

Chum Salmon

Northern Waters Inspiration

Pink, chinook, sockeye and coho salmon have also been caught in the NWT, but only chum are known to return to spawn in the Mackenzie River watershed regularly. Traditional knowledge can help confirm scientific theories that this species has been recorded in various locations in the NWT for more than 125 years — chum salmon have local names in both the Inuvialuktun and Dene languages, but no other salmon species are named!

Salmon Arrive Early

September 23, 2013, Yellowknifer Mackenzie River fish research project continues into third year.

 **SMART Board / Promixa Ready**

 **Northern Resources**

Gr.8 Politics of Water

NORTHERN WATERS

OBJECTIVE Students will learn about water monitoring in the NWT and get their feet wet by researching a water issue in your community.

Canada Water Week is a celebration of water from coast to coast to coast, held annually during the third week of March to coincide with World Water Day on March 22. In 2014, the Mackenzie River was the focus of Canada Water Week and a short documentary, *Cold Amazon: The Mackenzie River Basin*, was created. The film sheds light on many of today's most pressing politics around water, such as: the increasing pressures that extractive industrial activities downstream from the NWT are having on the Mackenzie River basin; the potential impacts of expanding resource development activities in the Sahtu region and some of the proactive measures that are being taken to alleviate the increasing pressures on the basin, such as the development of community water monitoring programs.

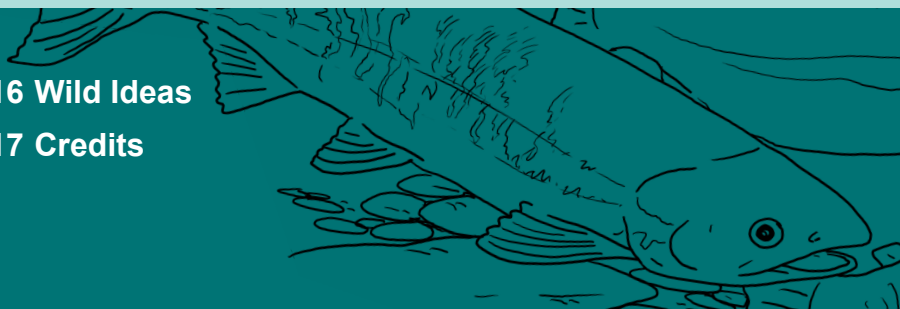
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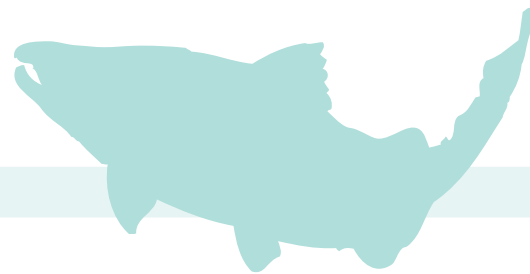
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CURRICULUM Links



Science

Part A: Mix and Flow of Matter

Outcomes: 2

Part E: Freshwater and Saltwater Systems

Outcomes: 1,2,3,4

Social Studies

Attitudes (embedded throughout)

Ancient Societies

Modern Societies

Current Events

Dene Kede

Part 2: Hunting Camp

Part 4: Leadership

Inuuqatigiit

Water I-96

English Language Arts

General Outcome #1: Specific Outcomes: 1.1, 1.2, 2.2, 2.4

GO #2: SO: 1.1

GO #3: SO: 1.2, 1.3, 2.1, 2.2, 3.1, 3.4

GO #4: SO: 1.2, 4.1, 4.2, 4.3

GO #5: SO: 1.1, 1.2, 1.3, 2.1, 2.3, 2.4

Assessment Tools

Students can select the method they would like to use to reflect their understanding in this unit. They can use a small notebook (water log), create a blog (water blog!) on the class website (if applicable) or use web cams to record a video journal entry.

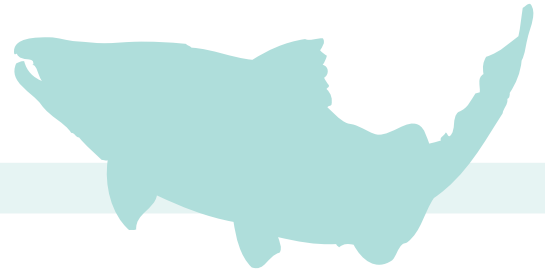
Mock Parliament: Develop a rubric to evaluate the students' involvement in the **Mock Parliament** lessons. Provide students with a self-evaluation rubric to evaluate each other's Mock Parliament lesson.



Technology

Need help with rubrics? Considering using this online resource.

TEACHER'S Resources



Books

A King Salmon Journey

Debbie S. Miller

Illustrated by Jon Van Zyle (III)
University of Alaska Press, 2014
ISBN 978-1602232310

<http://www.alaska.edu/uapress/browse/detail/index.xml?id=508>

Videos



Cold Amazon (22:00)

This short documentary, produced by the Walter and Duncan Gordon Foundation, tells the story of the Mackenzie River Basin and highlights the importance and vulnerability of the Mackenzie watershed.

<http://gordonfoundation.ca/publication/705>

The Blue Economy (4:00)

This video, produced by the Blue Economy Initiative, provides a short overview of Canada's dependence on water, the importance of taking care of our water and a glimpse of how our future can look if we change how we think about and use water.

<http://gordonfoundation.ca/publication/694>

Permafrost the Tipping Time Bomb (6:00)

<https://www.youtube.com/watch?v=FLCgybStZ4g>



Steve Kokelj: On Studying Environmental Change in the Mackenzie Delta (3:00)

<https://www.youtube.com/watch?v=wImJJWoQMA8>

Websites

Discover your Water Footprint

Interactive site that shows the true water costs of our everyday items!

<http://canadawaterweek.com/cww/english.html>



NWT Species at Risk

Current information on the status of all NWT species.

<http://nwt-species-at-risk.ca>

Arctic Biodiversity Data Service

A wealth of information about species and ecosystems in the circumpolar region.

<http://www.abds.is/explore-species>



Maps of NWT Watersheds and Water Bodies

<http://nwtwaterstewardship.enr.gov.nt.ca/?q=maps>



Legislative Assembly of the NWT

Information about Youth Parliament, which is an opportunity for Grade 9 and 10 students to assume the role of an MLA at the Legislative Assembly in Yellowknife.

<http://www.assembly.gov.nt.ca/about/youth-parliament>



Northwest Territories Water Stewardship Strategy

<http://nwtwaterstewardship.ca>

The Walter and Duncan Gordon Foundation: Mackenzie River Basin

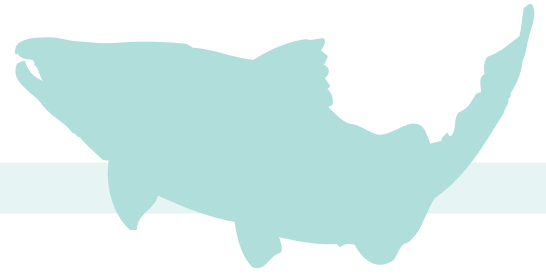
<http://gordonfoundation.ca/water/mackenzie-river-basin-initiative>



Mackenzie River Basin Board

<http://www.mrbba.ca/information/8/index.html>

LESSON Plans



Lesson 1: Community Water Quality Monitoring

45 min or double period if you have a guest interview.

Warm-up: *What's your favourite local fresh waterbody?*

1. Ask your students to name their favourite local fresh water body (could be a river, lake, pond, etc.) and to explain why.
2. Write them on the board, along with their reason why it is their favourite. Some may talk about fishing, swimming, hunting, canoeing, boating or enjoying nature.
3. Once you have filled the board, talk about how people in many other parts of the world would not be able to mention even one of these things because they don't have a clean fresh water body in their area!
4. *What does that mean for us?* If we want future generations to be able to name these same water bodies, we have a responsibility to protect them. One way we do that is to monitor water characteristics so we know when there is a change and can figure out why it happened and how to prevent it. Community water monitors do this in almost every community in the NWT.

Artist Extension: Make a Mural

As a class, use the ideas on the board to paint a mural on a piece of big paper. You might want to name your mural, list your local water bodies and students can paint scenes of their favourite activities. The finished mural would be a great resource to bring to community discussions or events that celebrate water.

The Walter and Duncan Gordon Foundation

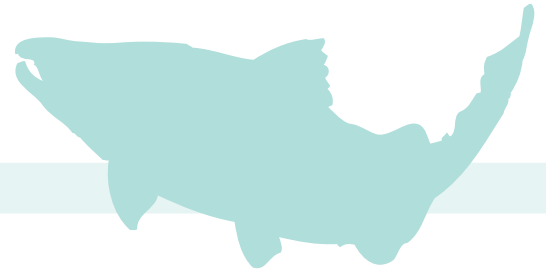
The Walter and Duncan Gordon Foundation is committed to the protection of the Mackenzie through the Mackenzie River Basin Initiative. With this initiative they plan to:

- Educate Canadians on the national and international significance of the basin, and the threats it faces
- Encourage transboundary agreements across all levels of government and between jurisdictions to ensure water quality is monitored effectively across the watershed
- Work with northern Canadians, the stewards of the Mackenzie, to ensure this global treasure is protected for current and future generations

To learn more about the Mackenzie River Basin and what can be done to protect it, read the

Gordon Foundation report: Canada's Great Basin

Lesson Plans



Activity 1: Why Do We Monitor Water?

Cold Amazon (24:00)

Show the students the Walter and Duncan Gordon Foundation documentary. Teachers can highlight the section on community water monitoring (12:00 – 15:00).

Class Discussion on community-based water monitoring

We live in one of the most remote parts of Canada, so why do we need to monitor water?

Residents of the NWT are downstream of industries that use large amounts of water. Air currents and precipitation can also carry pollution long distances. For these reasons water quality, quantity and biological indicators (animals and plants) all need to be measured regularly.

Based on what we saw in the video Cold Amazon what equipment is needed to monitor water?

List observations of equipment, if class is unsure they can find out in the class visit with a Community Water Monitor.

Why is community-based monitoring important?

Communities must be involved because it is at the community level where the effects of changes in water and ecosystems have the most impact on individuals.

How can we get involved?

NWT Water Stewardship

For more information



Water Quality and Quantity

Monitoring Sites in the Northwest Territories map

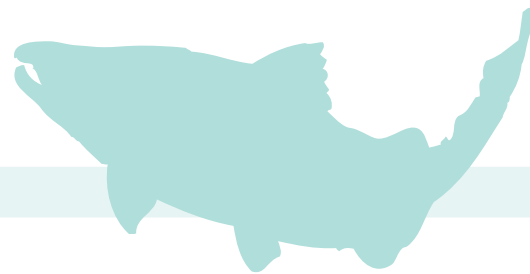
This map shows monitoring sites and the groups involved (governmental, industry, parks and community-based). The NWT Water Stewardship Strategy has supported communities with the skills and knowledge to monitor their local water quality and quantity. Ask your students to do the following:

1. List what groups or agencies are monitoring water in your community using this map.
2. Find out if there are trained community water monitors in your community.
3. Brainstorm questions they would ask the community water monitor.



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LESSON Plans



Invite a Community Water Monitor to your class

NWT Water Stewardship

This website lists communities involved in the Community-Based Water Quality Monitoring Program and details how to get in touch with the local monitor. If they aren't available, check with the Government of the Northwest Territories Water Stewardship Strategy contact here to see if a trainer from Environment and Natural Resources or a visiting scientist may be available instead. Check if the monitor or trainer would be available for just a class interview or if they would be interested in leading a lesson on how they monitor water (Activity 2).

Sample questions to ask the community water monitor:

- How did you get involved?
- What skills did you have before?
- What training did you require?
- What is the process for water sampling?
- What are the samples showing with regards to the quality of our community's water?
- How does it help?
- How can we get involved?

Afterwards, compare the class responses with those of the community water monitor. Ask the students if their perspective has changed considering what they now know about the importance of community based monitoring.

Activity 2: Monitoring Water Quality

2 class periods, some teacher prep time required.

Have your class recall the previous lesson and brainstorm what water monitoring means – what and how are you monitoring?

How Healthy are Canada's Waters?

Head to the computer lab or project onto a SMART Board and go through this resource as a class.

WWF's Freshwater Health Assessment (2:00)

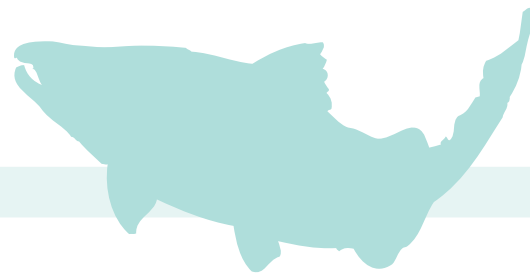
Peruse the website and answer the following questions on fresh water health assessments:

- What four qualities does WWF look for in determining freshwater health?
- What Mackenzie River sub-watersheds have WWF assessed?
- Investigate the sub-basin closest to your community. How did it score? What data is still needed?



© Katrina Krievins

Lesson Plans



Let's Monitor Water!

This is an activity that you can run in the classroom, but if you have access to a community water monitor, a visiting scientist or a GNWT resource person, ask them if they can bring in their equipment and lead the students in monitoring their own water samples. Alternatively, you could plan an outing for an in-field workshop.

You'll need:

- Information about water quality indicators. Biological, chemical and physical parameters information sheets available [here](#)
- Water Quality Worksheet (see below)
- Large glass jars with lids for holding water samples (if in classroom)
- Water samples: the class could bring these in if you ask beforehand, you could collect some to bring in, or you can do this in-field. See the Water Sampling Guidelines sidebar.
- An ExTech kit (most high school science supply closets contain one, so you could borrow, or the scientist/guest speaker may be able to bring one).
- Thermometer
- Secchi disk
- pH meter or pH test strips
- Dissolved oxygen meter or use the chemicals and procedure in the ExTech kit

World Water Monitoring Challenge test kit

You could also order a kit from the [above link](#).

Water Quality Educator and Monitoring Outfit

Alternatively you could order the Water Quality Educator Monitoring Outfit sold by La Motte.

World Water Monitoring Challenge

You can find detailed background information and lesson plans [here](#).

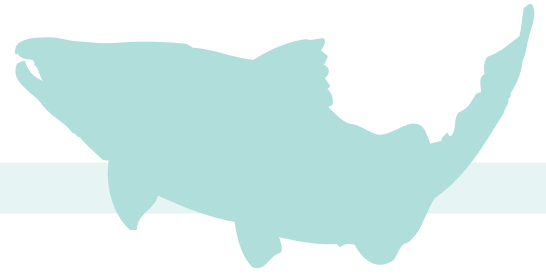
World Water Monitoring Challenge Program

This is a simplified procedure for water quality monitoring and is meant to be an introduction to how scientists monitor water quality. Discuss the nature of the program and the importance of the data it encourages people to collect. Have students contribute to their data to the program through the “Participate” page.

Steps

1. Divide students into small groups. Each group should have at least three water samples to test. If you took the samples, display relevant information with each (place they were taken, temperature, etc.). If the students took them, they should have recorded that information at sampling time.
2. Hand out the Water Quality Indicator sheets and the **Water Quality Worksheet**. Explain that these are the primary things that water monitors investigate and we will try out some of them today.
3. Demonstrate the sampling techniques below and then allow students to test their samples.
4. Have students use the Water Quality Indicators information sheets to answer the questions on their worksheet.

Lesson Plans



Sampling Techniques and Class Questions

Temperature measures the degree of heat in water and affects the amount of dissolved oxygen and other biological and chemical processes. Use the thermometer or temperature meter from the kit, rinse it in the water you are testing and submerge the tip a few centimeters below the surface. Wait one or two minutes and record the temperature in degrees Celsius. It's better if temperature is taken in the field, as your water sample will warm up quickly in a small sampling jar.

- *What temperatures were the samples?*
- *Why is it important to measure temperature?*
The colder the temperature, the higher the concentration of dissolved oxygen it can carry, most aquatic species can't survive in warmer waters because of the lower oxygen...

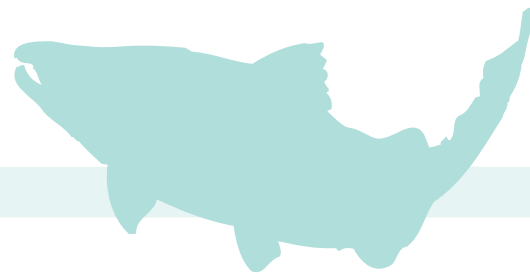
Turbidity measures the clarity of the water. Clear water has low turbidity; murky water has high turbidity. High turbidity is created by small, suspended particles like algae, clay, silt, decaying vegetation and microorganisms. Show the secchi disk and explain how it is used in the field — it is lowered until the distinction between black and white is no longer visible and then raised to where it is visible and the metres are recorded at those two depths. To measure turbidity in your samples, hold your water sample in a small glass jar over the chart and record the last disk where you could make the black/white distinction.

Water Sampling Guidelines

If you are sending students out to collect their own samples, make sure you provide them with the following sampling guidelines:

- Record the temperature, time of sampling and any other observations (weather, wind, vegetation, pollution, animals)
- Submerge your water sampling container (glass jar and lid) and rinse out three times using the water you are sampling, then fill the jar and close the lid
- Keep the sample in a cool place until you can perform the other tests
- It would be great to get samples from contrasting sources, try to find some very murky puddle water, some clean stream water and some lake water, if available. Back in the classroom, you can use tap water for one of the samples, too.

Lesson Plans



- *Why is it important to measure?* Affects dissolved oxygen and it also interferes with disinfecting water, toxic substances can bind to the particles which prevents their removal...
- *What types of events will likely cause an increase in turbidity?* River break-up, many communities have to issue boil water advisories...

pH measures the acidity of a solution by indicating the amount of hydrogen ions present. Describe the pH scale on the board if you haven't gone over it before. pH is measured on a scale of 0 – 14 with 7 being neutral, less than 7 being acidic (more hydrogen ions) and greater than 7 being more basic (more hydroxide ions). Most aquatic animals prefer a range of 6.5 – 8.0. Follow the instructions provided with your pH metre or test strips in your kit.

Dissolved Oxygen

Dissolved oxygen measures the presence of oxygen gas molecules in water. Organisms need oxygen to breathe and reproduce, and it also supports many chemical processes that occur in water. Water with high dissolved oxygen levels is considered to be healthy, while low dissolved oxygen levels tend to put stress on most fish species. Low dissolved oxygen is often caused by a high presence of algae blooms. Use the dissolved oxygen metre or the chemical tests in the La Motte kit by following the detailed instructions. You can find great information about dissolved oxygen measurements and interpretation on this site.

Extension: Biological Indicators

Scientists are increasing using “biological indicators” to determine the quality of a water body. They do this by conducting a survey of aquatic macroinvertebrates (insects living in the water). These are valuable indicators of the health of a stream because they are “benthic,” meaning they live at the bottom of a water body and do not travel far. As such, benthics tend to react to environmental stressors like pollution or water temperature changes.

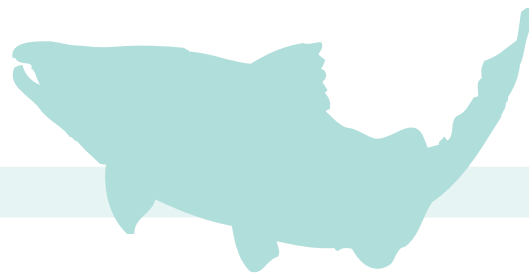
Water Quality Indicators lesson plan

As a class, decide which water body you would like to do a bio assessment of and hand out the **Macroinvertebrate Identification Chart** on page 11.

Have students change the third column to “number found” instead of “represented by.” Bring some large tubs (preferably clear) and smaller Tupperware containers for holding the specimens. You will also need some small scoops (kitchen utensils work fine) or a net. Have the students collect insects; they can skim the top of the water, get the net into any vegetation and agitate the rocks or mud at the bottom in order to find the insects. After they have studied them, make sure everything is returned to the water unharmed.

It may be necessary to contact the local Environment and Natural Resources office to let them know you will be conducting this study. If groups are collecting fish for study, they require educational research permits; that is probably not necessary for insect study, but make sure the students understand they should not kill any specimens they find. If appropriate, you could also contact the local band office to make sure it is okay with them to investigate a certain body of water.

WATER Quality Worksheet



Name:

	Sample 1	Sample 2	Sample 3
Date and Time Collected			
Location			
Notes about the sample site (weather, vegetation, animals spotted)			

Water Temperature

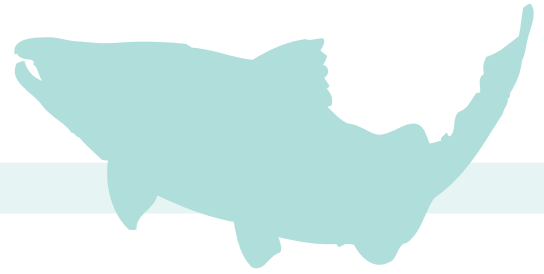
What Tool Are You Using?

Why Is It Important To Measure Temperature In The Field Instead Of Waiting?

	Sample 1	Sample 2	Sample 3
Water Temperature (°C)			

Why is it important to measure temperature?

WATER Quality Worksheet



Turbidity

What tool would you use in the field?

Using the chart on the Indicator Scales section, what letter do you get?

What does this mean?

Why is it important to measure turbidity?

What event makes most of our rivers have higher turbidity at a certain time of year?

pH

What tools are you using?

	Sample 1	Sample 2	Sample 3
pH			

What does the pH level tell you?

What factors would change the pH of a stream?

Dissolved Oxygen

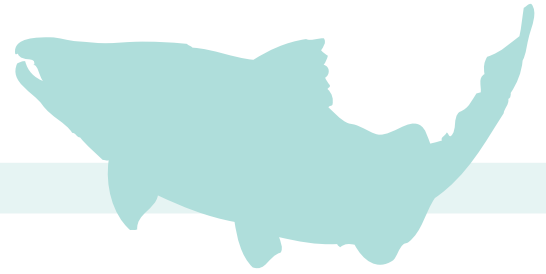
What tools are you using or what type of test?

What does the dissolved oxygen measurement tell us?

	Sample 1	Sample 2	Sample 3
Dissolved Oxygen (mg/L)			

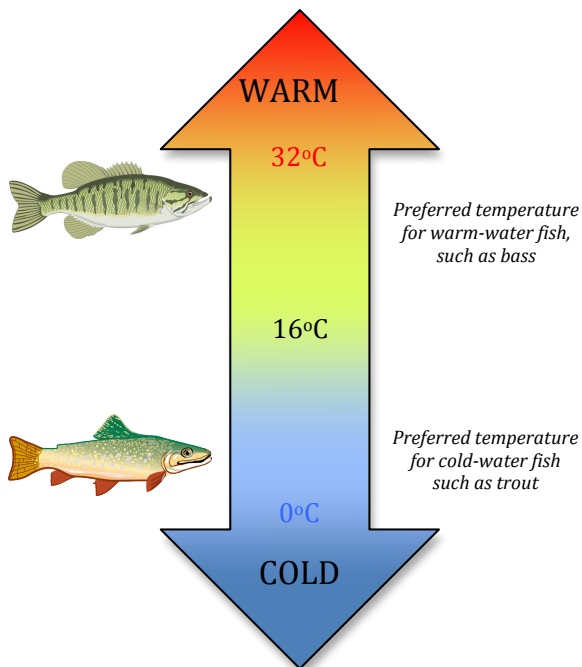
Describe a situation where there may not be enough oxygen in the water, how did it happen?

INDICATOR Scales



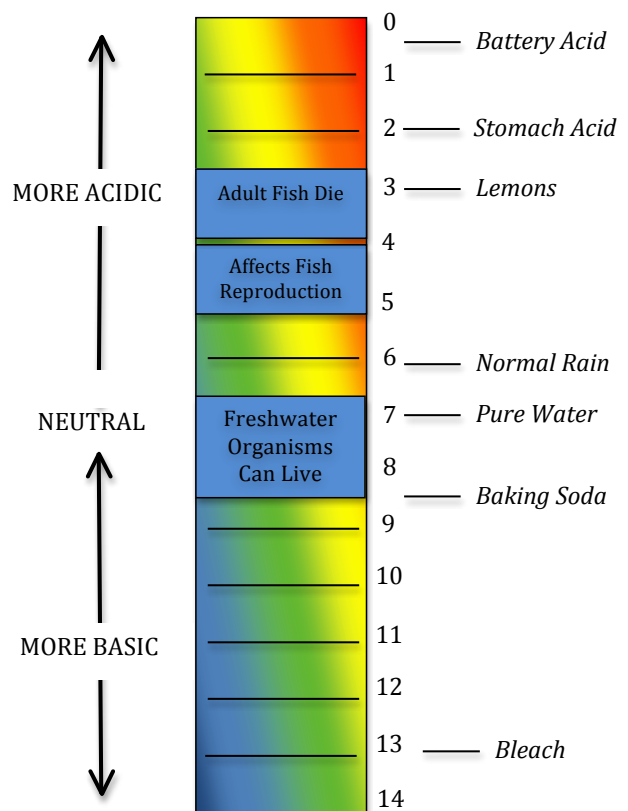
Water Temperature

Most species have a warm-water threshold at which they can no longer survive



The cooler the water, the more dissolved oxygen it is able to hold

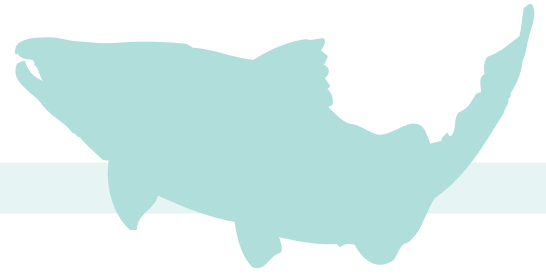
pH Scale



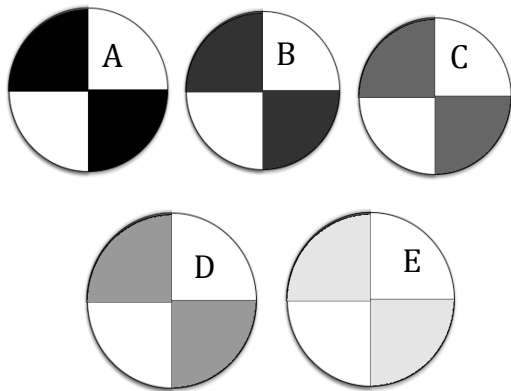
<http://www.delawareenvirothon.org/2008%20web%20updates/DE-AAW%20water%20quality%20interpretation%20guide.pdf>

<http://www.jacksonbottom.org/monitoring-restoration/water-quality-concepts/>

INDICATOR Scales



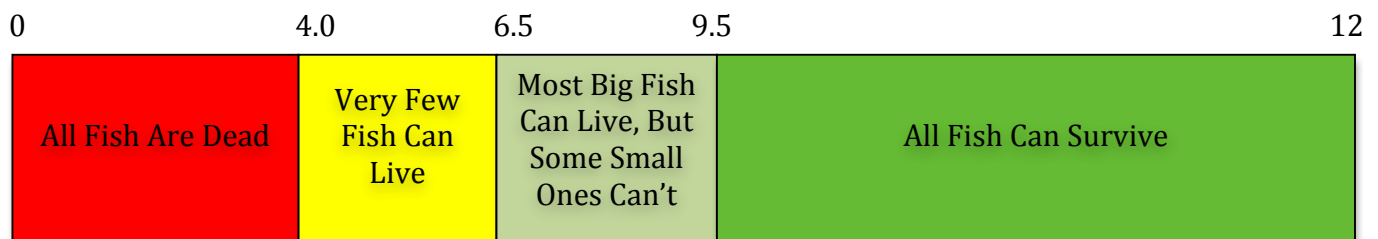
Secchi Disk Readings



- A – Difficult for some fish due to low food production
- B – Aquatic insect production slows
- C – Algae and zooplankton product decreases
- D – Less light gets to plants, photosynthesis slows
- E – Little effect on aquatic animals and plants

http://www.worldwatermonitoringday.org/uploadedFiles/Content/Resources/Water_Quality_Indicators_Update%20web.pdf

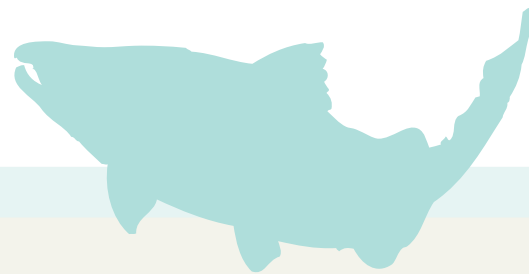
Dissolved Oxygen Scale



Dissolved Oxygen (mg/L)

www.enr.gov.nt.ca/sites/default/files/dissolved_oxygen.doc

LESSON Plans



Lesson 2: Youth Parliament

Activity 1: Background Information

This lesson prepares students to participate in an in-class Mock Youth Parliament. Students will represent the needs/perspectives of different stakeholders.

Review the Cold Amazon documentary and ask students to list all the different stakeholders that were interviewed. Did the movie miss any stakeholders? If so, who?

To keep the list manageable, add only those stakeholders that represent the local community. Once a list has been developed, explain to the students that they will be adopting the point of view of one of the stakeholder groups. They will be given class time to research the stakeholder, and then will represent that stakeholder in a Mock Youth Parliament. Depending on class size, small groups may be assigned to work as a team to represent the views of a stakeholder.

Activity 2: Youth Parliament Preparation

Use the websites below as a starting point for research. In addition, ask the students about community members who could be invited into the classroom to share their knowledge.

 [NWT Watershed Stewardship - Education](#)

 [The NWT Watershed - Partners](#)

 [Steve Kokelj: On Studying Environmental Change in the Mackenzie Delta \(3:00\)](#)

Watch a Yellowknife research scientist speak about the importance of involving all levels of community in research.

Stakeholders of the NWT Watershed:

- **Industry:** Any company or organization that is interested in developing the resources for profit.
- **Community:** Youth, families, residents and Elders.
- **Community Interest Groups:** For example, Protect the Peel, which is raising awareness in both the NWT and the Yukon.
- **Government:** Duty to provide healthy and safe communities.


[NWT Species at Risk](#)

Plants and Animals: Students can research species in their area at the above link.

- **Environment (Land and Water):** Protecting the general health of the environment for all who live there.
- **Special Interest Groups:** The Walter and Duncan Gordon Foundation, The Council of Canadians, Canadian Parks and Wilderness Society (CPAWs)...

[Explore Canada's ocean watersheds](#)

There are five main watersheds in Canada: the Atlantic, the Hudson Bay, the Arctic, the Pacific and the Gulf of Mexico. The largest of these is the Arctic Watershed, which includes the mighty Mackenzie River Basin, covering 1.8 million km² and draining 18% of Canada's land-mass! There are literally hundreds of smaller sub-watersheds throughout Canada that drain into our local lakes, rivers and streams.

 **Ask the students to collect the background information they need to be able to answer the following questions:**

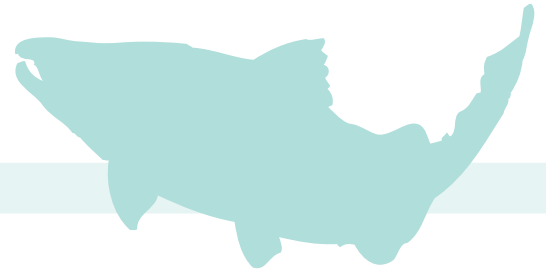
What do we use water for in the NWT? Be sure to include all uses, such as industrial, recreation, daily needs...

What is being done to protect water in the Mackenzie River Drainage Basin?

What are the biggest challenges to preserving the water quality and quantity in the Northwest Territories?

What can the youth of the NWT do to ensure the goals of the NWT Water Stewardship Strategy are realized?

LESSON Plans



Activity 3: Mock Youth Parliament

Mock Youth Parliament is an opportunity for students to assume the role of an MLA (Member of the Legislative Assembly).

Activity 2 asked students to research the point of view of a watershed stakeholder. In this lesson, students will write a statement (similar to a Member or Minister's statement) and meet in a round table discussion for a mock question period.



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Step 1: Writing a Member's or Minister's statement

A statement outlines the key concerns or actions that the stakeholder wishes to express. Each stakeholder group must prepare a written statement that will be shared at the round table discussion.

Step 2: Question Period – Part 1

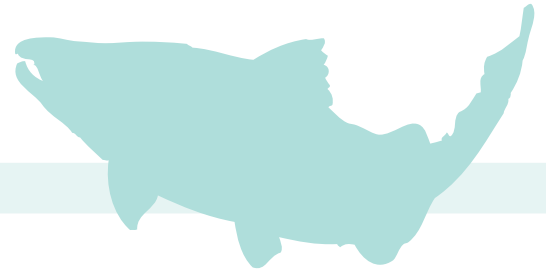
Provide the students with an opportunity to view a clip from the NWT Legislative Assembly Question period. The teacher must act as the Speaker of the House, and with the aid of the students will develop appropriate rules to be followed within question period. The rules should include taking turns to speak, not interrupting and listening to the Speaker.

The students must also think about and write questions for question period. Question period is their opportunity to challenge the other stakeholder groups.

Step 3: Question Period – Part 2

Provide the students with a full class period to engage in a simulated question period. Ensure that each stakeholder has an opportunity to speak. Provide each student with a self-evaluation rubric at the end of the question period.

Lesson Plans



Activity 4: Taking Action

As a class, reflect on what students learned by participating in the Youth Parliament activity.

Share the following example of a local water protection success story with your students. Discuss if there is a local initiative that could be nominated in the future.

COF Excellence in Water Stewardship Award 2013

The Council of the Federation (COF) Excellence in Water Stewardship Award recognizes outstanding achievement, innovative practice and in leadership in the area water stewardship and is presented to organizations, partnerships, business, institutions and communities in each province and territory. The Sambaa K'e Dene Band is the Northwest Territories' (NWT) winner of the first COF Excellence in Water Stewardship Award.

The Sambaa K'e Dene Band collected old drums of hazardous materials from the community landfill. Forty-four drums, containing 8,000 litres of hazardous liquids, were shipped to a registered hazardous waste facility for disposal. The used oil and flammable liquids in the rusty drums had the potential to leak into the ground and groundwater and, eventually, into Trout Lake. Trout Lake is the source of the community's drinking water. The Band is planning other activities to manage contaminants in the community and protect their source water.

Based on what they have learned about Northern Water issues the culminating activity is to engage the students in a project that they will participate in for the rest of the school year.

Projects could include:

 [Great Canadian Shoreline Cleanup](#)

 [Oxfam - School Projects](#)

Adapt an idea from Oxfam.

The students may also come up with their own initiative, such as adopting a local water body and creating information about it to be shared at community events. Please let Ecology North and WWF know about your efforts!

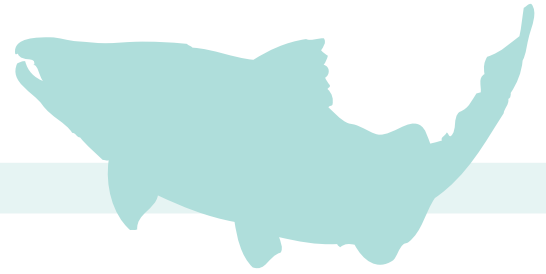
Assessment Opportunity

Evaluate the student blog/log and student's self-evaluation of the Youth Parliament in addition to the Teacher Student Parliament Rubric.

Did you know...

- The Mackenzie River is Canada's longest river at 4,241 km.
- Great Slave Lake is the deepest lake in Canada at 614 m, and the fourth largest.

WILD Ideas



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MLA Meeting

Invite your MLA to come for a meeting! Discussing issues with your MLA at this end of this unit would be a constructive way for your students to articulate their concerns.

Land and Water

Explore land and water board registries. Every region in the NWT has a Land and Water Board. Challenge your students to find out what Land and Water Board oversees your community and why they exist.

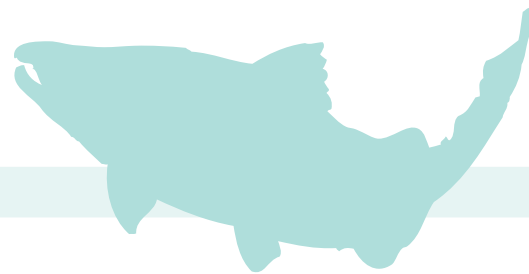
Transboundary Water Agreements

Learn about trans-boundary agreements. The quality of the water in the NWT is largely influenced by those who use the water “upstream”. Challenge your students to find out what is happening to ensure upstream users are held accountable for their use of water.

Canada Water Week

Host an event in your community for Canada Water Week, held the third week in March annually. Register an event in your community.

URLS



Some hyperlinks have been embedded throughout the **Politics of Water** resource. If a link appears to be broken, try visiting the homepage or keying in the URL as it's written below.

Scientific theories about chum salmon
http://www.fish.bc.ca/files/R-59_StockStatusArcticSalmon2009.pdf

Technology
http://www.teach-nology.com/web_tools/rubrics/sciences/

Cold Amazon
<http://gordonfoundation.ca/publication/705>

Canada's Great Basin report
<http://gordonfoundation.ca/water/mackenzie-river-basin-initiative>

Water quality and quantity monitoring sites
http://nwtwaterstewardship.enr.gov.nt.ca/sites/default/files/WaterQualityAnnie8x11_4.pdf

Communities involved
http://nwtwaterstewardship.enr.gov.nt.ca/sites/default/files/WaterQualityAnnie8x11_4.pdf

NWT Water Stewardship contact
<http://nwtwaterstewardship.ca/?q=node/105>

WWF Freshwater Health Assessments video
<http://www.wwf.ca/conservation/freshwater/freshwaterhealth/>

World Water Monitoring Challenge lesson plans
http://www.worldwatermonitoringday.org/Guides_Lesson_Plans.aspx

World Water Monitoring Challenge program
<http://www.worldwatermonitoringday.org/GetInvolved.aspx>

Water Quality Indicators handouts
http://www.worldwatermonitoringday.org/uploadedFiles/Content/Resources/Indicators_8.27.13.pdf

Test kit
http://www.worldwatermonitoringday.org/Order_Kits.aspx

La Motte kit
<http://www.lamotte.com/en/education/water-monitoring/5870-01.html>

Sampling video
http://www.worldwatermonitoringday.org/Event_Resources.aspx

Dissolved oxygen measurements
www.enr.gov.nt.ca/sites/default/files/dissolved_oxygen.doc

Macroinvertebrate identification chart
http://www.worldwatermonitoringday.org/Guides_Lesson_Plans.aspx

Steve Kokelj video
<https://www.youtube.com/watch?v=wImJJWoQMA8>

Five Canadian watersheds
<http://www.canadiangeographic.ca/watersheds/map/>

Trans-boundary water issues information
<http://nwtwaterstewardship.enr.gov.nt.ca/?q=transboundary>



ECOLOGY NORTH



WWF-Canada and Ecology North would like to thank the classroom teachers across the Northwest Territories who contributed many of the ideas presented here, especially Holly Norris, Alex Bond, Richard McKinnon, and Shaun Mosey. Guidance was also provided by Bruce Green and Ecology North Education Committee member Tasha Stephenson.

Ecology North is a charitable, non-profit organization that has engaged Northerners in hands-on learning opportunities in the Northwest Territories since 1971. Our mission is to bring people and knowledge together for a healthy Northern environment. Education, public engagement and youth involvement are integral to all of our program streams that include climate change adaptation, watershed protection planning, waste reduction, food sustainability and alternative energy promotion.

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WWF-Canada and Ecology North would like to thank the classroom teachers across the Northwest Territories who contributed many of the ideas presented here, especially Alex Bond, Richard McKinnon and Shawn Mosey. Ecology North Education Committee member Tasha Stephenson also provided guidance. This resource is available as a free download from WWF Canada Schools for a Living Planet. Visit schools.wwf.ca. © 1986 Panda symbol WWF-World Wide Fund For Nature (also known as World Wildlife Fund). © "WWF" is a WWF Registered Trademark.