

NWT Frog Populations

Objective: To introduce students to populations by using NWT frogs as a model

Introduction: As frogs are an indicator species, the monitoring of frog populations can help in the evaluation of ecosystem health. In this lesson plan students will investigate the reasons for, methodology of and data from frog population monitoring in NWT and Canada.

Curriculum Connections:

Unit D 1.1sts, 2.1sts, 2.4, 3.1s, 3.2S

Supplies / Materials:

- Map of frog/toad distribution in NWT
- Data collected in frog watch
- Student journals / blank paper

Hook: Watch frog video e.g.

<http://ed.ted.com/lessons/disappearing-frogs-kerry-m-kriger>

“Frogs and toads can be used as indicator species, because they are vulnerable to changes in the atmosphere, the land, or the water.” source Frogwatch Canada.

Intro Activity:

1. Discuss the term **indicator species** and determine which NWT species are considered **indicator species**. Discuss how monitoring their populations may be an important tool to track environmental change / human impact.



SCIENCE FOCUS

Lesson Subject

Biology 30

Topic

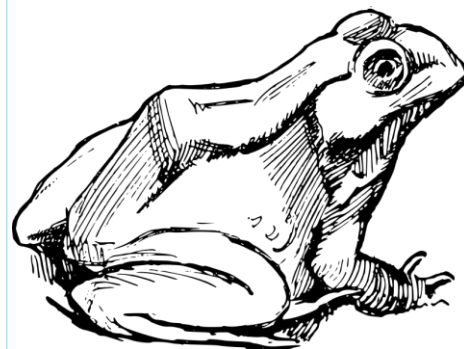
Human Impacts and Monitoring

Location

Classroom

Length

50 – 100 minutes (depending on optional activities included)



2. In the NWT there is a lot of discussion regarding monitoring large animals, like bison, caribou and musk ox but there is less attention to smaller and lesser-known species. Ask the students how they think frog populations could be monitored (visually, auditory – on calls, physically – e.g. catch and release). Have them brainstorm the pros and cons for each of these monitoring techniques. Provide time to do some online research, as the concept of studying frogs will be a usual topic of conversation.

Main Activities:

1. (Optional) In the senior guide for Frogwatch (**Resource 1**) there are several activities to help students understand Canadian frog populations in general. You may want to choose one or more of these activities.
2. Have students assess data from Frogwatch for the NWT. What does this (limited) data set tell us about NWT frogs? What else would they want to know and how might they research this?
3. (Optional) Compare NWT data with data from another province. Can those data be used to form trends? Have students think about (in pairs) and then be prepared to comment (to the class) on what amount of data is needed to be confident in making conclusions (i.e. is the population trend indicating a decline or an increase in population?).
4. Compare NWT data to visual sightings data found in **Resource 1** below. Is the Frogwatch data supported by the map? (**Resource 2**) What are some questions/assumptions they have about how data was collected by these researchers? Are their frogs/toads in your community? Has anyone seen them?
5. Traditional Knowledge should be shared with the class. Invite the school elder, or a an elder from the community to visit the class and explain what they know about frogs. Have they seen them in the community in their lifetime?

Conclusion / Review: What is the value of observations and data in helping us monitor our wetland health? What is good data? How much do we need? How can we contribute?

Homework:

- 1) Have students do one of the optional activities above.
- 2) Have students research which frog/toad's range (spread) includes your community and learn its call.

Resources:

1. Frogwatch: <https://www.naturewatch.ca/frogwatch/northwest-territories/>
https://www.naturewatch.ca/wp-content/biguploads/senior_guide_712.pdf
http://www.nwtspeciesatrisk.ca/sites/default/files/northern_leopard_frog_nwt_status_report_dec_2013_final2_0.pdf
2. Map: <http://www.nwtpas.ca/maps/map-sf-amphibians-pas-areas.pdf>

Extension:

1. Take the students on short field trips in the spring and fall to observe for Frog Watch. In the spring, you will be more likely to hear the mating calls of any resident species in your area. Please be sure to submit those observations to Nature Canada.
www.naturewatch.ca/frogwatch
2. Have students research what scientists have learned about human health through studying frogs. For example, researchers are examining the wood frog for its freeze tolerance in the hopes of being able to apply that knowledge to the world of medicine. This knowledge will have implications for human organs – being able to freeze them safely would allow for a greater success in human organ transplant surgeries.