

▷ᵇᶜ▷ᵀᶜ: 778-232-7404, ᵀᵇᶜᵇᵈᶜ:

$\epsilon_b \Delta^c \dot{\bar{O}}_n \sigma^b \quad \Lambda_c n \Delta^c \epsilon_b \epsilon_\sigma \Delta n \Delta^a l^a \sigma^b$

ᐅᓂᕈᕋᐅ: Who: Michelle Tseng, Aquatic and Insect Ecologist, University of British Columbia
What: Researchers are currently studying the health of lakes, ponds, streams, and rivers in the Kitikmeot Region. This ongoing project is a collaboration between several universities, the Ministry of Environment (Government of Canada), and POLAR Knowledge Canada. I am joining this group of researchers to study in particular, whether increased water temperature in lakes and ponds is changing the health of small aquatic animals called zooplankton. In summer 2020, I propose to take 100 live zooplankton from each of 10 lakes. This amount is less than 0.01% of a typical lake zooplankton population. I will employ one local guide through the Ekaluktutiak Hunters and Trappers Association, and one local high school student. We will travel to these lakes by truck or ATV. At the Canadian High Arctic Research Station (CHARS), I (and the guide or student if they are interested), will measure the respiration rate (breathing rate) of live individual zooplankton held at different temperatures. I am testing the idea that zooplankton collected from warmer lakes will be able to maintain normal breathing rates at warmer temperatures, compared to zooplankton collected from cooler lakes.
Why: Zooplankton are important components of healthy aquatic environments. They filter water and they are food for larger insects and for fish such as lake trout and Arctic char. Without zooplankton, lakes would become cloudy with algae, and fish would become malnourished or unable to survive at all. This study will give us information about how tolerant zooplankton are to warmer water temperatures, and also how quickly they may be able to adapt to changing temperatures. This study is part of a three-year study that will also investigate (a) whether zooplankton collected at different times of the year show different responses to warmer temperatures, and (b) whether differences in the ability of zooplankton to withstand warmer temperatures are due their environment, or to specific genes. Together this information will allow us to make more accurate predictions for whether important fish like trout and char will still have enough high-quality food to grow and thrive as climate change continues.
Where: I propose to sample zooplankton from a subset of the lakes being currently being studied by the lake research group. All sites will be within a three-hour ATV or truck ride from CHARS. We will depart from CHARS in the morning and return by late afternoon each day.
When: I plan to consult with the community from June 23 to June 30, 2020. Pending positive feedback from the community, we will sample lakes from July 1 to July 7, 2020. If the community would like me to change my proposed research, I will postpone lake sampling until the suggested changes have been integrated.

ᐅᐃᐱᐅᐅ: In our instruction letter we were asked to provide the Non-technical Project Summary in English and Inuinnaqtun

Δ^aΠ^bΠ^c: In our instruction letter we were asked to provide the Non-technical Project Summary in English and Inuinnaqtun

Inuinnaqtun: Please see the attached document.

Personnel

Personnel on site: 3

Days on site: 7

Total Person days: 21

Operations Phase: from 2020-06-14 to 2020-06-28

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Tseng (UBC) Kitikmeot aquatic invertebrate health	Sampling sites	Municipal	We propose to study the zooplankton within a subset of the lakes currently being investigated by Prof. Milla Rautio and colleagues. The plants and animals living in these lakes, and the environmental features (temperature, dissolved oxygen, pH, etc) have been documented by Dr. Rautio's group. Pending the outcome of community consultation, we are proposing to conduct assays on live zooplankton from a subset of these lakes.	N/A	Within 2-3 hr ATV ride of the Canadian High Arctic Research Station

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ᐱᓐᓴᓴᓴᓐᑲᓐ	Beverly Makasagak	Ekaluktutiak Hunters and Trappers Association	2019-08-20

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$a^b r^c \sigma^d$ $\Lambda c_n d_n^e \Delta D \sigma^f b^g$ $n n f^h r^i$:

Kitikmeot

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Project transportation types

Transportation Type	How We Will Travel	Length of Use
Water	We will sample lakes and ponds using either a) an inflatable zodiac powered by a 2.5 h.p. outboard motor, or b) a manually-powered inflatable kayak	
Land	We will travel by truck or ATV	

Project accomodation types

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ATV or Truck	2	regular	To travel to lakes within a 3 hour drive of Cambridge Bay
Zodiac or inflatable kayak	1	6 ft	To sample zooplankton from lakes

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Gasoline	fuel	2	20	40	Liters	For the ATV and 2.5 hp outboard motor (if not provided by CHARS)

$\Delta L^{\epsilon_b} \triangleleft \triangleright^{\epsilon_b} C \triangleright \triangleleft \dot{L}^{\epsilon_b} \triangleright^{\epsilon_b}$

[illegible]

$\triangleleft^b C d^c$
$$\Delta^b C d_C \sim \sigma \Delta^q \sigma^q$$
[illegible]
$$\triangleleft \triangleleft \cap \Gamma \triangleright C \div^C \supset^C \quad \triangleleft^b \supset^{q_b} C \triangleright \neg L \neg^C$$

We anticipate that the collection of 100 zooplankton per lake will not result in any damage (temporary or permanent) to any of the sites. We will attempt to collect zooplankton from the shore. When that is not possible, our first option will be to use our inflatable kayak. If it is too windy for the inflatable kayak we will use the zodiac and 2.5 hp outboard motor. We will thoroughly rinse any water device we use with clean water.

Additional Information

SECTION A1: Project Info

SECTION A2: Allweather Road

SECTION A3: Winter Road

SECTION B1: Project Info

SECTION B2: Exploration Activity

SECTION B3: Geosciences

SECTION B4: Drilling

SECTION B5: Stripping

SECTION B6: Underground Activity

SECTION B7: Waste Rock

SECTION B8: Stockpiles

SECTION B9: Mine Development

SECTION B10: Geology

SECTION B11: Mine

SECTION B12: Mill

SECTION C1: Pits

SECTION D1: Facility

SECTION D2: Facility Construction

SECTION D3: Facility Operation

SECTION D4: Vessel Use

SECTION E1: Offshore Survey

SECTION E2: Nearshore Survey

SECTION E3: Vessel Use

SECTION F1: Site Cleanup

SECTION G1: Well Authorization

SECTION G2: Onland Exploration

SECTION G3: Offshore Exploration

SECTION G4: Rig

SECTION H1: Vessel Use

SECTION H2: Disposal At Sea

SECTION 11: Municipal Development

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Miscellaneous Project Information

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Cumulative Effects

Impacts

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 $\Delta^{\epsilon_b} C D \sigma^{\epsilon_b} r^c$
 $\Delta^{\epsilon_b} C D \sigma^{\epsilon_b} r^c$

[illegible][illegible]

1	polygon	Tseng (UBC) Kitikmeot aquatic invertebrate health
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