

Lesson 2: Traditional Knowledge and Collaborative Research

Overview: Students will explore some examples of Traditional Knowledge pertaining to resource management from the Great Bear Sea region. They will be introduced to the concept of collaborative research and how this relates to sustainable planning, including types of knowledge that contribute to marine planning, such as traditional and local knowledge, and academic research.

Suggested Time: 2 sessions (75 minutes each)

* **Teacher Note:** Materials with a * are available on the Great Bear Sea USB, or at www.greatbearsea.net. Other seasonal rounds that may be available from your local community could also be incorporated into this lesson.

Materials and Resources:

- Computer, projector and screen
- Lesson 2 Film Clips:
 - Cultural Traditions (6 mins)
 - Collaborative Science (8 mins)
 - Traditional Knowledge (8 mins)
 - Intertidal Walk (10 mins) - *optional*
 - Chiefs Robe (2 mins) - *optional*
- Teacher Background – Lesson 2
- 2.1 Seasonal Harvest
- 2.2 Collaborative Research
- Haida Marine Seasonal Round *
- Kwakwaka'wakw Seasonal Use Cycle *
- Haida Ocean and Way of Life Brochure (*optional*) *

Learning Objectives:

Students will:

1. Identify different types of knowledge, particularly Traditional Knowledge, and how these contribute to scientific research.
2. Explore specific examples of Traditional Ecological Knowledge from the Great Bear Sea region and identify seasonal harvest cycles.
3. Understand how research and information gathering can help inform decision making at the local and provincial levels.

Lesson Context

This lesson has students looking at some examples of Traditional Knowledge from the region of the Great Bear Sea, particularly around resource management and planning through seasonal rounds from the Haida and Kwakwaka'wakw Nations. Seasonal rounds or seasonal use cycles map the traditional knowledge of an area, displaying the when and what of harvesting around the seasons for a specific place.

The concept of collaborative research is also explored, specifically as it relates to the decision-making process around the future of the Great Bear Sea through the Marine Planning Partnership (MaPP). In this lesson, students watch a film clip that describes some of the innovative research taking place in the region, with partnerships between local communities, First Nations, and academic researchers. This research takes into consideration traditional and local knowledge, as well as academic research to help inform the decision-making process.

The **Teacher Background – Lesson 2** provides an overview of Traditional Knowledge (or Indigenous Knowledge), as well as the concepts of Traditional Ecological Knowledge (TEK) and collaborative research. Whereas TEK continues to be a fundamental aspect of Indigenous culture as it has been for thousands of years, it is only recently being recognized as integral to furthering the knowledge base of the scientific community and general public. The collaborative research modelled through the Marine Planning Partnership is an innovative approach to resource management in BC.

Learning Activities

Part A

Activity 1: Seasonal Rounds – Two Examples of Traditional Ecological Knowledge (45 minutes)

1. Project one of the **Seasonal Rounds*** (Haida or Kwakwaka'wakw) on the screen and have students share what they think it is:
 - First Nations depend on the oceans for sustenance.
 - Over thousands of years, communities have gathered knowledge around seasons and life cycles of species to better understand harvesting cycles. In the past (and still today), this knowledge and the passing of this knowledge from generation to generation was key to survival (for example, knowing when to collect food, how to preserve for months with little harvest potential, etc.).
 - Share the following quote with students, explaining that this is a common concept shared by many First Nations in BC: *When the tide is out, the table is set.*

- Seasonal rounds or seasonal use cycles map the Traditional Knowledge of an area, displaying the when and what of harvesting around the seasons for a specific place.
2. Divide students into small groups and provide half the groups with the **Haida Marine Seasonal Round*** and the other half with the **Kwakwaka'wakw Seasonal Use Cycle***. Provide each group with **2.1 Seasonal Harvest**. Tell the groups to imagine they are working at a restaurant in the region of the seasonal round, and they have been tasked with coming up with four “featured dishes” – one for each season. The dishes must consider the harvest available.
 3. Have the groups share a dish with the rest of the class, explaining their selections (you may want to select a group to present, and ask them to share their dish from a particular season). As a group, discuss some other observations from the seasonal rounds. Some discussion questions may include:
 - What months seem to be most abundant in each region?
 - What months have sparse harvest opportunities? Can you think of some ways that communities could plan for this time?
 - Do you think that these seasonal rounds are static, or do they change? (Here is where you can present the idea that knowledge is cumulative – it grows over time).
 - Reiterate the importance of harvesting at certain times of the year and how managing resources is a critical step to ensure those resources are available for the future. When one thing changes in an ecosystem, other things (including humans) are impacted. Everything is interconnected.

Activity 2: Traditional Knowledge (30 minutes)

1. If it has not come up already, introduce the term Traditional Knowledge (see **Teacher Background – Lesson 2**), and ask students to explain what they think this means. It is important to recognize that Traditional Knowledge encompasses a vast and sophisticated system of knowledge, including stories (such as Underwater Bighouse, Story of Gitnuganaks from Lesson 1), values (such as, harvesting only what one can eat, process or distribute), governance systems (such as, where specific families or groups hold rights to marine harvests).
2. Explain to students that one particular type of Traditional Knowledge – the local knowledge First Peoples have about the natural world in their traditional environment – is sometimes referred to as Traditional Ecological Knowledge (TEK). Facilitate a discussion about TEK, and have students provide examples from their own local communities or what they have seen so far in the film clips (the seasonal rounds are one example). Some important points to reiterate:
 - TEK is local knowledge pertaining to the particular territories in which people

live, which has been (and continues to be) passed down from generation to generation. While First Peoples share some common values and worldviews, local knowledge captures the nuances and specifics of place, about local ecosystems, sustainable use of resources and the interconnectedness of all living and non-living things.

- TEK is knowledge about how to live and thrive in a particular place. For Indigenous peoples around the world (and First Peoples here in BC), TEK has allowed communities to flourish for thousands of years, with knowledge passed on from one generation to the next.
3. In their notebooks, have students note some examples of TEK as they watch the **Cultural Traditions** and **Traditional Knowledge** film clips, and discuss as a class.
 4. Have students submit a reflective response to the following question: Describe one of the examples of Traditional Knowledge or TEK explored today and explain how this knowledge could contribute to planning for the future.

Part B

Activity 1: Collaborative Research (75 minutes)

1. Share the following scenario with students:
 - It's time for you to buy a new cell phone. You need to use your cell phone for communicating via phone and social media platforms, making high resolution video for your part-time marketing job, and storing files for school that you can work on while on the go. You have a strict budget and the phone needs to last for a long time. What kind of information or research or people would you need to access to inform your thinking so you can make a decision about what type of phone to purchase?
2. In pairs, have students brainstorm all the information/research/people they would need to access and make a list. Share as a class and make a list on the board of student responses.
3. As a class, try to sort and classify the shared list. Consider the following points of discussion:
 - Simple data information, like costs, storage capacity, etc.
 - Statistical data information, like professional consumer guides showing trends over time, battery performance over time, etc.
 - Personalized information, like anecdotal evidence by friends or on the internet.
4. Reinforce that the more information you have, the easier it is to make an informed decision. You may also value information in different ways, in different situations.

5. Now have students work with a partner to discuss what different types of knowledge may be helpful in something related to the marine environment, such as where to plan a new ferry route, protecting salmon spawning habitats, etc. Again, have them create a list and then discuss as a class.
6. Write the term “collaborative research” on the board and have students brainstorm what they think this means (see **Teacher Background – Lesson 2** for more information). As a class, come up with a working definition of “collaborative research.”
7. Provide each student with a copy of **2.3 Collaborative Research**. As they watch the **Collaborative Science** film clip, students should note some examples of the different types of knowledge being used to inform decision-making, as well as how the different aspects connect or collaborate.
8. After the clip, provide a few minutes for students to make notes. Have students discuss their answers with a partner, then share as a class.
9. Together as a class, return to your working definition for collaborative research and refine the definition as needed.
10. Have students submit a reflective response to the following question:
 - Think of another example where collaborative research may be used for planning or decision-making. How might it be used and how would it be helpful?

Extension Ideas

- During Part A of the lesson, show the additional footage **Intertidal Walk** and **Chiefs Robe**.
- If possible, provide the opportunity for students to make 1 or 2 of the featured dishes and share them with others in the school.
- Have students research and develop a seasonal round from your own region (or a region of their choosing).
- Provide students with a copy of the **Haida Ocean and Way of Life Brochure*** by the Council of the Haida Nation – Marine Planning Program, and have them research one or more of the species. Research how these organisms are connected to the Haida way of life.

Assessment Ideas

- Formatively assess students' engagement in group work and large group discussion.
- Collect **2.1 Seasonal Harvest, 2.3 Collaborative Research** and reflective responses.

Teacher Background – Lesson 2

Indigenous and Traditional Ecological Knowledge (TEK)

Thinking generally about these concepts, Indigenous or Traditional Knowledge refers to the vast, diverse and sophisticated body of knowledge of a group of peoples that has been generated over thousands of years, is passed down from one generation to another, and continues to evolve over time. It is knowledge that pertains not only to cultures and beliefs, but also physical space, environments and place. As noted by the Assembly of First Nations:

“Although there is no universally accepted definition of “traditional knowledge”, the term is commonly understood to refer to collective knowledge of traditions used by Indigenous groups to sustain and adapt themselves to their environment over time. This information is passed on from one generation to the next within the Indigenous group. Such Traditional Knowledge is unique to Indigenous communities and is rooted in the rich culture of its peoples. The knowledge may be passed down in many ways, including: storytelling; ceremonies; dances; traditions; arts and crafts; ideologies; hunting and trapping; food gathering; food preparation and storage; spirituality; beliefs; teachings; innovations; medicines.”

The term Traditional Ecological Knowledge (TEK) is perhaps the most popular term used to refer more directly to the knowledge that First Peoples' have in relation to the natural world, and specifically the distinct ecosystems and landscapes in their traditional environments. Again, there is not a universally recognized definition of TEK, but in helping students understand this concept, the following points may be useful:

- TEK is local knowledge pertaining to the particular territories in which people live, which has been (and continues to be) passed down from generation to generation. While First Peoples share some common values and worldviews, local knowledge captures the nuances and specifics of place, about local ecosystems, sustainable use of resources and the interconnectedness of all living and non-living things.
- TEK is knowledge about how to live and thrive in a particular place. For Indigenous peoples around the world (and First Peoples here in BC), TEK has allowed communities to flourish for thousands of years, with knowledge passed on from one generation to the next.
- The environmental knowledge of generations about a specific local place is very important in the study of science, and thus TEK is used widely in various fields of science, such as resource management, climate change and sustainability.

It is important to recognize that Indigenous Knowledge or Traditional Knowledge does not just encompass ecological knowledge (TEK), but also a variety of other systems

of knowledge including (but not limited to) cultural, historical, economic, political and societal information belonging to a group of peoples. Consider some of these additional resources to learn more:

Appendix A: Interview with Doug Neasloss

Appendix B: Indigenous Knowledge

Assembly of First Nations Environmental Stewardship – Traditional Knowledge

www.afn.ca/uploads/files/env/ns_-_traditional_knowledge.pdf

First Nations Education Steering Committee Science First Peoples Resource

www.fnesc.ca/science-first-peoples

Traditional Ecological Knowledge Prior Art Database

<http://ip.aaas.org/tekindex.nsf/TEKPAD?OpenFrameSet>

World Intellectual Property Organization

www.wipo.int/freepublications/en/tk/920/wipo_pub_920.pdf

Collaborative Research

Contributed by Alejandro Frid - Science Coordinator/Ecologist Central Coast Indigenous Resource Alliance (27 April 2016). Do not duplicate without permission from the author.
www.alejandrofridecology.weebly.com/marine-resources-and-first-nations.html

Modern Indigenous people embrace new technologies and do not isolate themselves from contemporary culture and economy, yet maintain a tradition of deep interconnection with our non-human kin. Their gathering of edible and medicinal plants, their hunting and fishing, bring nourishment that not only is physical but also essential to sustaining worldviews that have been rooted in place for many generations. The implication is that habitat destruction and biodiversity loss are inseparable from the demise of cultural diversity, and therefore the rights of many human beings. Not surprisingly, Indigenous people have become conservation leaders in many parts of the world. Their efforts to conserve the ecosystems that sustain their traditional foods – mainly through protected areas that exclude large-scale exploitation – could make ecosystems more resilient to climate change and other stressors.

In the Central Coast of British Columbia, the Heiltsuk, Kitasoo/Xai'xais, Nuxalk, and Wuikinuxv First Nations have joined forces to proactively manage their resource, fostering collaborative research between scientists and holders of traditional knowledge. The elements of this collaboration are complementary.

On the one hand, science tests for explicit mechanisms that might affect ecological communities – such as fisheries and climate change – and uses empirical findings to

predict future conditions. Yet science often occurs in short spurts and in few places, suffering from short-term, narrow perspectives that limit understanding.

In contrast, Indigenous Knowledge derives from cumulative and collective observations made by many generations of people who are connected to the resources of vast ecosystems. Oral traditions preserve this knowledge as Indigenous laws and stories that transcend many limitations of science.

In concert, science and traditional knowledge can merge the holistic and long-term perspectives of Indigenous people and the predictive abilities of science. The potential result is a stronger foundation for conservation and resource management policies.

Name: _____

2.1: Seasonal Harvest

Record your "featured dishes" for each season below. Dishes can be breakfast, lunch or dinner. Be creative and ensure dishes use the harvest of the season (or explain if you are using food from other seasons and how it would be available).

Region of Seasonal Round: _____

Summer
Autumn
Winter
Spring

What is the easiest season to plan for? The hardest?

Describe 3 interesting observations from the seasonal round:

List 3 questions you have after looking at the seasonal round:

Name: _____

2.2: Collaborative Research

