5	<0.5	0.5	0.5	0
Cadmium	0.006	0.0027	0.015	0.0414	0.004	0.004	<0.002	0.003	0.002	0.003	0.0010
Copper	3.0	1.10	3.2	0.84	4.2	4.3	2.6	4.0	4.2	3.9	0.71
Iron	41	11.2	39	8.0	46	47	27	48	49	43	9.2
Lead	0.096	0.2695	0.005	0.0038	0.002	<0.002	<0.002	0.003	<0.002	0.002	0.0004
Molybdenum[4]	0.05	0.009	0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	-
Nickel	0.02	0.006	0.02	0.021	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	-
Selenium	0.32	0.176	0.17	0.060	0.19	0.17	0.17	0.18	0.22	0.19	0.021
Uranium	0.002	0.0021	0.001	0.0004	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	-
Zinc	32	12.1	30	17.8	28	22	30	26	24	26	3.2
Radionuclides											
Lead-210 (Bq/g)	0.001	0.0008	0.002	0.0021	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	-
Polonium-210 (Bq/g)	-	-	0.0120	0.00568	0.012	0.012	0.011	0.010	0.014	0.012	0.00148
Radium-226 (Bq/g)	0.00012	0.000131	0.00008	0.000043	<0.00006	<0.00006	<0.00006	0.00007	0.00008	0.00007	0.000009
Thorium-230 (Bq/g)	-	-	0.0001	0.00007	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	-
Trace Elements											
Arsenic	0.07	0.054	0.01	0.005	<0.01	<0.01	0.03	<0.01	<0.01	0.01	0.009
Cobalt	0.005	0.0021	0.005	0.0032	0.005	0.004	0.005	0.004	<0.002	0.004	0.0012
Vanadium[4]	0.04	0.013	0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	-

APPENDIX B, TABLE 5

Summary barren-ground caribou flesh chemistry results for the EARMP community program.

Chemical[1]	Stony Rapids								
	Regional Reference[2]		Baseline		2013				
	Average	S.D.[3]	Average	S.D.	1	2	3	Average	S.D.
Metals									
Aluminum	0.6	0.77	0.6	0.31	<0.5	<0.5	<0.5	0.5	-
Cadmium	0.006	0.0027	0.003	0.0008	<0.002	0.002	0.008	0.004	0.0035
Copper	3.0	1.10	4.1	0.56	2.4	3.4	1.8	2.5	0.81
Iron	41	11.2	52	3.7	38	38	40	39	1.2
Lead	0.096	0.2695	0.017	0.0272	0.005	0.052	0.032	0.030	0.0236
Molybdenum[4]	0.05	0.009	0.02	-	<0.02	<0.02	<0.02	0.020	-
Nickel	0.02	0.006	0.01	0	0.18	<0.01	0.06	0.08	0.087
Selenium	0.32	0.176	0.22	0.022	0.16	0.14	0.11	0.14	0.025
Uranium	0.002	0.0021	0.001	0.0004	<0.001	<0.001	<0.001	0.001	-
Zinc	32	12.1	19	6.5	40	17	48	35	16.1
Radionuclides									
Lead-210 (Bq/g)	0.001	0.0008	0.001	0.0004	<0.001	0.002	<0.001	0.001	0.0006
Polonium-210 (Bq/g)	-	-	0.013	0.0123	0.008	0.010	0.006	0.008	0.0021
Radium-226 (Bq/g)	0.00012	0.000131	0.001	0.0005	<0.00006	<0.00006	<0.00005	0.00006	-
Thorium-230 (Bq/g)	-	-	0.002	-	<0.0001	<0.0001	<0.0001	0.0001	-
Trace Elements									
Arsenic	0.07	0.054	0.01	0.004	0.03	0.02	0.01	0.02	0.010
Cobalt	0.005	0.0021	0.004	0.0012	0.004	0.002	0.003	0.003	0.0010
Vanadium[4]	0.04	0.013	0.02	-	<0.02	<0.02	<0.02	<0.02	-

APPENDIX B, TABLE 5

Summary barren-ground caribou flesh chemistry results for the EARMP community program.

Chemical[1]	Wollaston Lake/Hatchet Lake										
	Regional Reference[2]		Baseline		2013						
	Average	S.D.[3]	Average	S.D.	1	2	3	4	5	Average	S.D.
Metals											
Aluminum	0.6	0.77	0.52	0.063	<0.5	<0.5	<0.5	0.6	<0.5	0.5	0.04
Cadmium	0.006	0.0027	0.004	0.0023	0.002	0.002	0.002	0.002	0.003	0.002	0.0004
Copper	3.0	1.10	3.2	0.68	3.6	3.3	2.3	3.8	3.5	3.3	0.59
Iron	41	11.2	41	10.9	42	43	23	44	45	39	9.2
Lead	0.096	0.2695	0.015	0.0183	<0.002	<0.002	0.003	0.005	<0.002	0.003	0.0013
Molybdenum[4]	0.05	0.009	0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	-
Nickel	0.02	0.006	0.01	0.003	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	-
Selenium	0.32	0.176	0.16	0.026	0.21	0.13	0.16	0.20	0.18	0.18	0.032
Uranium	0.002	0.0021	0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	-
Zinc	32	12.1	29	11.6	16	20	18	13	23	18	3.8
Radionuclides											
Lead-210 (Bq/g)	0.001	0.0008	0.001	0.0003	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	-
Polonium-210 (Bq/g)	-	-	0.0132	0.00289	0.008	0.008	0.012	0.016	0.010	0.011	0.00324
Radium-226 (Bq/g)	0.00012	0.000131	0.00007	0.000014	<0.00008	<0.00009	0.00020	0.00006	<0.00007	0.00010	0.000057
Thorium-230 (Bq/g)	-	-	0.0001	-	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	0.0001	0.00005
Trace Elements											
Arsenic	0.07	0.054	0.01	0.005	0.02	<0.01	0.01	0.02	<0.01	0.01	0.005
Cobalt	0.005	0.0021	0.005	0.0017	0.003	0.006	<0.002	0.003	0.004	0.004	0.0015
Vanadium[4]	0.04	0.013	0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	-

[1]All concentrations are reported on a µg/g wet weight basis, except when specified otherwise.

[2]Regional reference data are from the AWG program. Data used are from 2000 to 2010 (n=32); however, data are not available from all communities in all years. Exceptions were cadmium, lead, and cobalt where only data from 2007 to 2010 (n=13) could be used due to large differences in MDLs.

[3]S.D. = Standard deviation; standard deviations of 0 signify "no variance between samples", not "a very small variance".

[4]The regional reference concentrations for molybdenum and vanadium were all <MDL; however, in most samples the MDL was 0.05, while a few samples had a MDL of 0.02. The differences in MDLs between samples results in regional reference averages that appear higher than the EARMP values and standard deviations being created.

<MDL = less than the laboratory method detection limit.

Values less than the MDL were set equal to the MDL when calculating summary statistics.

APPENDIX B, TABLE 6

Summary moose flesh chemistry results for the EARMP community program.

Chemical[1]	Camsell Portage						
	Regional Reference[2]		Baseline		2013		
	Average	S.D.[3]	Average	S.D.	1	2	Average
Metals							
Aluminum	2.1	4.13	2.2	1.48	<0.5	<0.5	0.5
Cadmium	0.007	0.0043	0.003	0.0020	0.002	0.003	0.003
Copper	1.4	0.42	1.7	0.34	1.5	1.8	1.7
Iron	32	12.2	25	3.27	29	34	32
Lead	0.015	0.0107	0.010	0.0095	0.004	<0.002	0.003
Molybdenum[4]	0.05	0.012	0.02	-	<0.02	<0.02	0.02
Nickel	0.03	0.023	0.02	0.006	<0.01	<0.01	0.01
Selenium	0.26	0.123	0.12	0.059	0.06	0.06	0.06
Uranium	0.003	0.0037	0.001	-	<0.001	<0.001	0.001
Zinc	50	15.6	39	10.4	59	45	52
Radionuclides							
Lead-210 (Bq/g)	0.0005	0.00058	0.0008	-	<0.001	<0.001	0.001
Polonium-210 (Bq/g)[5]	0.0007	0.00034	0.0009	0.00090	0.0004	<0.0002	0.0003
Radium-226 (Bq/g)	0.00008	0.000106	0.00010	0.000066	0.00006	0.00007	0.00007
Thorium-230 (Bq/g)	-	-	0.0001	0.00006	<0.0001	<0.0001	0.0001
Trace Elements							
Arsenic	0.06	0.060	0.01	-	<0.01	<0.01	0.01
Cobalt	0.015	0.0089	0.014	0.0054	0.012	0.015	0.014
Vanadium[4]	0.05	0.005	0.02	-	<0.02	<0.02	0.02

APPENDIX B, TABLE 6

Summary moose flesh chemistry results for the EARMP community program.

Chemical[1]	Uranium City								
	Regional Reference[2]		Baseline		2013				
	Average	S.D.[3]	Average	S.D.	1	2	3	Average	S.D.
Metals									
Aluminum	2.1	4.13	0.8	0.76	<0.5	0.6	<0.5	0.5	0.1
Cadmium	0.007	0.0043	0.005	0.0030	0.004	0.005	0.003	0.004	0.0010
Copper	1.4	0.42	1.8	0.92	1.6	2.0	1.5	1.7	0.26
Iron	32	12.2	33	6.9	34	37	26	32	5.7
Lead	0.015	0.0107	0.003	0.0012	0.003	0.025	0.003	0.010	0.0127
Molybdenum[4]	0.05	0.012	0.02	-	<0.02	<0.02	<0.02	0.02	-
Nickel	0.03	0.023	0.01	0.005	<0.01	<0.01	<0.01	0.01	-
Selenium	0.26	0.123	0.12	0.034	0.09	0.12	0.08	0.10	0.021
Uranium	0.003	0.0037	0.001	0.0008	<0.001	<0.001	<0.001	0.001	-
Zinc	50	15.6	52	13.0	44	48	56	49	6.1
Radionuclides									
Lead-210 (Bq/g)	0.0005	0.00058	0.0007	0.00075	<0.001	<0.001	<0.001	0.001	-
Polonium-210 (Bq/g)[5]	0.0007	0.00034	0.0006	0.00076	0.0004	0.0005	0.0003	0.0004	0.00010
Radium-226 (Bq/g)	0.00008	0.000106	0.00007	-	0.00008	0.00010	<0.00005	0.00008	0.000025
Thorium-230 (Bq/g)	-	-	0.0001	0.00005	<0.0001	<0.0001	<0.0001	0.0001	-
Trace Elements									
Arsenic	0.06	0.060	0.01	0	<0.01	<0.01	<0.01	0.01	-
Cobalt	0.015	0.0089	0.012	0.0047	0.010	0.011	0.008	0.010	0.0015
Vanadium[4]	0.05	0.005	0.02	-	<0.02	<0.02	<0.02	0.02	-

[1]All concentrations are reported on a µg/g wet weight basis, except when specified otherwise.

[2]Regional reference data are from the AWG program. Data used are from 2000 to 2010 (n=37); however, data are not available from all communities in all years and the 2007 data were omitted due to obvious differences in MDLs. Exceptions were cadmium, lead, and cobalt where only data from 2008 to

[3]S.D. = Standard deviation; standard deviations of 0 signify "no variance between samples", not "a very small variance".

[4]The regional reference concentrations for molybdenum and vanadium were almost all <MDL; however, in most samples the MDL was 0.05, while a few samples had a MDL of 0.02. The differences in MDLs between samples results in regional reference averages that appear higher than the EARMP values

[5]Regional reference data are not available from AWG program for this parameter. Data used are from Thomas et al. (2005) and included 19 moose

<MDL = less than the laboratory method detection limit.

Values less than the MDL were set equal to the MDL when calculating summary statistics.

APPENDIX B, TABLE 7

Summary of additional mammal chemistry (snowshoe hare) collected from Uranium City and Camsell Portage, 2013/2014.

Chemical[1]	Camsell Portage					Uranium City			
	Baseline[2]		2013			Baseline[2]		2013	
	Average	S.D.[3]	1	2	3	Average	S.D	1	2
Metals									
Aluminum	0.5	0.04	<0.5	<0.5	<0.5	0.5	0.04	<0.5	0.5
Cadmium	0.002	-	<0.002	0.004	0.006	0.004	0.003	<0.002	0.0050
Copper	1.8	0.4	1.9	2.1	1.8	1.8	0.4	2.4	2.10
Iron	26	7	19	25	20	26	4	21	31.0
Lead	0.003	0.001	0.003	0.002	0.002	0.003	0.002	0.002	<0.002
Molybdenum	0.02	-	<0.02	<0.02	<0.02	0.02	-	<0.02	<0.02
Nickel	0.01	0	<0.01	<0.01	0.07	0.02	0.01	0.02	0.050
Selenium	0.06	0.01	0.03	0.08	0.14	0.06	0.04	0.15	0.070
Uranium	0.001	-	<0.001	<0.001	<0.001	0.001	-	<0.001	<0.001
Zinc	13	3	13	11	16	15	5	10	16.0
Radionuclides									
Lead-210 (Bq/g)	0.001	-	<0.001	<0.001	<0.001	0.001	-	<0.001	<0.001
Polonium-210 (Bq/g)	0.002	0.001	0.002	0.002	0.002	0.002	0.0004	0.002	0.00150
Radium-226 (Bq/g)	0.00017	0.00010	0.00010	<0.00006	0.00010	0.00011	0.00005	0.00010	<0.00007
Thorium-230 (Bq/g)	0.0001	-	<0.0001	<0.0001	<0.0001	0.0001	-	<0.0002	<0.0001
Trace Elements									
Arsenic	0.01	-	<0.01	<0.01	<0.01	0.01	-	0.02	<0.01
Cobalt	0.004	0.001	<0.002	0.005	0.032	0.006	0.003	0.005	0.0040
Vanadium	0.02	-	<0.02	<0.02	<0.02	0.02	-	<0.02	<0.02

[1]All concentrations are reported on a µg/g wet weight basis, except when specified otherwise.

[2]Five snowshoe hare samples collected in 2011 as part of the Uranium City County Foods Program (CanNorth and SENES 2012). Values less than MDLs were set equal to MDLs for the calculation of average and standard deviations.

[3]S.D. = Standard deviation; standard deviations of 0 signify "no variance between samples", not "a very small variance"

<MDL = less than the laboratory method detection limit.

APPENDIX C

RAW DATA

LIST OF TABLES

APPENDIX C, TABLE 1

Fall water chemistry results for the EARMP community program, 2011 to 2013.

Chemical[1]	Black Lake			Camsell Portage			Fond du Lac			Stony Rapids			Uranium City			Wollaston Lake/Hatchet Lake		
	Black Lake			Ellis Bay, Lake Athabasca			Fond du Lac River			Fond du Lac River			Fredette River			Welcome Bay, Wollaston Lake		
	2011	2012	2013	2011	2012	2013	2011	2012	2013	2011	2012	2013	2011	2012	2013	2011	2012	2013
Inorganic Ions																		
Bicarbonate	20	26	16	35	30	34	18	27	28	21	20	16	63	60	63	17	20	15
Calcium	3.5	3.3	3.4	6.9	7.1	7.4	3.7	3.9	3.8	3.4	3.4	3.3	15	16	17	3.4	3.5	3.5
Carbonate	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloride	3.6	2	4	3.1	2.9	3.4	2.8	2.8	2.9	3.2	2.8	2.8	1.5	1.2	2.3	0.4	0.5	0.4
Hydroxide	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	1.3	1.2	1.3	2.1	2.1	2.1	1.3	1.4	1.4	1.1	1.3	1.2	2.9	3	3.2	1.1	1.1	1
Potassium	0.8	0.7	0.8	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.7	0.8	0.9	1	1.1	0.7	0.6	0.7
Sodium	1.8	1.5	1.7	2.5	2.5	2.6	1.6	1.7	1.7	1.7	1.6	1.6	1.9	1.6	1.8	1.4	1.4	1.4
Sulfate	1.4	1.0	1.2	3.6	3.3	3.7	1.5	1.5	1	1.4	1.2	1.4	4.5	3.8	4.1	4	4.0	3.9
Metals																		
Aluminum	0.002	0.0026	0.0026	0.0016	0.001	0.0044	0.014	0.02	0.011	0.018	0.0084	0.012	0.0051	0.0051	0.0057	0.0047	0.014	0.0074
Barium	0.0044	0.0044	0.0043	0.01	0.01	0.011	0.0051	0.0055	0.0052	0.0046	0.0043	0.0044	0.032	0.031	0.032	0.0041	0.0042	0.0042
Boron	0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium	0.00001	0.00001	<0.00001	0.00001	0.00001	<0.00001	0.00002	<0.00001	0.00001	0.00002	<0.00001	0.00001	0.00001	0.00001	0.00002	0.00001	<0.00001	<0.00001
Chromium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Copper	<0.0002	<0.0002	0.0003	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0006	<0.0002	<0.0002	<0.0002
Iron	0.026	0.013	0.022	0.0049	0.0044	0.0078	0.023	0.03	0.017	0.074	0.045	0.037	0.031	0.041	0.05	0.014	0.035	0.043
Lead	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001
Manganese	0.036	0.0068	0.021	0.0008	0.0008	0.0006	0.003	0.0027	0.0034	0.027	0.013	0.014	0.014	0.024	0.026	0.0047	0.0087	0.0066
Mercury (µg/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum	0.0002	0.0001	0.0001	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0002	0.0002	0.0001	0.0004	0.0004	0.0004	0.0012	0.0012	0.001
Nickel	0.0002	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0002	0.0001	0.0002	0.0001	0.0001	0.0002	0.0001	0.0001	0.0001
Selenium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Silver	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Thallium	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	0.0008	0.0008	0.0004	0.0016	0.0007	0.0012	0.0003	<0.0002	0.0003	<0.0002	0.0002	<0.0002
Uranium (µg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	3.5	1.3	1.4	<0.1	<0.1	<0.1
Zinc	0.0018	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0014	<0.0005	0.0013	<0.0005	<0.0005	<0.0005
Nutrients																		
Ammonia as nitrogen	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	<0.01	0.03	0.05	<0.01	<0.01	<0.01
Nitrate	<0.04	<0.04	<0.04	<0.04	0.09	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.13	<0.04	<0.04	<0.04
Organic carbon	2.5	3.8	2.9	2.8	3.5	3.2	2.7	1.9	3.2	2.7	3.8	4.1	7.4	9.9	7.6	2.5	3	2.8
Phosphorus	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Kjeldahl nitrogen	0.27	0.2	0.26	0.23	0.21	0.22	0.26	0.22	0.21	0.28	0.23	0.49	0.41	0.37	0.43	0.28	0.21	0.2
Total nitrogen	0.27	0.2	0.26	0.23	0.23	0.22	0.26	0.22	0.21	0.28	0.23	0.49	0.41	0.37	0.46	0.28	0.21	0.2
Physical Properties																		
P. alkalinity	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
pH (pH units)	7.12	7.18	7.38	7.46	7.5	7.71	7.22	7.14	6.86	7.3	7.3	7.38	7.75	7.72	7.94	7.1	7.12	7.37
Specific conductivity (µS/cm)	40	38	38	66	69	69	39	44	42	39	40	36	114	112	113	34	37	34
Sum of ions	32	36	28	54	49	54	30	39	40	33	31	27	90	87	93	28	31	26
Total alkalinity	16	21	13	29	25	28	15	22	23	17	16	13	52	49	52	14	16	12
Total dissolved solids	30	30	14	40	44	27	28	32	34	32	33	13	72	76	56	24	28	13
Total hardness	14	13	29	26	26	47	14	15	15	13	14	31	49	52	80	13	13	28
Total suspended solids	<1	1	2	<1	<1	<1	<1	2	1	5	2	2	2	1	<1	<1	2	2
Turbidity (NTU)	0.6	0.7	0.7	0.3	0.4	0.4	1	1.1	0.8	1.3	1.2	1	0.3	0.6	0.4	0.3	0.8	0.7

APPENDIX C, TABLE 1

Fall water chemistry results for the EARMP community program, 2011 to 2013.

Chemical[1]	Black Lake			Camsell Portage			Fond du Lac			Stony Rapids			Uranium City			Wollaston Lake/Hatchet Lake		
	Black Lake			Ellis Bay, Lake Athabasca			Fond du Lac River			Fond du Lac River			Fredette River			Welcome Bay, Wollaston Lake		
	2011	2012	2013	2011	2012	2013	2011	2012	2013	2011	2012	2013	2011	2012	2013	2011	2012	2013
Radionuclides																		
Lead-210 (Bq/L)	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Polonium-210 (Bq/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Radium-226 (Bq/L)	<0.005	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	0.008	0.01	<0.005	<0.005	0.009	<0.005
Thorium-230 (Bq/L)	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Trace Elements																		
Antimony	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic (µg/L)	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.2	<0.1	<0.1	0.1
Beryllium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Cobalt	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Fluoride	0.04	0.07	0.07	0.06	0.07	0.08	0.05	0.07	0.05	0.04	0.06	0.08	0.1	0.13	0.12	0.05	0.07	0.08
Strontium	0.047	0.033	0.049	0.051	0.05	0.054	0.043	0.04	0.042	0.044	0.04	0.039	0.049	0.045	0.047	0.012	0.012	0.012
Vanadium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

[1]All values are in mg/L, unless specified otherwise.

APPENDIX C, TABLE 2

Detailed Black Lake fish flesh chemistry data for the EARMP community program, 2011 to 2013.

Chemical[1]	Black Lake (Black Lake)																													
	Lake Trout															Lake Whitefish														
	2011					2012					2013					2011					2012					2013				
	GN1-1 LT01	GN1-1 LT02	GN1-1 LT03	GN1-1 LT04	GN1-1 LT05	GN1-1 LT01	GN1-1 LT02	GN1-1 LT03	GN1-1 LT04	GN1-1 LT05	GN1-1 LT01	GN1-1 LT02	GN1-1 LT03	GN1-1 LT04	GN1-1 LT05	GN1-1 LW06	GN1-1 LW07	GN1-1 LW08	GN1-1 LW09	GN1-1 LW10	GN1-1 LW06	GN1-1 LW07	GN1-1 LW08	GN1-1 LW09	GN1-1 LW10	GN1-1 LW06	GN1-1 LW07	GN1-1 LW08	GN1-1 LW09	GN1-1 LW10
Metals																														
Aluminum	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Barium	0.02	0.03	0.01	<0.01	0.03	<0.01	0.01	0.01	0.02	0.01	0.01	<0.01	<0.01	0.01	0.02	0.06	0.13	0.09	<0.01	0.02	0.02	0.01	0.02	<0.01	0.02	0.02	0.02	0.02	0.01	0.01
Boron	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cadmium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Chromium	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	0.27	0.41	0.31	0.22	1	0.31	0.31	0.43	0.18	0.25	0.22	0.24	0.26	0.25	0.23	0.24	0.21	0.12	0.17	0.14	0.16	0.19	0.25	0.28	0.18	0.06	0.27	0.09	0.08	0.07
Iron	1.9	3.3	2	4.5	6	2.2	2	2.6	1.5	2.9	1.7	2	2	1.6	1.5	2.3	2.9	2.5	1.4	1.5	1	2	2.7	4	1.1	1.8	2.5	1.2	1.1	1.1
Lead	<0.002	0.004	<0.002	<0.002	<0.002	0.002	<0.002	0.002	<0.002	0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	0.002	<0.002	0.003	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002
Manganese	0.06	0.08	0.08	0.08	0.09	0.08	0.06	0.05	0.07	0.1	0.08	0.06	0.09	0.09	0.06	0.18	0.39	0.22	0.06	0.09	0.06	0.07	0.11	0.06	0.06	0.08	0.07	0.07	0.05	0.04
Mercury	0.45	0.41	0.37	0.33	0.37	0.16	0.16	0.18	0.36	0.35	0.42	0.5	0.45	0.37	0.28	0.16	0.13	0.14	0.06	0.21	0.13	0.16	0.15	0.02	0.05	0.05	0.09	0.03	0.04	0.08
Molybdenum	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	0.11	0.15	0.15	0.11	0.13	0.15	0.18	0.17	0.18	0.16	0.13	0.11	0.13	0.17	0.16	0.30	0.35	0.25	0.36	0.31	0.28	0.24	0.26	0.15	0.2	0.2	0.23	0.3	0.18	0.19
Silver	<0.002	<0.002	<0.002	<0.002	0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Thallium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tin	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	0.08	0.09	0.08	0.07	0.08	0.07	0.07	0.08	0.07	0.08	0.01	0.01	0.01	0.02	0.01	0.08	0.09	0.08	0.08	0.08	0.07	0.08	0.09	0.08	0.08	0.02	0.01	0.02	0.01	<0.01
Uranium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	2.9	4.7	2.5	2.2	5.9	3.6	4.7	4.4	3.6	6.3	3	3.2	4.1	3.5	3.3	3.9	4.6	3.5	4.7	3.3	6.7	6.2	4.6	4.4	4.4	3.4	4.7	4	3.5	4
Physical Properties																														
Moisture (%)	77.19	77.72	73.93	76.78	77.42	73.79	71.07	77.81	77.02	76.28	75.03	76.5	74.42	74.85	72.4	75.22	76.01	76.93	75.27	75.79	74.3	72.89	75.74	78.39	76.9	79.98	78.5	79.92	79.2	78.64
Length (cm)	44.9	51.2	48.7	48.3	50.5	51.3	52.7	51.2	62.5	65.2	54.0	56.0	53.2	54.8	49.6	38.3	41.8	45.5	48.0	45.2	46.0	45.7	45.5	40.2	46.2	43.9	41.5	38	43.2	45.6
Weight (g)	1730	1710	1480	1450	1740	1360	1740	1180	2060	2410	1940	2200	1720	1880	1760	840	1060	1360	890	1450	980	1020	920	760	1140	1200	920	660	1100	1320
Sex	F	M	M	F	M	F	M	M	F	M	F	F	M	M	M	F	M	M	F	F	M	M	M	M	F	M	M	F	F	F
Maturity	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Age (years)	12	10	7	10	10	7	7	6	27	19	12	17	13	13	13	21	21	26	10	27	9	15	15	7	10	12	10	10	11	15
Radionuclides																														
Lead-210 (Bq/g)	0.002	<0.001	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.004	<0.004	<0.001	0.001	<0.001	<0.001	<0.001	<0.001
Polonium-210 (Bq/g)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	0.0005	0.0007	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.0002	0.0004	0.0006	0.0003	0.0003	0.0002
Radium-226 (Bq/g)	<0.00004	<0.00006	<0.00007	<0.00005	<0.00006	<0.00006	<0.0001	<0.00005	0.00005	<0.00006	<0.00006	0.0001	<0.00008	<0.00006	<0.00006	<0.00006	<0.00006	0.00009	<0.00007	<0.00006	<0.00006	<0.00006	0.001	0.002	<0.00006	0.0002	<0.00007	0.0004	<0.00006	<0.00006
Thorium-230 (Bq/g)	<0.00009	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.00009	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.002	<0.002	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001
Trace Elements																														
Antimony	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	0.05	0.06	0.07	0.05	0.10	0.06	0.14	0.07	0.06	0.06	0.05	0.04	0.04	0.05	0.06	0.25	0.27	0.40	0.14	0.37	0.04	0.05	0.08	0.14	0.04	0.01	0.03	0.03	0.03	0.02
Beryllium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cobalt	<0.002	<0.002	<0.002	0.002	0.002	<0.002	<0.002	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	0.005	<0.002	0.003	0.003	<0.002	0.002	<0.002	<0.002	0.003	<0.002	0.002	<0.002	0.005	0.002
Strontium	0.10	0.07	0.09	0.05	0.13	0.07	0.21	0.27	0.2	0.8	0.05	0.03	0.23	0.27	0.07	0.79	0.24	1.20	0.28	0.22	0.27	0.31	0.25	0.16	0.17	0.55	0.45	0.47	0.47	0.42
Vanadium	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

[1]All concentrations are presented on a µg/g wet weight basis, unless specified otherwise.

GN = gill net; LT = lake trout; LW = lake whitefish; M = male; F = female; A = adult.

APPENDIX C, TABLE 3

Detailed Uranium City (Prospectors Bay) fish flesh chemistry data for the EARMP community program, fall 2012 and 2013.

Chemical[1]	Uranium City (Prospectors Bay)[2]																	
	Lake Trout					Lake Trout					Lake Whitefish					Lake Whitefish		
	2012					2013					2012					2013		
	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1
	LT01	LT02	LT03	LT04	LT05	LT01	LT02	LT03	LT04	LT05	LW06	LW07	LW08	LW09	LW10	LW01	LW02	LW03
Metals																		
Aluminum	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Barium	0.01	0.03	0.02	0.02	0.03	<0.01	<0.01	<0.01	0.04	0.01	0.01	0.02	0.01	0.01	0.01	0.02	<0.01	0.02
Boron	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cadmium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002
Chromium	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	0.27	0.21	0.21	0.26	0.26	0.18	0.19	0.22	0.28	0.25	0.12	0.13	0.17	0.18	0.14	0.22	0.18	0.39
Iron	2.2	4.5	2.0	3.3	1.9	1.2	1.6	2.7	7.5	1.9	1.0	2.0	1.8	1.6	1.4	2.3	1.8	2.9
Lead	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	0.004	0.002	0.006	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	0.003
Manganese	0.08	0.07	0.05	0.05	0.05	0.07	0.06	0.07	0.12	0.08	0.07	0.06	0.07	0.07	0.12	0.1	0.06	0.11
Mercury	0.17	0.24	0.23	0.21	0.13	0.13	0.15	0.23	0.09	0.1	0.05	0.13	0.06	0.12	0.11	0.05	0.02	0.02
Molybdenum	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Selenium	0.18	0.17	0.17	0.18	0.17	0.15	0.14	0.18	0.15	0.13	0.28	0.22	0.23	0.32	0.26	0.26	0.24	0.26
Silver	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Thallium	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tin	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	0.07	0.07	0.07	0.07	0.06	0.04	0.02	0.03	0.03	0.03	0.08	0.07	0.08	0.08	0.08	0.03	0.03	0.04
Uranium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	4.3	4.0	3.7	5.4	4.1	2.7	2.7	3.1	3.8	2.7	4.3	4.5	7.6	4.3	3.3	3.2	3.4	6.3
Physical Properties																		
Moisture (%)	74.73	78.66	78.14	75.87	76.3	76.09	74.75	77.52	77.24	77.69	79.31	78.4	75.72	73.83	76.89	79.25	76.91	72.22
Length (cm)	55.6	60.2	59.1	61.8	63.4	46.8	50.1	52.3	51.5	54.2	46.7	49.6	48.8	55.0	50.0	46.9	47	42.9
Weight (g)	1380	1700	1520	1840	2140	1500	1580	1580	1540	1900	640	980	1140	1520	1080	1480	1520	1300
Sex	M	M	M	M	M	F	M	F	M	F	M	M	F	F	F	M	M	F
Maturity	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Age (years)	12	24	25	19	11	12	11	21	13	12	12	29	14	17	21	23	14	11
Radionuclides																		
Lead-210 (Bq/g)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Polonium-210 (Bq/g)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	0.0006	<0.0002	<0.0002	0.0003	<0.0002	<0.0002
Radium-226 (Bq/g)	<0.00005	<0.00006	<0.00006	<0.00006	0.00006	<0.00006	0.0002	<0.00006	0.00009	<0.00006	<0.00006	<0.00007	<0.00005	<0.00006	<0.00008	0.00006	<0.00006	<0.00006
Thorium-230 (Bq/g)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001
Trace Elements																		
Antimony	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	0.07	0.07	0.08	0.07	0.13	0.07	0.04	0.04	0.07	0.07	0.08	0.03	0.09	0.05	0.1	0.17	0.18	0.22
Beryllium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cobalt	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	0.013	0.009	<0.002	0.004	0.006	0.016
Strontium	0.17	0.11	0.13	0.25	0.32	0.05	0.04	0.07	0.18	0.16	0.22	0.19	0.4	0.4	0.25	0.25	0.23	0.25
Vanadium	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

[1]All concentrations are presented on a µg/g wet weight basis, unless specified otherwise.
GN = gill net; LT = lake trout; LW = lake whitefish; M = male; F = female; A = adult.

APPENDIX C, TABLE 4

Detailed Camsell Portage (Ellis Bay) fish flesh chemistry data for the EARMP community program, 2011 to 2013.

Chemical[1]	Camsell Portage (Ellis Bay)																																
	Lake Trout																Lake Whitefish												Northern Pike				
	2011					2012					2013						2011					2012		2013						2012				
	GN1-LT01	GN1-LT02	GN1-LT03	GN1-LT04	GN1-LT05	GN1-LT01	GN1-LT02	GN1-LT03	GN1-LT04	GN1-LT05	GN1-LT01	GN1-LT02	GN1-LT03	GN1-LT04	GN1-LT05		GN1-LW06	GN1-LW07	GN1-LW08	GN1-LW09	GN1-LW10	GN1-LW06	GN1-LW07	GN1-LW06	GN1-LW07	GN1-LW08	GN1-LW09	GN1-LW10		AN1-NP01	AN1-NP02	AN1-NP03	AN1-NP04	AN1-NP05
Metals																																	
Aluminum	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5	<0.5	<0.5	<0.5
Barium	0.04	0.01	<0.01	<0.01	<0.01	0.05	0.08	0.02	0.04	0.02	<0.01	0.01	<0.01	0.22	0.04		<0.01	0.04	0.06	<0.01	<0.01	0.03	0.02	0.04	0.05	0.05	0.02	0.02		0.02	0.02	0.02	0.02	<0.01
Boron	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2
Cadmium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002		<0.002	<0.002	<0.002	<0.002	<0.002
Chromium	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1
Copper	0.52	0.52	0.11	0.32	0.28	0.24	0.28	0.33	0.58	0.21	0.22	0.28	0.38	0.23	0.28		0.12	0.15	0.38	0.11	0.15	0.18	0.18	0.27	0.14	0.13	0.18	0.11		0.39	0.45	0.16	0.17	0.28
Iron	4.5	3.0	1.0	2.2	2.0	1.5	2.7	3.5	5.8	1.6	1.4	2.1	2.1	2.6	2.4		1.5	1.2	3.6	1.1	2.2	1.8	3.9	2.9	2.5	3.6	1.6	2.2		2.8	3.2	1.3	0.6	3.2
Lead	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002		<0.002	<0.002	<0.002	<0.002	<0.002
Manganese	0.1	0.09	0.09	0.07	0.08	0.06	0.09	0.6	0.08	0.06	0.09	0.06	0.08	0.08	0.09		0.12	0.19	0.13	0.12	0.1	0.11	0.11	0.17	0.32	0.14	0.1	0.13		0.08	0.09	0.08	0.08	0.08
Mercury	0.13	0.2	0.28	0.07	0.18	0.17	0.08	0.06	0.21	0.14	0.19	0.24	0.09	0.41	0.24		0.07	0.06	0.03	0.03	0.02	0.05	0.06	0.17	0.07	0.04	0.02	0.08		0.19	0.13	0.08	0.17	0.24
Molybdenum	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.02	<0.02
Nickel	0.03	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	<0.01	<0.01		<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	0.14	0.18	0.15	0.16	0.18	0.15	0.16	0.15	0.18	0.1	0.17	0.14	0.16	0.17	0.18		0.29	0.25	0.25	0.22	0.25	0.31	0.25	0.27	0.26	0.24	0.29	0.25		0.2	0.17	0.22	0.18	0.19
Silver	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002		<0.002	<0.002	<0.002	<0.002	<0.002
Thallium	<0.01	0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	0.01	0.02	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01
Tin	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	0.07	0.15	0.06	0.07	0.06	0.01	0.02	0.02	0.01	<0.01	0.03	0.08	0.06	0.04	0.05		0.07	0.07	0.06	0.06	0.07	0.02	<0.01	0.04	0.03	0.04	0.04	0.05		0.02	0.02	0.02	0.01	0.01
Uranium	0.014	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	0.003	0.002	<0.001	0.003		<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	11	3.8	2.9	3.8	3.5	2.6	3.2	2.6	10	6.3	3	2.8	3.6	3.3	3.6		3	2.8	4.4	3.3	3.1	2.8	3.2	5.5	3.3	2.5	3.9	3.3		4.2	9.8	5.4	4.9	6.5
Physical Properties																																	
Moisture (%)	73.73	71.7	74.1	70.34	67.36	73.93	76.07	75.33	76.29	72.6	69.45	68.65	72.36	78.67	79.54		74.81	78.24	73.86	77.91	76.16	74.12	74.97	77.14	77.18	76.99	75.03	77.45		76.89	77.35	76.06	77.29	79.91
Length (cm)	49.8	48.6	53.9	48.5	55.6	62.2	69.1	53.0	60.3	63.5	55.0	56.1	55.2	55.9	55.6		32.0	43.2	40.0	39.5	38.6	49.1	48.5	40.2	44.8	37.9	37.4	44.6		76.0	67.7	67.8	72.3	89.5
Weight (g)	1490	1480	1920	1420	2480	3640	2920	1420	1760	2560	2200	1920	1720	1920	1740		1250	1260	1380	1120	880	1180	1120	840	1120	820	720	1380		2800	2760	1660	2760	4860
Sex	M	M	F	F	F	F	M	M	M	F	M	F	M	M	M		M	M	F	F	F	M	M	F	F	F	M	M		F	M	F	F	F
Maturity	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A		A	A	A	A	A	A	A	A	A	A	A	A		A	A	A	A	A
Age (years)	12	8	23	8	11	19	13	9	20	18	15	15	10	25	17		31	27	22	18	11	30	33	30	25	25	9	28		6	9	5	7	16
Radionuclides																																	
Lead-210 (Bq/g)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001
Polonium-210 (Bq/g)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0007	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002		0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002		0.0002	0.0004	0.0008	0.0003	0.0003
Radium-226 (Bq/g)	<0.00007	<0.00006	0.0002	0.00009	0.0001	<0.00007	<0.00007	<0.00006	<0.00005	<0.00004	0.0001	<0.00004	<0.00006	<0.00006	0.00009		<0.00006	<0.00006	<0.0002	<0.00006	0.0003	<0.00007	<0.00006	0.0001	<0.00006	<0.00006	<0.00008	0.0002		<0.00006	<0.00007	<0.00008	<0.00006	0.00008
Thorium-230 (Bq/g)	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00008	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0003	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002		<0.0001	<0.0001	<0.0002	<0.0002	<0.003
Trace Elements																																	
Antimony	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	0.12	0.08	0.12	0.08	0.12	0.06	0.14	0.04	0.06	0.29	0.07	0.12	0.11	0.05	0.03		0.38	0.24	0.36	0.31	0.17	0.37	0.24	0.14	0.31	0.34	0.17	0.48		0.09	0.15	0.09	0.12	0.1
Beryllium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002		<0.002	<0.002	<0.002	<0.002	<0.002
Cobalt	0.003	0.003	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002		<0.002	<0.002	0.007	0.002	0.002	<0.002	0.003	0.004	0.005	0.002	<0.002	<0.002		0.003	0.003	<0.002	<0.002	0.003
Strontium	0.3	0.19	0.26	0.2	0.15	0.06	0.13	0.07	0.68	0.65	0.1	0.09	0.21	0.09	0.12		0.15	0.74	1	0.18	0.24	0.15	0.23	0.51	0.64	0.43	0.2	0.25		0.16	0.2	0.18	0.11	0.14
Vanadium	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.02	<0.02

[1]All concentrations are presented on a µg/g wet weight basis, unless specified otherwise.

GN = gill net; AN = angling; LT = lake trout; LW = lake whitefish; NP = northern pike; M = male; F = female; A = adult.

APPENDIX C, TABLE 5

Detailed Fond du Lac fish flesh chemistry data for the EARMP community program, 2011 and 2013.

Chemical[1]	Fond du Lac (Fond du Lac River)																														
	Lake Trout																Lake Whitefish														
	2011					2012					2013						2011					2012					2013				
	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1
	LT01	LT02	LT03	LT04	LT05	LT06	LT07	LT08	LT09	LT10	LT06	LT07	LT08	LT09	LT10		LW06	LW07	LW08	LW09	LW10	LW01	LW02	LW03	LW04	LW05	LW01	LW02	LW03	LW04	LW05
Metals																															
Aluminum	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5	<0.5	<0.5	1.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Barium	<0.01	0.02	0.01	0.66	0.01	0.02	0.02	0.02	<0.01	<0.01	<0.01	0.01	0.01	<0.01	0.01		0.06	0.04	0.02	<0.01	0.03	0.02	0.04	0.01	0.07	0.02	0.01	<0.01	0.02	0.03	0.01
Boron	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cadmium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002		0.002	<0.002	<0.002	<0.002	0.006	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002
Chromium	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	0.17	0.31	0.4	0.19	0.4	0.31	0.26	0.23	0.28	0.21	0.36	0.25	0.24	0.43	0.24		0.14	0.18	0.12	0.22	0.28	0.27	0.16	0.16	0.15	0.13	0.22	0.16	0.15	0.34	0.13
Iron	2.1	2.1	3.2	1.8	2.8	3.4	1.8	1.4	4.0	1.4	2.2	1.3	1.6	2.1	1.3		1.7	2.9	1.3	2.6	6.0	2.0	1.0	1.4	1.4	1.3	2.1	3.1	1.3	4.4	1.1
Lead	<0.002	<0.002	<0.002	<0.002	<0.002	0.004	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	0.008	<0.002	<0.002		<0.002	0.002	<0.002	<0.002	<0.002	0.003	0.004	0.003	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Manganese	0.09	0.08	0.09	0.1	0.08	0.07	0.04	0.07	0.06	0.08	0.05	0.06	0.07	0.07	0.05		0.17	0.13	0.07	0.14	0.08	0.05	0.08	0.14	0.19	0.08	0.08	0.09	0.06	0.1	0.07
Mercury	0.26	0.30	0.24	0.1	0.23	0.17	0.14	0.14	0.26	0.31	0.09	0.11	0.09	0.05	0.04		0.14	0.12	0.14	0.18	0.18	0.02	0.05	0.02	0.02	0.03	0.03	0.02	0.02	0.03	0.04
Molybdenum	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.02	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Selenium	0.17	0.12	0.16	0.16	0.13	0.16	0.14	0.18	0.15	0.13	0.18	0.14	0.14	0.16	0.16		0.25	0.15	0.22	0.20	0.29	0.17	0.28	0.2	0.16	0.23	0.22	0.13	0.27	0.21	0.18
Silver	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Thallium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.01	0.01	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tin	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	0.08	0.09	0.09	0.1	0.08	0.08	0.07	0.08	0.08	0.08	0.01	<0.01	0.01	0.01	<0.01		0.08	0.08	0.09	0.07	0.1	0.07	0.08	0.07	0.08	0.07	0.02	0.01	0.02	0.02	0.02
Uranium	<0.001	0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		0.002	<0.001	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	3	3.7	4.2	3.2	3.9	4.2	3.4	3.8	4.4	3.4	4.2	3.3	2.9	3.3	2.8		3	4.2	3.2	3	4.2	6.2	3.8	3.5	4	3.4	3.8	4	3.9	5.4	3.5
Physical Properties																															
Moisture (%)	76.91	76.77	74.35	75.75	71.88	77.01	75.5	69.03	77.64	68.66	74.35	74.57	75.49	72.33	73.93		73.98	78.34	76.86	75.56	75.69	75.73	71.01	74.93	73.77	76.15	75.67	78.03	73.18	76.28	78.04
Length (cm)	49.6	46.4	53.9	49.1	49.2	60.5	55.6	61.2	63.4	63.5	48.5	52.7	56.8	51.5	50.1		38.5	44.9	36.4	41.1	42.2	44.4	43.8	46.6	42.8	36.5	46.5	43.4	40.5	40.1	42.3
Weight (g)	1430	1310	2020	1230	1530	1680	1420	1940	1840	2280	1520	1940	2200	1640	1620		900	1340	805	1100	1120	940	1040	1100	860	520	1420	1120	980	820	1000
Sex	M	F	F	F	M	M	M	F	F	F	M	M	M	M	M		M	M	F	F	M	M	F	M	F	M	F	M	F	M	M
Maturity	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Age (years)	12	10	15	9	8	17	11	15	-	14	9	11	12	9	8		30	26	31	33	38	7	27	20	15	27	14	12	13	13	8
Radionuclides																															
Lead-210 (Bq/g)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.004	<0.004	<0.001	<0.001	<0.001	<0.001	<0.001
Polonium-210 (Bq/g)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002		<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Radium-226 (Bq/g)	<0.00006	<0.00006	<0.00006	<0.00006	<0.00006	<0.00005	<0.00006	<0.00005	<0.00006	<0.00006	<0.00006	<0.00006	<0.00006	<0.00006	<0.00005		<0.00008	<0.00006	<0.00006	<0.00006	<0.00007	<0.00007	<0.00008	<0.00009	<0.001	0.002	<0.00009	0.0001	<0.00006	<0.00006	<0.00006
Thorium-230 (Bq/g)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.002	<0.002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001
Trace Elements																															
Antimony	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	0.17	0.08	0.10	0.05	0.12	0.05	0.06	0.1	0.14	0.08	0.05	0.04	0.08	0.11	0.06		0.40	0.19	0.20	0.52	0.29	0.02	0.22	0.22	0.18	0.19	0.04	0.04	0.11	0.08	0.03
Beryllium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cobalt	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002		0.003	0.005	0.003	0.003	0.015	0.003	0.002	0.003	0.003	<0.002	0.004	0.014	0.003	0.004	<0.002
Strontium	0.11	0.16	0.18	0.20	0.18	0.12	0.09	0.21	0.16	0.15	0.1	0.09	0.11	0.04	0.08		1.00	0.88	0.55	0.15	0.36	0.51	0.24	0.27	1.6	0.2	0.19	0.26	0.19	0.61	0.15
Vanadium	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

[1]All concentrations are presented on a µg/g wet weight basis, unless specified otherwise.

GN = gill net; LT = lake trout; LW = lake whitefish.

APPENDIX C, TABLE 6

Detailed Stony Rapids (Fond du Lac River) fish flesh chemistry data for the EARMP community program, 2011 to 2013.

Chemical[1]	Stony Rapids (Fond du Lac River)																												
	Lake Trout															Lake Whitefish													
	2011					2012				2013						2011					2012					2013				
	GN1-1	GN1-1	GN1-1	GN1-1	SP01-01	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1
	LT01	LT02	LT03	LT04	LT05	LT06	LT07	LT08	LT09	LT01	LT02	LT03	LT04	LT05	LW06	LW07	LW08	LW09	LW10	LW01	LW02	LW03	LW04	LW05	LW06	LW07	LW08	LW09	LW10
Metals																													
Aluminum	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Barium	<0.01	<0.01	0.01	<0.01	0.01	0.01	0.01	0.02	0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	0.01	0.09	<0.01	0.02	0.01	0.05	0.01	0.01	0.02	<0.01	0.02	<0.01	<0.01	0.02
Boron	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cadmium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Chromium	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	0.28	0.2	0.22	0.22	0.17	0.21	0.78	0.2	0.36	0.39	0.45	0.32	0.32	0.28	0.36	0.15	0.14	0.26	0.19	0.24	0.14	0.3	0.14	0.11	0.31	0.15	0.17	0.23	0.25
Iron	1.9	1.7	1.5	1.6	1.2	2.3	8.6	2.6	4.0	3.6	3.3	6.1	3.1	2.7	3.5	2.0	2.0	2.2	1.7	1.3	1.4	4.2	1.9	1.1	4.7	1.9	1.2	2.2	2.4
Lead	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Manganese	0.09	0.09	0.08	0.12	0.06	0.09	0.08	0.1	0.07	0.11	0.07	0.06	0.06	0.07	0.09	0.1	0.18	0.08	0.1	0.08	0.22	0.08	0.1	0.1	0.09	0.12	0.08	0.12	0.19
Mercury	0.27	0.46	0.57	0.38	0.49	0.12	0.19	0.18	0.27	0.17	0.12	0.13	0.3	0.16	0.23	0.06	0.15	0.37	0.06	0.05	0.05	0.14	0.06	0.13	0.09	0.04	0.04	0.07	0.06
Molybdenum	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Nickel	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.05	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	0.10	0.11	0.09	0.14	0.16	0.15	0.19	0.17	0.19	0.16	0.19	0.15	0.18	0.15	0.13	0.10	0.15	0.27	0.12	0.18	0.12	0.14	0.18	0.13	0.14	0.13	0.15	0.12	0.12
Silver	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Thallium	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	0.01	0.01	0.01	<0.01	0.02	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tin	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	0.08	0.07	0.08	0.08	0.08	0.07	0.08	0.08	0.08	0.04	0.03	0.04	0.03	0.03	0.07	0.08	0.08	0.07	0.09	0.06	0.07	0.07	0.06	0.06	0.03	0.03	0.03	0.03	0.03
Uranium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	4.7	3.1	3.4	3.3	2.5	3.8	5.4	3.6	3.8	3.1	4	4	3.8	3.1	4.0	4.0	4.1	8.3	4.7	6.1	7.0	3.6	3.4	3.4	4.0	4.6	3.4	4.9	4.7
Physical Properties																													
Moisture (%)	77.77	77.9	77.43	76.77	73.64	78.8	76.77	78.11	78.05	73.56	74.02	75.29	75.06	73.99	76.78	78.07	78.94	77.19	75.5	74.99	80.97	76.82	80.22	79.53	76.95	78.07	73.93	75.51	76.73
Length (cm)	54.9	55.9	57.2	64.9	69.6	57.2	62.8	61.0	59.8	52.0	52.5	55.0	57.0	51.2	47.8	44.8	48.1	51.4	42.5	48.0	47.0	50.6	50.8	49.5	44.5	42.2	43.3	39.9	40.5
Weight (g)	1750	2060	2180	2840	3720	1520	2060	1840	1820	1720	1680	1940	2060	1600	1490	1640	1730	2060	1410	1420	980	1680	1360	1520	1180	940	1100	1000	960
Sex	F	F	F	F	M	M	M	M	M	F	M	F	M	F	F	F	F	F	M	F	F	M	F	F	M	F	F	M	M
Maturity	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Age (years)	10	15	16	17	15	14	22	21	22	12	12	11	16	13	27	14	13	29	8	9	14	18	15	18	18	8	11	11	10
Radionuclides																													
Lead-210 (Bq/g)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Polonium-210 (Bq/g)	<0.0002	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002
Radium-226 (Bq/g)	<0.00007	<0.00006	<0.00006	<0.00006	<0.00006	<0.00006	<0.00006	<0.00006	<0.00006	<0.00007	<0.00006	<0.00008	<0.00006	0.0001	<0.00008	0.0001	0.00006	0.0001	<0.00006	<0.00005	0.001	<0.00006	<0.00007	<0.00005	<0.00006	<0.00006	0.0001	0.00009	<0.00006
Thorium-230 (Bq/g)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0002	<0.00009	<0.00008	<0.0002	<0.0001	<0.0001	<0.002	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Trace Elements																													
Antimony	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	0.02	0.06	0.05	0.06	0.09	0.07	0.18	0.06	0.07	0.06	0.18	0.25	0.09	0.08	0.06	0.03	0.03	0.07	0.02	0.02	0.06	0.05	0.03	0.04	0.03	0.02	0.04	0.03	0.03
Beryllium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cobalt	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.005	0.009	0.012	0.004	0.008	<0.002	0.009	0.005	0.007	0.003	0.004	0.004	0.006	0.004	0.005
Strontium	0.10	0.09	0.21	0.23	0.09	0.13	0.14	0.14	0.14	0.08	0.14	0.30	0.14	0.10	0.23	0.26	2.00	0.12	0.24	0.28	1.8	0.3	0.23	0.24	0.27	0.22	0.17	0.22	0.25
Vanadium	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

[1]All concentrations are presented on a µg/g wet weight basis, unless specified otherwise.

GN = gill net; LT = lake trout; LW = lake whitefish; M = male; F = female; A = adult.

APPENDIX C, TABLE 7

Detailed Wollaston Lake/Hatchet Lake (Welcome Bay) fish flesh chemistry data for the EARMP community program, 2011 to 2013.

Chemical[1]	Wollaston Lake/Hatchet Lake (Welcome Bay, Wollaston Lake)																														
	Lake Trout																Lake Whitefish														
	2011					2012					2013						2011					2012					2013				
	GN1-1	GN1-1	GN1-1	SP01-01	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1	GN1-1
	LT01	LT02	LT03	LT04	LT05	LT06	LT07	LT08	LT09	LT10	LT07	LT08	LT09	LT10	LT11	LW06	LW07	LW08	LW09	LW10	LW01	LW02	LW03	LW04	LW05	LW01	LW02	LW03	LW05	LW06
Metals																															
Aluminum	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Barium	0.02	0.02	0.02	0.02	<0.01	0.02	0.01	<0.01	0.02	<0.01	<0.01	0.02	<0.01	<0.01	0.02	0.11	0.01	0.01	0.02	0.02	0.02	0.02	0.04	0.02	0.02	0.02	0.01	0.12	0.05	0.03
Boron	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cadmium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Chromium	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	0.62	0.48	0.53	0.31	0.3	0.52	0.39	0.4	0.69	0.24	0.35	0.38	0.34	0.3	0.32	0.26	0.16	0.18	0.12	0.14	0.12	0.18	0.13	0.14	0.21	0.13	0.16	0.16	0.14	0.13
Iron	6.0	4.0	2.6	1.8	1.9	3.1	2.8	2.2	3.8	1.6	2.3	3	2.6	2.2	2.1	2.2	1.3	1.5	3.1	1.4	1.1	1.0	1.5	1.0	3.0	1.8	1.7	2.5	3.0	1.7
Lead	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.005	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002
Manganese	0.1	0.1	0.07	0.06	0.07	0.08	0.06	0.08	0.07	0.05	0.08	0.09	0.1	0.1	0.09	0.15	0.09	0.09	0.12	0.1	0.09	0.07	0.14	0.1	0.13	0.11	0.09	0.1	0.25	0.11
Mercury	0.15	0.16	0.16	0.20	0.12	0.24	0.15	0.13	0.16	0.14	0.14	0.1	0.09	0.1	0.18	0.06	0.05	0.05	0.05	0.08	0.03	0.02	0.07	0.03	0.05	0.02	0.02	0.06	0.07	0.03
Molybdenum	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Nickel	0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.01	<0.01
Selenium	0.17	0.28	0.19	0.18	0.19	0.27	0.21	0.22	0.22	0.21	0.21	0.2	0.2	0.18	0.2	0.39	0.41	0.34	0.38	0.38	0.5	0.53	0.38	0.68	0.51	0.31	0.34	0.32	0.41	0.4
Silver	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Thallium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tin	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	0.09	0.09	0.09	0.09	0.07	0.07	0.07	0.07	0.08	0.07	0.03	0.03	0.03	0.07	0.04	0.07	0.08	0.08	0.11	0.08	0.07	0.07	0.07	0.07	0.07	0.04	0.04	0.03	0.03	0.04
Uranium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	5.5	6.6	3.9	3.1	3.3	5.8	3.6	3.8	4.8	3.1	5.7	4.2	3.8	4.8	3.7	5.1	3.0	3.8	4.7	4.3	3.7	4.5	3.2	4.5	4.0	3.7	3.7	5.5	3.3	3.6
Physical Properties																														
Moisture (%)	78.93	75.5	76.46	75.65	75.48	75.41	73.15	73.02	79.09	75.73	76.78	72.75	72.82	71.52	74.12	73.6	75.29	75.27	76.01	73.6	73.9	70.19	74.68	71.83	76.61	73.91	73.39	75.49	79.53	78.4
Length (cm)	51.5	46.3	46.8	47.9	46.6	55.6	50.5	50.8	50.5	52.0	45.3	46.5	44.1	45.4	48.5	36.5	38.0	40.6	36.9	39.2	47.9	43.3	46.2	44.4	43.6	36.2	37.4	37.5	39.5	40.1
Weight (g)	1730	1220	1440	1410	1430	1760	1420	1360	1400	1520	1200	1340	1060	1060	1400	780	820	940	810	825	1380	880	1060	860	840	620	620	640	700	720
Sex	F	M	M	F	M	M	M	M	M	M	M	M	F	F	F	M	M	M	M	F	M	F	F	F	M	M	F	F	F	M
Maturity	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Age (years)	7	7	7	8	6	6	7	7	9	7	8	7	8	8	8	16	16	14	12	17	19	11	21	12	18	12	12	15	13	18
Radionuclides																														
Lead-210 (Bq/g)	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.004	<0.001	<0.004	<0.004	0.0003	<0.001	<0.001	<0.001	<0.001
Polonium-210 (Bq/g)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	0.0004	<0.0002	0.0002	0.0004	<0.0002	<0.001	<0.0002	<0.001	<0.001	<0.001	<0.0002	<0.0002	0.0002	0.0006
Radium-226 (Bq/g)	<0.00006	<0.00006	<0.00006	0.0003	0.00009	<0.00006	<0.00006	<0.00005	<0.00007	<0.00005	0.0002	0.00007	<0.00006	<0.00006	0.00008	<0.00006	<0.00006	<0.00008	<0.00006	<0.00006	<0.00006	0.001	<0.00005	0.002	0.002	<0.001	0.0001	<0.0001	0.0001	0.0001
Thorium-230 (Bq/g)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00009	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.002	<0.0001	<0.002	<0.002	<0.00002	<0.0001	<0.0002	<0.0001	<0.0001
Trace Elements																														
Antimony	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	0.06	0.03	0.04	0.02	0.04	0.05	0.04	0.04	0.08	0.02	0.02	0.04	0.03	0.06	0.02	0.24	0.13	0.17	0.09	0.18	0.19	0.12	0.17	0.16	0.13	0.15	0.18	0.17	0.09	0.14
Beryllium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cobalt	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.005	<0.002	<0.002	<0.002	0.002	<0.002	0.003	<0.002	<0.002	<0.002	0.002	<0.002
Strontium	0.09	0.22	0.09	0.15	0.05	0.19	0.09	0.07	0.11	0.03	0.19	0.1	0.05	0.04	0.05	0.47	0.08	0.11	0.24	0.14	0.11	0.13	0.25	0.15	0.18	0.16	0.12	0.14	0.62	0.21
Vanadium	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

[1]All concentrations are presented on a µg/g wet weight basis, unless specified otherwise.

GN = gill net; LT = lake trout; LW = lake whitefish; M = male; F = female; A = adult.

APPENDIX C, TABLE 8

Detailed blueberry chemistry results for the EARMP community program, 2011 to 2013.

Chemical[1]	Black Lake															Camsell Portage									
	2011					2012					2013					2012					2013				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Metals																									
Aluminum	6	8.6	7.9	8.6	6	13	6	7.1	7.9	7.7	11	7.1	11	8.9	7.8	7.2	7.3	7	7.4	6	6.8	7.7	6.7	7.1	7.2
Barium	12	15	13	11	15	13	14	17	15	15	11	12	14	14	7	12	24	20	22	20	11	13	12	12	13
Boron	6	5	5	3	5	6	8	5	5	7	8	4	7	5	13	5	8	8	8	6	4	4	4	4	4
Cadmium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper	3.3	3.2	2.5	2.6	3.1	2.8	3.8	3.5	3.4	3.8	3.2	1.8	1.8	1.8	1.6	3.5	3	3.4	3.5	2.6	2.2	2.2	2.2	2.2	2.4
Iron	8.4	11	8.6	11	10	20	10	8.1	8.8	9.8	10	6	8	8	5	11	8.7	9.7	18	13	8	10	10	13	9
Lead	0.07	0.02	0.02	0.07	<0.01	0.03	<0.01	<0.01	0.02	<0.01	0.02	0.02	<0.01	0.02	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	0.03	0.02	0.03	<0.01	0.02
Manganese	160	130	120	180	220	100	100	170	170	120	160	220	200	250	160	280	490	490	480	580	350	390	360	380	360
Molybdenum	0.2	0.2	0.1	0.1	0.2	<0.1	<0.1	<0.1	<0.1	0.1	0.1	0.1	0.2	0.1	<0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2
Nickel	0.66	0.68	0.54	0.56	0.38	0.32	0.56	0.58	0.66	0.54	0.58	0.38	0.41	0.37	0.34	0.44	0.37	0.6	0.79	0.44	0.12	0.17	0.16	0.14	0.14
Selenium	<0.05	0.08	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thallium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tin	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Titanium	<0.05	0.08	0.06	0.1	0.15	0.1	0.05	0.05	0.08	<0.05	0.11	<0.05	0.12	0.07	0.06	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.05
Uranium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	0.08	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	4.8	6.1	5	3.9	5.5	3.9	6.1	6	5.3	6.4	5.8	6.2	6.7	7	3.6	13	6.5	8.9	8	5.9	6	6.7	5.6	8.4	6.2
Physical Properties																									
Moisture (%)	86.24	86.69	85.12	86.04	87.39	86.19	85.89	84.95	84.99	84.86	84.23	83.47	84.32	83.26	84.73	83.98	85.16	84.30	84.62	85.57	84.78	84.99	84.99	84.76	84.82
Radionuclides																									
Lead-210 (Bq/g)	0.009	0.005	0.007	0.009	0.012	0.002	0.002	<0.001	0.002	<0.001	0.002	<0.001	0.002	<0.001	<0.001	0.001	0.004	<0.001	0.001	0.002	<0.004	0.013	0.004	0.008	<0.004
Polonium-210 (Bq/g)	0.001	0.002	0.001	0.002	<0.0009	0.0015	0.002	0.0024	0.0014	0.0012	0.0008	0.0008	0.0005	0.0008	0.0008	0.0014	0.0017	0.0013	0.001	0.0016	<0.001	0.001	<0.001	<0.001	<0.001
Radium-226 (Bq/g)	0.002	0.004	0.004	0.002	0.002	<0.00003	0.0012	<0.00003	0.0028	0.001	0.0025	0.0042	0.0029	0.0028	0.0022	0.0025	0.0028	0.0025	0.0049	0.0045	0.003	0.002	0.002	0.004	0.003
Thorium-230 (Bq/g)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	0.002	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002
Trace Elements																									
Antimony	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Beryllium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	0.05	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium	2.1	4.4	3.5	2.1	1.2	1.1	1.7	1.7	2	1.8	1.7	1.8	3	2	2	1.4	1.4	1.4	1.6	1.5	0.9	1	1	1	1.1
Vanadium	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

APPENDIX C, TABLE 8

Detailed blueberry chemistry results for the EARMP community program, 2011 to 2013.

Chemical[1]	Fond du Lac															Stony Rapids														
	2011					2012					2013					2011					2012					2013				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Metals																														
Aluminum	4.4	9.5	6.2	7	6.2	14	20	7.3	13	5.9	10	21	13	14	15	21	8	27	37	10	9.6	8.9	7	11	7.6	300	180	250	240	250
Barium	12	12	13	13	12	12	9.9	14	11	11	14	14	16	18	15	15	15	16	8.9	13	14	12	12	10	13	10	9	13	14	13
Boron	8	6	7	8	6	14	6	5	8	5	6	4	5	4	6	12	5	4	3	4	5	4	11	14	6	4	4	4	5	5
Cadmium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper	2.7	3	3.6	3.2	3.9	2.8	3.9	3.3	3.9	2.8	1.8	2.4	2.8	1.8	2.1	2.9	3.2	3	2.4	2.9	1.9	2	2.3	2.1	2	2.4	2.8	2.1	2.5	2.4
Iron	10	8.2	9.7	11	9.3	14	21	12	16	10	10	23	17	17	10	16	12	23	32	11	12	12	11	10	9.9	9.9	10	10	11	12
Lead	<0.01	0.02	<0.01	0.03	0.01	0.03	0.01	<0.01	0.01	<0.01	0.04	0.02	0.02	0.01	0.02	0.01	<0.01	0.02	0.04	<0.01	0.1	<0.01	0.03	0.03	<0.01	<0.01	0.02	<0.01	<0.01	0.01
Manganese	140	150	140	140	130	280	460	240	370	310	460	410	660	700	460	140	100	130	70	180	290	250	230	240	260	210	200	270	340	300
Molybdenum	0.4	0.2	0.4	0.4	0.4	0.2	0.2	<0.1	0.2	<0.1	0.2	0.3	0.3	0.3	0.2	0.1	0.2	<0.1	<0.1	<0.1	0.1	<0.1	0.4	0.3	0.3	0.2	0.1	<0.1	<0.1	0.1
Nickel	0.97	0.67	0.75	0.8	0.74	0.48	0.55	0.54	0.6	0.5	0.4	0.7	0.62	0.53	0.48	0.75	0.68	0.84	0.82	0.74	0.39	0.48	0.47	0.37	0.4	0.38	0.42	0.24	0.3	0.29
Selenium	<0.05	<0.05	<0.05	0.08	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thallium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tin	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.09	<0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Titanium	<0.05	0.08	0.08	0.08	0.1	0.35	0.88	0.07	0.42	0.05	0.21	0.86	0.43	0.4	0.21	0.26	0.12	1.6	1.4	0.19	0.2	0.23	0.09	0.26	0.11	0.08	0.14	0.07	0.06	0.06
Uranium	<0.01	0.02	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	5.6	6	7.5	7	7.1	4.4	5.1	10	5.4	5.8	6.7	6.2	7.1	8.4	6.4	5.8	6.4	5.1	4.9	5.3	3.3	3.7	4.9	3.4	4	5.9	5.8	5.9	7.6	6.4
Physical Properties																														
Moisture (%)	87.10	85.50	86.68	84.60	86.31	83.99	83.87	84.56	83.79	84.11	84.33	83.47	84.18	84.47	83.71	85.84	85.47	84.14	85.08	86.57	85.35	85.14	84.42	85.08	84.82	85.92	85.78	86.59	86.18	86.45
Radionuclides																														
Lead-210 (Bq/g)	<0.004	0.007	0.01	0.011	0.006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.004	0.002	<0.001	0.009	0.005	<0.004	0.005	0.012	0.006	<0.004	<0.01	<0.01	<0.01	<0.01	<0.01	0.007	<0.004	<0.004	<0.004	<0.004
Polonium-210 (Bq/g)	0.001	0.002	0.001	0.004	0.002	0.0012	0.0009	0.0015	0.0012	0.0014	0.001	0.0066	0.0008	0.002	<0.001	0.002	0.002	0.002	0.003	0.002	0.001	<0.001	0.001	0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.001
Radium-226 (Bq/g)	0.002	0.004	0.003	0.001	0.005	0.0023	0.0018	0.0026	0.0021	0.0026	0.003	0.0033	0.0038	0.006	0.005	0.003	0.006	0.001	<0.0009	0.001	0.003	<0.001	0.003	0.003	0.004	0.015	0.014	0.016	0.012	0.015
Thorium-230 (Bq/g)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.0004	<0.001	<0.0003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Trace Elements																														
Antimony	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Beryllium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	0.01	0.02	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.02	<0.01	<0.01	0.02	0.02	0.02	0.01	0.01	0.07	0.01	0.02	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium	1.3	1.3	1.4	1.6	1.3	2.8	1.8	1.8	2.6	1.6	1.8	2.4	1.8	1.8	2	2.6	1.7	2.9	2.5	2	1.7	1.5	2.9	2.6	2.4	3.4	3	3.5	4.5	3.8
Vanadium	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

APPENDIX C, TABLE 8

Detailed blueberry chemistry results for the EARMP community program, 2011 to 2013.

Chemical[1]	Uranium City					Wollaston Lake/Hatchet Lake														
	2012					2011					2012					2013				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Metals																				
Aluminum	5.3	5.6	8.7	4.4	5.4	6.1	3.9	8.7	6.2	5.9	14	20	12	26	22	7.4	6.8	6.8	6.7	7.3
Barium	12	11	12	12	9.9	16	17	15	14	15	10	9.9	7.7	16	16	13	13	11	12	10
Boron	8	8	9	6	7	7	4	7	13	6	5	7	17	7	8	4	5	4	5	5
Cadmium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper	3.9	3.4	3.7	3.5	2.9	2.9	1.7	3	3	2.6	3.4	2.9	2.5	2.6	3.5	1.8	1.7	2.1	1.6	1.6
Iron	11	9.7	10	12	8.7	6.8	5.4	12	9.5	9	17	17	15	21	20	10	9	10	9	9
Lead	0.01	0.01	0.02	0.01	<0.01	0.04	<0.01	0.01	<0.01	<0.01	<0.01	0.01	0.03	0.02	0.02	0.03	<0.01	0.02	<0.01	<0.01
Manganese	280	330	280	200	140	270	290	300	290	260	150	160	110	180	190	150	140	150	140	150
Molybdenum	0.2	0.2	0.3	0.4	<0.1	<0.1	<0.1	<0.1	0.1	0.1	0.3	0.1	0.1	0.2	0.2	0.1	<0.1	0.2	<0.1	<0.1
Nickel	0.54	0.47	0.58	0.44	0.51	0.66	0.28	0.59	0.5	0.59	0.66	0.44	0.68	0.5	0.68	0.23	0.19	0.24	0.19	0.24
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thallium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tin	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Titanium	<0.05	<0.05	<0.05	0.05	0.05	<0.05	0.07	0.13	0.09	0.09	0.38	1.3	0.4	0.91	0.51	0.1	0.05	0.05	0.11	0.09
Uranium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	6.3	5.9	6.2	6.3	4.2	5.7	3	5.5	5.1	4.4	6.6	7.7	4.7	6.7	8	6.4	6	6.2	5.6	5.3
Physical Properties																				
Moisture (%)	84.40	83.99	84.04	85.06	84.43	85.31	84.46	84.79	84.44	85.11	84.44	84.81	84.13	85.40	84.17	85.61	85.47	85.66	85.56	85.51
Radionuclides																				
Lead-210 (Bq/g)	0.002	0.004	0.003	0.002	0.02	0.005	0.009	0.008	0.01	0.004	<0.001	0.001	0.001	<0.001	<0.01	0.008	0.002	<0.002	0.012	<0.004
Polonium-210 (Bq/g)	0.0021	0.005	0.0032	0.0015	0.002	0.002	0.002	0.004	0.004	0.004	0.0012	0.0012	0.0008	0.0017	<0.001	<0.001	<0.001	<0.001	<0.001	0.002
Radium-226 (Bq/g)	0.0014	0.006	0.0016	0.1	0.001	<0.001	0.001	<0.001	0.006	<0.001	0.0024	0.0032	0.0032	0.0057	0.004	0.008	0.005	0.006	0.009	0.004
Thorium-230 (Bq/g)	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.0009	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Trace Elements																				
Antimony	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Beryllium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	0.01	<0.01	0.01	<0.01	0.02	0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.02	0.01	<0.01	0.01	<0.01	<0.01	0.01	<0.01
Strontium	1.3	1.1	1.4	1.3	1.6	3.4	1.2	3.1	3.8	3.6	1.3	1.2	1.1	1.4	2.8	1.8	2.3	1.6	1.8	1.5
Vanadium	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

[1]All concentrations are in µg/g dry weight, unless specified otherwise.

APPENDIX C, TABLE 9

Detailed bog cranberry chemistry results for the EARMP community program, fall 2011.

Chemical[1]	Camsell Portage					Uranium City					Uranium City				
	2011					2011					2013				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Metals															
Aluminum	17	17	19	19	16	20	29	15	19	27	21	56	50	45	28
Barium	14	13	14	15	9.1	13	9.1	11	9.4	13	10	12	14	12	10
Boron	9	8	8	10	9	10	9	8	14	10	18	16	15	7	5
Cadmium	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.02	0.02	0.02
Chromium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper	4.5	4.2	4.8	4.9	3.6	5.9	3.6	2.6	2.6	3.2	2.6	2.1	2.3	2.4	3.2
Iron	9.7	9.7	10	10	11	16	20	9.5	13	14	13	12	26	26	14
Lead	<0.01	<0.01	<0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.02	0.02	0.2	0.03	0.02	0.03
Manganese	110	120	100	100	80	150	110	300	210	220	210	150	100	81	100
Molybdenum	0.1	0.1	0.2	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	0.1	0.1
Nickel	0.46	0.46	0.49	0.65	0.37	1.1	0.8	0.28	0.5	0.42	0.2	0.28	0.42	0.46	0.36
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thallium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tin	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Titanium	0.06	0.06	<0.05	0.08	0.17	0.07	0.47	0.06	0.18	0.14	0.11	0.56	0.6	0.7	0.33
Uranium	0.01	<0.01	0.01	<0.01	0.02	0.01	0.02	<0.01	0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01
Zinc	6.6	6.4	6.5	6.7	5.3	8.9	7.3	5.7	5.2	6.8	7.2	8.9	7.4	7	7
Physical Properties															
Moisture (%)	87.53	87.36	87.13	86.87	86.78	88.39	87.69	87.22	86.9	87.44	84.89	85.4	85.63	85.57	85.84
Radionuclides															
Lead-210 (Bq/g)	0.007	0.006	0.020	0.013	0.018	0.005	0.005	0.016	0.010	0.016	0.016	0.009	<0.004	<0.004	<0.004
Polonium-210 (Bq/g)	0.003	0.002	0.001	0.002	0.003	0.003	0.003	0.013	0.002	0.005	0.002	0.001	0.001	<0.001	0.001
Radium-226 (Bq/g)	0.004	0.002	0.006	0.004	0.002	0.002	0.007	<0.0009	<0.0009	<0.0009	<0.001	0.002	0.003	0.002	0.003
Thorium-230 (Bq/g)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Trace Elements															
Antimony	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Beryllium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	0.01	0.01	0.01	0.01	0.01	0.02	0.14	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02
Strontium	2.3	2	2.1	2.5	1.8	3.4	2.5	2.5	2.4	1.8	2.1	2.2	2.2	2.1	1.5
Vanadium	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

[1]All concentrations are in µg/g dry weight, unless specified otherwise.

APPENDIX C, TABLE 10

Detailed barren-ground caribou flesh chemistry results for the EARMP community program, 2011 to 2013/2014.

Chemical[1]	Black Lake															Camsell Portage	
	2011					2012					2014					2012	
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2
Metals																	
Aluminum	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	0.6	1.2	<0.5	<0.5	<0.5
Barium	0.2	0.03	0.04	0.03	0.25	0.04	0.02	0.02	0.01	<0.01	0.02	0.05	0.11	0.33	0.02	0.02	<0.01
Boron	0.7	0.2	0.6	<0.2	0.9	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cadmium	0.002	0.004	0.002	<0.002	<0.002	0.004	0.003	0.002	0.006	0.005	0.002	<0.002	0.003	0.005	0.004	0.004	0.003
Chromium	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	4.3	2.6	3.0	3.0	3.3	3.3	4.2	3.4	3.0	3.1	4.6	3.3	3.2	2.4	4.6	3.7	3.7
Iron	43	29	40	38	45	33	49	44	50	43	49	38	58	37	52	50	46
Lead	0.013	<0.002	0.008	<0.002	0.005	0.003	0.31	0.003	0.48	0.013	<0.002	0.008	0.56	0.028	0.004	<0.002	<0.002
Manganese	0.45	0.29	0.35	0.38	0.42	0.28	0.53	0.34	0.3	0.26	0.48	0.56	0.48	0.34	0.42	0.35	0.26
Molybdenum	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Nickel	0.01	<0.01	<0.01	0.02	0.02	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	0.15	0.2	0.21	0.19	0.2	0.15	0.27	0.18	0.2	0.18	0.24	0.15	0.21	0.17	0.21	0.23	0.22
Silver	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Thallium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tin						<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	0.08	0.08	0.07	0.07	0.08	0.09	0.11	0.08	0.08	0.08	0.06	0.1	0.07	0.1	0.09	0.08	0.07
Uranium	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	17	31	21	16	29	26	29	33	30	32	19	21	23	30	20	26	25
Physical Properties																	
Moisture (%)	74.06	74.11	74.21	73.58	72.53	76.52	73.84	75.07	75.5	74.1	70.87	67.93	65.21	69.85	71.08	72.15	72.11
Radionuclides																	
Lead-210 (Bq/g)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Polonium-210 (Bq/g)	0.011	0.0095	0.0083	0.01	0.011	0.0007	0.0052	0.0065	0.0085	0.0094	0.023	0.014	0.013	0.015	0.012	0.017	0.015
Radium-226 (Bq/g)	<0.00006	<0.00006	<0.00006	<0.00006	<0.00006	0.008	<0.005	<0.005	<0.005	<0.005	<0.00006	0.0003	<0.00006	0.0003	0.0001	<0.00008	<0.0001
Thorium-230 (Bq/g)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002
Trace Elements																	
Antimony	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	0.06	0.04	0.38	<0.02	<0.02	<0.02
Arsenic	0.02	0.01	0.02	0.02	0.02	0.04	0.02	0.03	0.02	0.02	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01
Beryllium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cobalt	0.005	0.004	0.003	0.003	0.003	0.008	0.005	0.004	0.004	0.005	<0.002	0.002	0.002	<0.002	0.002	0.002	<0.002
Strontium	0.03	0.03	0.02	0.02	0.03	0.05	0.04	0.03	0.03	0.03	0.03	0.06	0.12	0.27	0.05	0.04	0.04
Vanadium	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

APPENDIX C, TABLE 10

Detailed barren-ground caribou flesh chemistry results for the EARMP community program, 2011 to 2013/2014.

Chemical[1]	Fond du Lac					Fond du Lac											Stony Rapids							
	2011					2012						2013					2012					2014		
	1	2	3	4	5	1	2	3	4	5	6	1	2	3	4	5	1	2	3	4	5	1	2	3
Metals																								
Aluminum	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Barium	0.08	0.02	0.03	0.04	0.02	0.05	0.14	0.11	0.08	0.12	0.32	0.01	<0.01	0.02	0.02	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.04	0.12
Boron	0.4	0.5	0.3	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cadmium	0.004	0.002	0.003	0.002	<0.002	0.004	0.002	0.005	<0.002	0.003	0.14	0.004	0.004	<0.002	0.003	0.002	0.003	0.004	0.002	0.003	0.002	<0.002	0.002	0.008
Chromium	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2
Copper	3.9	2.3	2.2	4.1	3.1	1.8	2.6	3.2	3.3	3.9	4.3	4.2	4.3	2.6	4	4.2	4.0	4.6	4.7	3.3	4.1	2.4	3.4	1.8
Iron	48	31	29	48	32	30	36	43	50	39	45	46	47	27	48	49	52	55	46	51	55	38	38	40
Lead	0.008	<0.002	<0.002	<0.002	<0.002	0.006	0.006	0.008	<0.002	0.014	0.004	0.002	<0.002	<0.002	0.003	<0.002	0.002	0.065	0.009	0.003	0.004	0.005	0.052	0.032
Manganese	0.39	0.26	0.25	0.43	0.32	0.24	0.26	0.33	0.37	0.53	0.8	0.38	0.35	0.32	0.39	0.44	0.46	0.55	0.42	0.44	0.44	0.3	0.28	0.36
Molybdenum	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Nickel	0.08	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.18	<0.01	0.06
Selenium	0.15	0.15	0.15	0.18	0.15	0.12	0.13	0.16	0.2	0.14	0.34	0.19	0.17	0.17	0.18	0.22	0.21	0.26	0.21	0.21	0.21	0.16	0.14	0.11
Silver	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Thallium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tin						0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	0.08	0.08	0.07	0.08	0.09	0.08	0.05	0.09	0.08	0.08	0.08	0.06	0.13	0.12	0.05	0.13	0.03	0.12	0.2	0.09	0.11	0.13	0.04	0.08
Uranium	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	22	56	59	16	49	40	15	23	12	16	18	28	22	30	26	24	22	13	16	29	15	40	17	48
Physical Properties																								
Moisture (%)	71.24	76.19	74.05	73.91	73.77	71.94	71.95	72.9	73.46	71.99	68.45	62.73	71.46	75.61	72.28	70.81	70.86	70.2	70	70.4	71	74.41	74.78	67.52
Radionuclides																								
Lead-210 (Bq/g)	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.002	0.002	<0.001	<0.001	0.008	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.002	<0.001	<0.001	<0.001	0.002	<0.001
Polonium-210 (Bq/g)	0.0042	0.0084	0.0098	0.0096	0.0021	0.015	0.015	0.015	0.016	0.016	0.021	0.012	0.012	0.011	0.01	0.014	0.026	0.001	<0.001	0.012	0.025	0.0083	0.01	0.0059
Radium-226 (Bq/g)	<0.00005	0.0002	0.0001	<0.00004	0.00008	<0.00006	<0.00006	<0.00006	<0.00007	<0.00007	0.00009	<0.00006	<0.00006	<0.00006	0.00007	0.00008	0.002	<0.001	<0.001	0.002	0.001	<0.00006	<0.00006	<0.00005
Thorium-230 (Bq/g)	<0.0001	0.0003	<0.0002	<0.00008	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0001	<0.0001	<0.0001
Trace Elements																								
Antimony	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	<0.01	<0.01	<0.01	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.01	<0.01	<0.01	0.03	<0.01	<0.01	0.01	0.01	0.01	0.02	0.01	0.03	0.02	0.01
Beryllium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cobalt	0.004	0.006	0.006	0.003	0.003	0.003	<0.002	0.003	0.002	0.006	0.013	0.005	0.004	0.005	0.004	<0.002	0.006	0.003	0.004	0.004	0.003	0.004	0.002	0.003
Strontium	0.07	0.05	0.06	0.05	0.03	0.06	0.07	0.07	0.05	0.08	0.14	0.04	0.04	0.03	0.05	0.05	0.02	0.03	0.02	<0.02	<0.02	0.05	0.04	0.17
Vanadium	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

[1]All concentrations are in µg/g on a dry weight basis, unless specified otherwise.

APPENDIX C, TABLE 10

Detailed barren-ground caribou flesh chemistry results for the EARMP community program, 2011 to 2013/2014.

Chemical[1]	Wollaston Lake/Hatchet Lake														
	2011					2012					2013				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Metals															
Aluminum	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5
Barium	0.04	0.09	0.03	0.04	0.09	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01
Boron	0.4	<0.2	0.4	0.3	0.4	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cadmium	0.005	0.008	0.002	0.004	0.002	0.008	0.003	<0.002	0.004	0.003	0.002	0.002	<0.002	<0.002	0.003
Chromium	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	3.1	3.2	2.5	3.9	3.1	4.4	2.3	2.4	3.6	3.5	3.6	3.3	2.3	3.8	3.5
Iron	37	35	26	45	29	63	36	43	52	43	42	43	23	44	45
Lead	0.013	0.002	<0.002	0.046	0.051	0.006	0.003	0.013	0.014	<0.002	<0.002	<0.002	0.003	0.005	<0.002
Manganese	0.35	0.29	0.25	0.53	0.33	0.46	0.27	0.29	0.5	0.44	0.31	0.37	0.21	0.37	0.41
Molybdenum	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	0.15	0.17	0.17	0.19	0.13	0.18	0.13	0.12	0.19	0.17	0.21	0.13	0.16	0.2	0.18
Silver	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Thallium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tin						<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	0.07	0.07	0.07	0.07	0.07	0.11	0.09	0.11	0.08	0.09	0.03	0.06	0.06	0.07	0.11
Uranium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	33	30	30	20	29	16	52	42	20	16	16	20	18	13	23
Physical Properties															
Moisture (%)	74.5	73.6	75.2	74.14	75.2	72.82	78.45	77.45	73.98	72.58	75.58	74.52	75	74.43	73.43
Radionuclides															
Lead-210 (Bq/g)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001
Polonium-210 (Bq/g)	0.016	0.013	0.011	0.015	0.011	0.011	0.012	0.0095	0.019	0.014	0.0082	0.0083	0.012	0.016	0.01
Radium-226 (Bq/g)	<0.00006	<0.00007	<0.00006	<0.00006	<0.00005	<0.00008	<0.00006	<0.00006	0.0001	<0.00007	<0.00008	<0.00009	0.0002	<0.00006	0.00007
Thorium-230 (Bq/g)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001
Trace Elements															
Antimony	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	<0.01	<0.01	0.01	0.02	0.02	0.02	0.02	0.01	0.01	<0.01	0.02	<0.01	0.01	0.02	<0.01
Beryllium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cobalt	0.003	0.003	0.007	0.005	0.004	0.008	0.006	0.006	0.004	0.006	0.003	0.006	<0.002	0.003	0.004
Strontium	0.04	0.03	0.03	0.02	0.03	0.05	0.03	0.03	0.02	<0.02	0.02	0.04	0.05	0.03	0.04
Vanadium	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

[1]All concentrations are presented on a µg/g wet weight basis, unless specified otherwise.

APPENDIX C, TABLE 11

Detailed moose flesh chemistry results for the EARMP community program, 2011 to 2013.

Chemical[1]	Uranium City Study Area										Camsell Portage Study Area					
	2011				2012			2013			2011				2013	
	Mackintosh Bay	Deadman Channel	Melville Lake	Orbit Bay	Ace Creek	Gunnar	Milliken Lake	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	Sample 4	Sample 1	Sample 2
Metals																
Aluminum	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	1.5	3	<0.5	3.8	<0.5	<0.5
Barium	0.03	0.02	<0.01	0.02	0.04	0.22	0.08	0.02	0.09	0.02	0.04	0.15	0.03	0.02	0.05	0.02
Boron	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2
Cadmium	0.003	<0.002	0.002	0.004	0.011	0.006	0.003	0.004	0.005	0.003	<0.002	0.006	0.002	<0.002	0.002	0.003
Chromium	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	1.3	1.8	3.8	1.7	1.2	1.4	1.3	1.6	2	1.5	2.0	1.2	1.8	1.6	1.5	1.8
Iron	30	25	42	42	35	34	26	34	37	26	21	25	25	29	29	34
Lead	<0.002	<0.002	<0.002	<0.002	0.005	0.004	0.003	0.003	0.025	0.003	0.018	0.019	<0.002	0.002	0.004	<0.002
Manganese	0.16	0.16	0.33	0.14	0.17	0.18	0.15	0.14	0.24	0.14	0.2	0.18	0.21	0.13	0.13	0.16
Molybdenum	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Nickel	0.01	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.02	<0.01	<0.01	<0.01	<0.01
Selenium	0.11	0.16	0.18	0.09	0.1	0.11	0.1	0.09	0.12	0.08	0.2	0.06	0.1	0.12	0.06	0.06
Silver	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Thallium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tin	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	0.14	0.08	0.1	0.13	0.08	0.08	0.06	0.06	0.06	0.06	0.09	0.25	0.09	0.08	0.07	0.07
Uranium	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	50	49	31	49	75	56	55	44	48	56	24	38	47	45	59	45
Physical Properties																
Moisture (%)	74.42	72.36	72.74	73.84	69.87	74.09	74.28	74.01	71.23	74.71	75.01	73.92	75.02	75.12	73.27	72.65
Radionuclides																
Lead-210 (Bq/g)	0.002	<0.001	<0.001	<0.001	<0.00002	<0.00001	<0.00002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0003	<0.001	<0.001
Polonium-210 (Bq/g)	<0.0002	0.0005	0.0023	0.0003	0.0002	0.0004	<0.0002	0.0004	0.0005	0.0003	0.0019	0.0004	0.0003	-	0.0004	0.0002
Radium-226 (Bq/g)	<0.00006	<0.0001	<0.00006	<0.00007	<0.00009	<0.00006	<0.00008	0.00008	0.0001	<0.00005	<0.00008	<0.00007	0.0002	<0.00006	0.00006	0.00007
Thorium-230 (Bq/g)	<0.0001	<0.0002	<0.0001	<0.0001	<0.0002	0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	-	<0.0001	<0.0001
Trace Elements																
Antimony	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Beryllium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cobalt	0.013	0.014	0.003	0.017	0.016	0.01	0.012	0.01	0.011	0.008	0.014	0.011	0.022	0.01	0.012	0.015
Strontium	<0.02	<0.02	0.04	0.03	0.08	0.05	0.05	0.02	0.03	0.03	0.1	0.06	0.03	0.02	0.06	0.04
Vanadium	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

[1]All concentrations are presented on a µg/g wet weight basis, unless specified otherwise.

APPENDIX C, TABLE 12

Detailed snowshoe hare flesh chemistry results for the EARMP community program, 2011 to 2014.

Chemical[1]	Uranium City							Camsell Portage							
	2011					2014		2011					2014		
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 1	Sample 2	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 1	Sample 2	Sample 3
Metals															
Aluminum	0.6	<0.5	<0.5	0.5	<0.5	<0.5	0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Barium	0.27	0.05	0.09	0.04	0.05	0.13	0.28	0.09	0.04	0.08	0.03	0.08	0.18	0.1	0.12
Boron	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cadmium	0.004	<0.002	0.003	0.003	<0.002	<0.002	0.005	0.003	0.004	0.01	<0.002	0.002	<0.002	0.004	0.006
Chromium	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	1.5	1.5	1	1.4	1.1	2.4	2.1	1.8	2.4	1.5	1.8	1.5	1.9	2.1	1.8
Iron	27	22	22	14	20	21	31	31	28	24	22	24	19	25	20
Lead	<0.002	0.003	<0.002	<0.002	0.003	0.002	<0.002	0.003	<0.002	0.006	<0.002	<0.002	0.003	0.002	0.002
Manganese	0.27	0.2	0.37	0.29	0.18	0.24	1.1	0.72	0.46	0.32	0.22	0.22	0.36	0.28	0.39
Molybdenum	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Nickel	0.01	0.02	<0.01	<0.01	<0.01	0.02	0.05	0.03	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.07
Selenium	0.13	0.05	0.1	0.12	0.06	0.15	0.07	0.04	0.03	0.13	0.02	0.06	0.03	0.08	0.14
Silver	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Thallium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tin	0.02	<0.01	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	0.02	0.02	<0.01	<0.01	<0.01
Titanium	0.07	0.04	0.07	0.08	0.15	0.05	0.1	0.08	0.07	0.05	0.08	0.04	0.09	0.06	0.09
Uranium	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	25	24	17	10	19	10	16	14	11	23	13	13	13	11	16
Physical Properties															
Moisture (%)	77.55	77.14	77.49	78.65	78.51	70.07	65.8	77.61	76.53	75.79	77.6	78.45	71.24	75.39	73.89
Radionuclides															
Lead-210 (Bq/g)	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Polonium-210 (Bq/g)	0.0014	0.0013	0.0015	0.00003	0.0016	0.0022	0.0015	0.0011	0.0018	0.0021	0.0013	0.0012	0.0017	0.002	0.0018
Radium-226 (Bq/g)	<0.00006	0.00009	0.0001	0.0001	0.00009	0.0001	0.00007	0.0001	<0.00007	0.0001	0.0001	0.0002	0.0001	<0.00006	0.0001
Thorium-230 (Bq/g)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Trace Elements															
Antimony	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Beryllium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cobalt	0.007	0.005	0.004	0.004	0.006	0.005	0.004	0.01	0.006	0.007	0.003	0.004	<0.002	0.005	0.032
Strontium	0.39	0.1	0.28	0.1	0.19	0.14	0.19	0.27	0.07	0.22	0.05	0.09	0.2	0.1	0.29
Vanadium	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

[1]All concentrations are presented on a µg/g wet weight basis, unless specified otherwise.

APPENDIX D

NUTRITIONAL ANALYSIS OF WILD FOODS

APPENDIX D: NUTRITIONAL ANALYSIS OF WILD FOODS

1.0 INTRODUCTION

In 2013, CanNorth conducted a nutritional analysis of wild foods from across northern Saskatchewan in collaboration with Dr. James Irvine and Brian Quinn of the Northern Saskatchewan Population Health Unit in La Ronge. Samples were collected by northern residents during their routine hunting and gathering activities in the fall and winter of 2013. All samples were then shipped to CanNorth in Saskatoon where they were labelled and frozen prior to analysis.

2.0 SAMPLE SUBMISSION

In total, nine wild food samples were collected from seven different communities across northern Saskatchewan and are listed below. In addition, for comparison, two samples (chicken breast and regular ground beef) were purchased from Superstore in Saskatoon for nutritional analysis. Wild foods selected for sampling were based on traditional foods frequently consumed in northern communities in Saskatchewan.

Sample Description	Sample Location Community/Lake	Sample Submitted
Moose	La Ronge	Nutritional Analysis
Barren-ground Caribou	Fond du Lac	Nutritional Analysis
Rabbit	La Ronge	Nutritional Analysis
Lake Trout	Black Lake/Black Lake	Nutritional + Vitamin D
Lake Whitefish	Uranium City/Lake Athabasca	Nutritional + Vitamin D
Northern Pike	Camsell Portage/Lake Athabasca	Nutritional + Vitamin D
Walleye	Stony Rapids/Fond du Lac River	Nutritional + Vitamin D
Blueberry	Wollaston Lake	Nutritional Analysis
Cranberry	Fond du Lac	Nutritional Analysis
Chicken Breast (skin-on)	Saskatoon	Nutritional Analysis
Ground Beef (regular)	Saskatoon	Nutritional Analysis

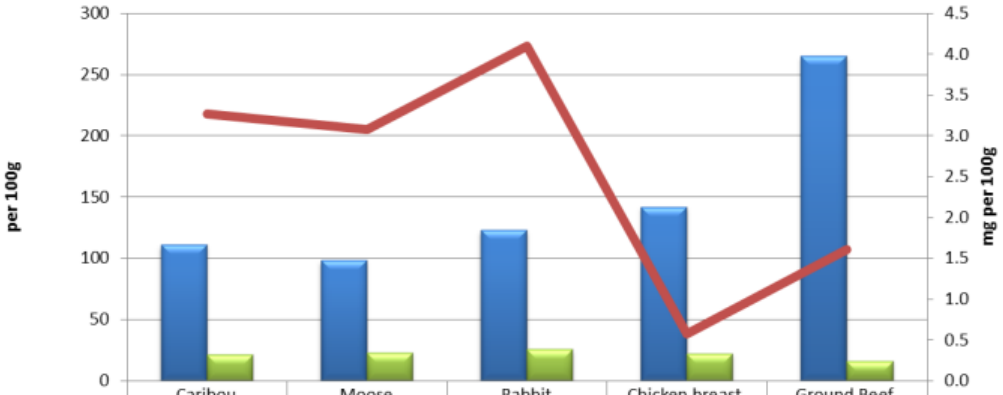
All samples collected were submitted to Interwest Sunwest Laboratory in Saskatoon for nutritional analysis. The 'nutritional analysis' included total fat with saturates, trans fat, omega-3, omega-6, cholesterol, moisture, protein, total dietary fibre, total sugars, Vitamin A, Vitamin C, calcium, iron, sodium, and carbohydrate calculation for each sample. In addition, all four fish species sampled were also analyzed for Vitamin D.

Intertek Sunwest Laboratories offer a range of physical, chemical, and microbiological tests on a wide variety of raw and processed agricultural products. The Canadian Nutrition Facts Label (CFIA) is mandatory on most retail food products. CFIA recommends using a Standards Council of Canada (SCC) accredited lab to conduct the analysis. Intertek Sunwest meets the requirements of accreditation (Accreditation #397) as set out in the SCC guidelines according to ISO 17025. Further details of the requirements for the Nutrition Facts Table can be found on the CFIA website: http://www.inspection.gc.ca/eng/1297964599443/1297965645317.

6.0 RESULTS

A summary of the available nutritional concentrations measured in northern wild foods are presented in Figures 1 through 3 and the results for each are shown in Table 1.

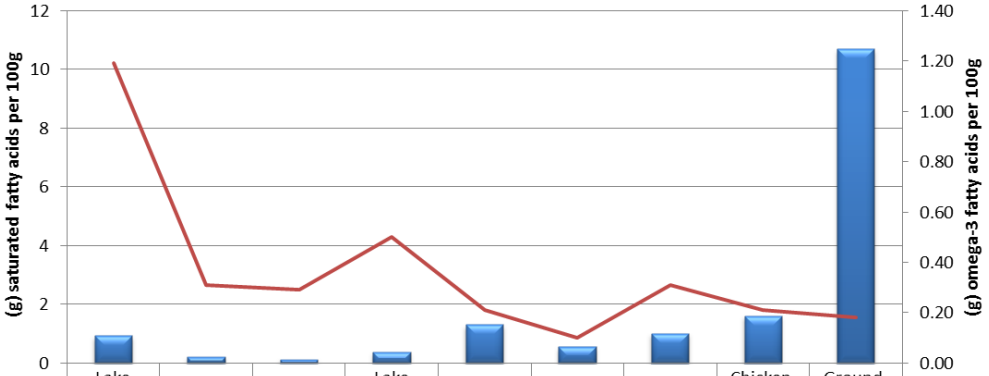
Figure 1. Calorie, protein, and iron content of northern Saskatchewan caribou, moose, and rabbit compared to store-bought chicken breast and ground beef, 2014.



Source: NorthSask Population Health Unit 2014, prepared by NorthSask PHU May 2014

Compared to store bought chicken breast and ground beef, the northern game meats have similar amounts of protein (21.4 to 25.6 g/100g), between two and seven times higher levels of iron (3.08 to 4.1 mg/100g) and lower levels of calories (98-123 kcal/ 100g). Overall, this indicates that northern Saskatchewan caribou, moose, and rabbit are low-calorie, nutrient-dense, healthy servings of meat and meat alternatives (i.e. protein).

Figure 2. Fat content of northern Saskatchewan fresh water fish, caribou, moose, and rabbit compared to store-bought chicken breast and ground beef, 2014.



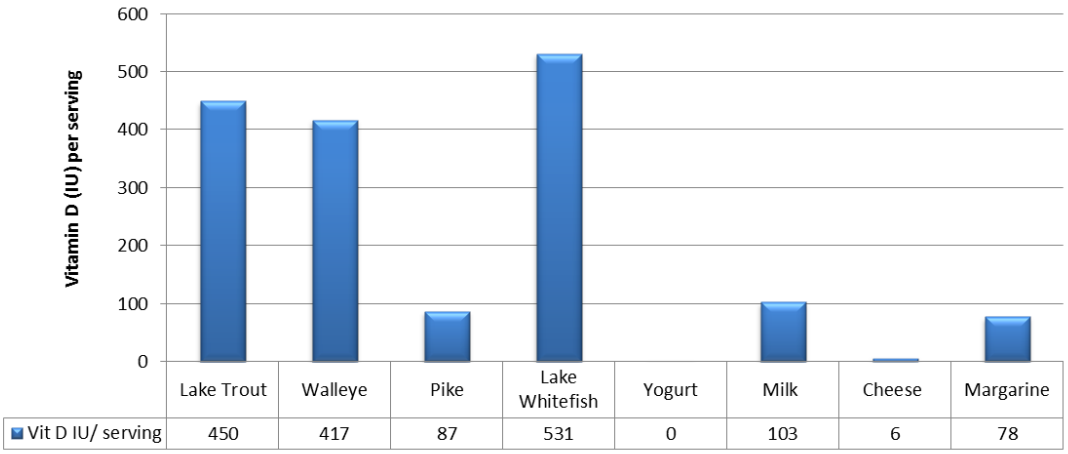
	Lake Trout	Walleye	Pike	Lake Whitefish	Caribou	Moose	Rabbit	Chicken breast	Ground Beef
Saturates	0.95	0.23	0.14	0.40	1.32	0.57	1.03	1.62	10.70
Omega-3	1.19	0.31	0.29	0.50	0.21	0.10	0.31	0.21	0.18

Source: NorthSask Population Health Unit 2014, prepared by NorthSask PHU May 2014

Health Canada recommends replacing saturated and trans fat in the diet with unsaturated fat (healthy fat), due to its beneficial effect on cholesterol and overall heart health (Health Canada 2012 - http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/med/fats-gras-eng.php). One type of unsaturated fat is Omega-3 fatty acids. Compared to store bought chicken breast and ground beef, northern Saskatchewan game meat have similar amounts of omega-3 fatty acids (0.10 to 0.31g/100g), while northern Saskatchewan fresh water fish have much higher contents (0.31 to 1.19g/100g).

In addition, both northern Saskatchewan fish and game meat have substantially lower levels of saturated fat, compared to store bought chicken and ground beef. Vitamin D is an important nutrient for overall health, particularly bone health. Individuals are able to synthesize Vitamin D when their skin is exposed to sunlight; however, this ability can be limited in those with dark pigmented skin, with the use of sunscreen, and between October and April for those living in northern regions. In addition, there are limited food sources with high Vitamin D content.

Figure 3. Vitamin D content of northern Saskatchewan fresh water fish, compared to yogurt, milk, cheese, and margarine, 2014.



Source: NorthSask Population Health Unit 2014, Canadian Nutrient File accessed May 2014 , prepared by NorthSask PHU May 2014* serving was according to Canada's food guide to healthy eating (Fish = 75g, yogurt = 175g, cheese = 50g, milk = 250ml, margarine 15ml)

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The major sources of Vitamin D from food include fortified milk products and margarine, as well as fatty fish and egg yolks. Commercial milk had the highest Vitamin D content of the milk products and margarine, with 103 IU per serving. In comparison, the lake trout, walleye, and lake whitefish had over four to five times the Vitamin D content per serving. Northern pike had similar but slightly less Vitamin D per serving than milk. This is similar to what is seen elsewhere, where there is variation in the Vitamin D content of different fish species, as well as variation within the same species living in different locations. In addition, fish in this investigation were analyzed raw. Losses of Vitamin D due to cooking are thought to be negligible from baking, but can be somewhat greater from frying in oil. Overall, this indicates that northern fresh water fish are good sources of Vitamin D.

Combined, the data indicates that northern Saskatchewan caribou, moose, rabbit and fish are low-calorie, nutrient-dense, healthy servings of meat and meat alternatives. Compared to other meat, they have higher amounts of Omega-3 fatty acids and lower amounts of saturated fat. In addition, northern Saskatchewan fish is a good source of Vitamin D. For more information please contact the Northern Saskatchewan Population Health Unit at 1-866-431-2422.

Table 8. Northern country food nutritional analysis; March 2014; Intertek Sunwest laboratory

Nutrient	Amount	Lake Trout	Walleye	Pike	Lake Whitefish	Barren-ground Caribou	Moose	Rabbit	Chicken breast	Ground Beef	Blueberry	Cranberry	DL
Protein	g/100g	20.2	19.4	21.7	22	21.4	23.0	25.6	22.4	16	1.00	0.81	0.20
Total Fat	g/110g	3.59	0.95	0.54	1.69	2.81	1.29	2.20	5.59	22.2	0.24	0.24	0.03
Saturates	g/100g	0.95	0.23	0.14	0.40	1.32	0.57	1.03	1.62	10.7	0.04	0.04	0.03
Trans Fat	g/100g	0.06	<0.03	<0.03	0.03	0.03	<0.03	0.03	0.04	0.64	<0.03	<0.03	0.03
Polyunsaturated Fat	%	1.56	0.39	0.33	0.63	0.54	0.23	0.75	1.23	0.56	0.16	0.10	0.03
Omega-3	%	1.19	0.31	0.29	0.50	0.21	0.10	0.31	0.21	0.18	0.05	0.04	0.03
Omega-6	%	0.34	0.07	0.04	0.10	0.34	0.13	0.44	1.01	0.34	0.10	0.07	0.03
Monounsaturated	%	1	0.29	0.06	0.61	0.90	0.46	0.27	2.7	10.0	0.03	0.04	0.03
Omega-9	%	0.64	0.18	0.04	0.25	0.82	0.39	0.23	2.32	8.12	0.03	0.04	0.03
Cholesterol	g/100g	43.8	90.8	61.7	58.70	67.6	54.9	86.9	73.2	66.8	<1.02	<1.02	1.02
Carbohydrate	g/100g	0.50	0.11	0.19	0.13	0.12	0.20	0.14	0.40	0.33	14.0	17.90	
Fiber	g/100g	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	2.44	<0.60	<0.60	2.37	<0.30	0.60
Sugars	g/100g	<0.21	<1.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	8.71	6.24	0.21
Ash	g/100g	1.09	1.04	1.17	1.28	1.17	1.11	1.16	1.20	0.67	0.17	0.27	0.08
Vitamin A	RE/100g	1.59	<1.21	<1.21	<1.21	<1.21	8.61	<0.21	5.57	13.5	<1.21	1.33	1.21
Vitamin A	IU/100g	528	<4.03	<4.03	<4.03	<4.03	28.7	<4.03	18.6	71.0	<12.1	13.3	4.03
Vitamin C	mg/100g	<2.93	<2.93	<2.93	<2.93	<2.93	<2.93	<2.93	<2.93	<2.93	<2.93	<2.93	2.93
Vitamin D	ug/100g	15.0	13.9	2.90	17.7								1.02
Vitamin D	IU/100g	600	556	116	708								
Calcium	mg/100g	20	10	40	50	<10	<10	60	10	10	10	20	
Iron	mg/100g	0.40	0.40	0.43	0.45	3.27	3.08	4.1	0.58	1.61	0.54	0.37	
Sodium	mg/100g	60	30	70	80	70	70	80	80	110	20	20	
Calories	/100g	115	87	92	104	111	98	123	142	265	62	77	