

# **Forests and Oceans** *for the Future*

## **Unit 7**

### **Traditional Ecological Knowledge and Climate Change**



*Traditional Ecological Knowledge and Climate Change*  
Forests and Oceans for the Future, Unit 7

© 2009 The University of British Columbia

This is one of a series of curriculum materials developed as part of the Forests and Oceans for the Future project.

Project Leader: Charles R. Menzies, Ph.D

Information about the project is available at [www.ecoknow.ca](http://www.ecoknow.ca)

Acknowledgements:

Many thanks go to the Gitxaala community members who participated in the project, including Ernie Bolton, Marvin (Teddy) Gamble, Alberta Jackson, Martha Lewis, Sam Lewis, Agnes Shaw. Thanks also to Caroline Butler for conducting interviews, and Peter Freeman for reviewing the curriculum.

Lesson Plan based on materials prepared by Veronica Ignas.

Design and Production: Kenneth Campbell

Permission is granted for teachers to download and make copies for their own use, and to make use of the blackline masters for use in their own classrooms. Any other use requires permission of the Department of Anthropology, University of British Columbia, Vancouver BC.

## CONTENTS

### *Introduction*

|                            |   |
|----------------------------|---|
| Curriculum Goals .....     | 4 |
| About the Interviews ..... | 6 |
| Resources.....             | 7 |

### *Lessons*

|  |    |
|--|----|
| Lesson 1: Traditional Ecological Knowledge and Resource Use in Gitxaala..... | 8  |
| Lesson 2: Harvesting Resources .....   | 12 |
| Lesson 3: Weather, Climate and Climate Change.....                           | 16 |
| Lesson 4: Connecting TEK and Climate Change .....                            | 20 |

### *Interviews*

|                           |    |
|---------------------------|----|
| Thematic Interviews ..... | 25 |
| Alberta Jackson.....      | 44 |
| Teddy Gamble.....         | 51 |
| Martha Lewis .....        | 56 |
| Sam Lewis.....            | 61 |
| Agnes Shaw .....          | 65 |

# Forests for the Future • Unit 7

---

## Curriculum Goals

### *Overview*

This unit is intended to provide learning materials which teachers can use to incorporate Aboriginal content into the science curriculum, as indicated by BC's Ministry of Education.

The unit is primarily designed to be used with the BC Science 10 curriculum, Energy Transfer in Natural Systems. However, the lessons can be adapted to be used in conjunction with a number of topics of scientific study:

- climate change
- sustainability of coastal ecosystems, especially marine habitats
- resource management

The activities are based on primary research done by the Forests and Oceans For the Future Research Group. Elders, harvesters, fishers and other members of the Gitxaala community were interviewed to learn about their understanding of weather and climate in the Gitxaala area.

### *Principal Learning Activity*

The over-arching goal of this unit is for students to assess whether or not changes in the harvesting and processing of traditional resources observed by Gitxaala can be attributed to Climate Change.

As they work through the lessons of this unit, students will use interviews with Gitxaala Elders to:

- identify examples of Traditional Ecological Knowledge in traditional resource use practices
- locate examples of Traditional Ecological Knowledge that indicate observed changes in local ecosystems
- suggest causes for the observed changes
- assess the role of Climate Change in observed changes in the local ecosystems

### *Major Understandings*

- Human activity can have a local or a global impact on ecosystems
- Traditional Ecological Knowledge is a way of understanding the environment gained through generations of experience
- Traditional Ecological Knowledge offers important understandings about how human activity, especially climate change impacted by global warming, affects local ecosystems.

# Forests for the Future • Unit 7

---

## **Connecting with Prescribed Learning Outcomes**

Science 10

*Earth and Space Sciences: Energy Transfer in Natural Systems*

D2: explain the effects of thermal energy within the atmosphere

D3: evaluate possible causes of climate change and its impact on natural systems

*Life Sciences:*

Key Elements: By the end of the grade, students will have assessed the significance of natural phenomenon and human factors within ecosystems.

- One of the Key Elements of Knowledge is Traditional Ecological Knowledge (TEK) (Science 10 IRP p 41)

Science 7

*Life Science: Ecosystems*

It is expected that students will evaluate human impacts on local ecosystems

## **Incorporating Aboriginal Content in the Science Curriculum**

“Aboriginal Content in the Science Curriculum.... Integration of authentic Aboriginal content into the K to 7 science curriculum with the support of Aboriginal people will help promote understanding of BC’s Aboriginal people among all students.”

“The incorporating of Aboriginal science with western science can provide a meaningful context for Aboriginal students and enhance the learning experience for all students. The inclusion of Aboriginal examples of science and technologies can make the subject more authentic, exciting, relevant and interesting for all students.” BC Ministry of Education, Prescribed Learning Outcomes, (2006, page 10).

## **Background Knowledge**

Before analysing the interviews, students should have some understanding of these topics:

- Northwest Coast First Nations cultures
- Traditional Ecological Knowledge
- Weather, Climate and Climate Change
- Coastal ecosystems, especially the intertidal zone

## About the Interviews

### *Interviewees:*

Marvin (Teddy) Gamble (April 1, 2005)

Alberta Jackson (March 10, 2005)

Martha Lewis (December 11, 2001)

Sam Lewis (February 11, 2002)

Agnes Shaw (March 10, 2005)

### *Using the Interviews*

The interviews are presented in two formats: Thematic Interviews and Personal Interviews. The Thematic Interviews pull out relevant segments of each of the interview subjects and collect them according to topic. The Personal Interviews present the entire interview as it was recorded. Topic headings have been added to aid in finding information.

Depending on a number of factors, including the age and ability of students in your class and time available, you may decide to use the Thematic Interviews or Personal Interviews for the activities.

Using the Thematic Interviews will enable students to focus on the relevant information for the activities. You will be able to direct them to the specific text for each activity.

Using the Personal Interviews will require the skills of scanning text for information. While finding relevant information in the Personal Interviews may take more time, it will better model the work of a researcher compiling information, and may be more appropriate for older grades.

# Forests for the Future • Unit 7

---

## **Resources**

BC Science 10. McGraw-Hill Ryerson. Toronto 2008.

BC Science Probe 10. Nelson Education Toronto 2008

First Nations Resource Use on the Northwest Coast: Investigations into Geography, Ecology, Knowledge and Resource Management, by Scott McKeen, *Forests and Oceans for the Future, Unit 3. Download at [www.ecoknow.ca/curriculum.html](http://www.ecoknow.ca/curriculum.html)*

Port Simpson Foods. School District 52, Prince Rupert

Sustainable Forestry, Traditional Economies, and Community Well-Being. A series of streamed videos available *online* at [www.ecoknow.ca/communityvids.html](http://www.ecoknow.ca/communityvids.html)

Traditional Ecological Knowledge. BC First Nations Studies 12 Teacher's Guide, Chapter 2. *Download at [www.bced.gov.bc.ca/irp/resdocs/bcfns.htm](http://www.bced.gov.bc.ca/irp/resdocs/bcfns.htm)*

Two Ways of Knowing: Traditional Ecological Knowledge and Scientific Knowledge by Veronica Ignas. *Forests and Oceans for the Future, Unit 1. Download at [www.ecoknow.ca/curriculum.html](http://www.ecoknow.ca/curriculum.html)*

*The View from Gitxaala* (video, 16 min.) Available as a DVD from Dept. of Anthropology, UBC, or *online at [anthfilm.anth.ubc.ca/gitxaala.html](http://anthfilm.anth.ubc.ca/gitxaala.html)*

# Forests and Oceans for the Future • Unit 7

## Lesson 1

### Traditional Ecological Knowledge and Resource Use in Gitxaala

#### Materials

- wall map of the BC coast
- Research study overview (BM 1-1)
- map of Gitxaala and surrounding area (See BM 1-2)
- *The View from Gitxaala* (video, 16 min. see Resources, p. 7)
- Gitxaala Interviews, p. 37.

#### References

- *Two Ways of Knowing: Traditional Ecological Knowledge and Scientific Knowledge* by Veronica Ignas. Forests and Oceans for the Future, Unit 1.
- *First Nations Resource Use on the Northwest Coast: Investigations into Geography, Ecology, Knowledge and Resource Management*, by Scott McKeen, Forests and Oceans for the Future, Unit 3.
- *BC First Nations Studies 12 Teacher's Guide*, Chapter 2.

#### Major Understandings

1. Traditional Ecological Knowledge is a way of understanding the environment through generations of experience
2. The Gitxaala First Nation has been utilizing the resources of their traditional lands and waters for countless generations, and continue to do so.

#### Introduction

This lesson sets the context for investigating the connections between TEK and Climate change in the Gitxaala First Nation.

#### Suggested Activities

##### 1. Introducing the Research Study

- Discuss with students the purpose of this unit. Explain that they will be conducting a research study using data from interviews with Elders and community members from the Gitxaala First Nation.
- You may want to use BM1-1 as an overhead to show students an outline of the study.

##### 2. The View from Gitxaala

- Tell students that in this unit they will be reading interviews with Gitxaala Elders and researchers who shared their knowledge about local resources.
- Locate the Gitxaala territories on a map. Point out the great extent of the coastline along all the islands and channels.
- Show the video *The View From Gitxaala*. Ask the students to identify the different participants in the research project as they watch, and note the different roles they play.
- After viewing, discuss the purpose of the project. (*To gather information from Elders in Gitxaala about their traditional resources.*)
- What part did local community members play in the project? (*Elders shared information, validated the process; younger community members acted as researchers.*)

##### 3. Traditional Ecological Knowledge

- Point out to students that the Gitxaala have harvested resources from their territories for thousands of years, and so have built up a vast storehouse of knowledge about the resources: when and where are the best places to harvest them, how to process them so they can be stored for future use.
- Discuss the meaning of Traditional Ecological Knowledge. See some of the additional resources listed in the References.

## Forests for the Future • Unit 7

---

### 4. Sharing the Knowledge

- Ask students to read a portion of Agnes Shaw's interview, the section titled "Changes in Gyels and Hagwyn (Mussels)" (page 37).
- Before reading, ask students to look for examples of Traditional Ecological Knowledge as they read.
- After reading, discuss with students who the three participants were, and what their roles were. (*Agnes: Elder; Ernie: Community researcher; Caroline, University researcher.*)

# Research Study: Traditional Ecological Knowledge and Climate Change

## Purpose of Study

To investigate changes to the environment over time observed by Gitxaala Elders and community members and to assess the role of Climate Change in these changes.

## Research Study Background Terms

### Climate Change and Global Warming

The earth's climate is continually changing, moving from warmer periods to colder periods, such as those during Ice Ages. Climate change is a natural, on-going phenomenon. Global warming is a modern phenomenon thought to be largely due to the impact of human activity. Scientists and governments work to understand the effects of human activity such as global warming on climate change, and ways of reducing our impact on the environment.

### Scientific Research

When scientists conduct research into topics such as climate change they collect data, either by experimenting or through field research. The data are empirical; that is, they can be measured or observed directly.

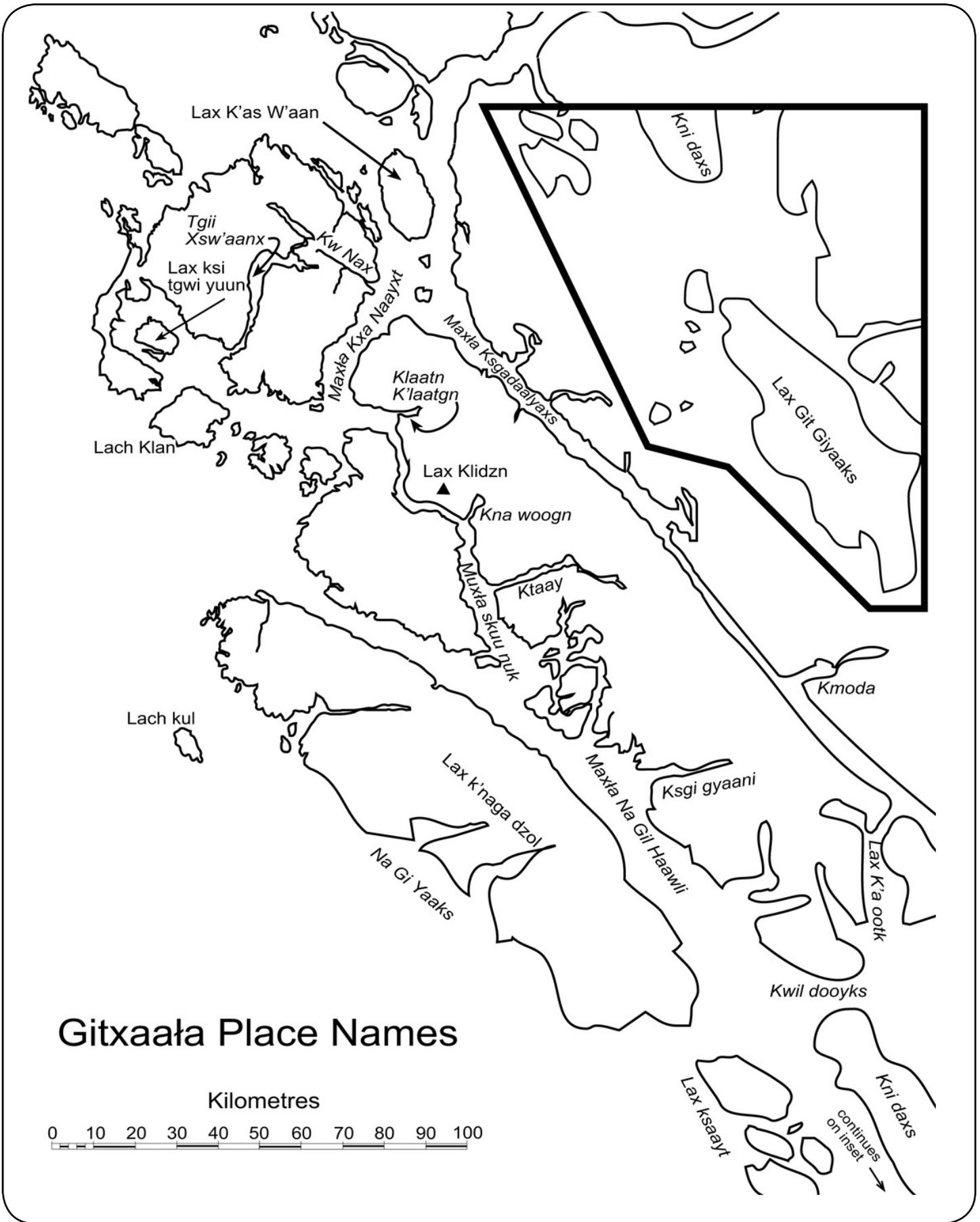
### Traditional Ecological Knowledge

First Nations people hold a vast amount of knowledge about the environment they and their ancestors have lived in for countless centuries. This knowledge comes from experience and observing the land, and from spiritual teachings. It includes environmental knowledge, skills and values that have been passed on from generation to generation. Only in recent years have scientists recognized the importance of Traditional Ecological Knowledge to helping us understand the environment. Now they often incorporate it into their research.

## Research Study Procedure

In this study you will use interviews with Gitxaala Elders and community members as your data source. You will use these steps to arrive at your conclusions:

1. Find examples of Traditional Ecological Knowledge in traditional resource use practices
2. Find examples of changes that people have observed in their local ecosystems
3. Suggest possible causes for the observed changes
4. Assess the role of Climate Change in the observed changes in the local ecosystems



# Forests for the Future • Unit 7

## Lesson 2

### Harvesting Resources

#### Materials

- Pictures of rocky coast typical of BC's North Coast
- Map of Gitxaala territories
- Pictures of resources: salmon, seaweed, herring eggs, shellfish such as clams and mussels (See *Port Simpson Foods*, SD 52)
- Sustainable Forestry, Traditional Economies, and Community Well-Being. ([www.ecoknow.ca/communityvids.html](http://www.ecoknow.ca/communityvids.html))
- TEK Data Collection sheet, Blackline Master 2-1
- Harvesting Resources Background, Blackline Master 2-2 (optional)

#### References

- *Port Simpson Foods*. SD 52, Prince Rupert.

#### Major Understandings

1. Harvesting resources requires knowledge of where and when to expect the resources to be available.
2. Harvesting resources requires knowledge about how to gather resources; that is, making and using the appropriate technologies.

#### Introduction

In this lesson students use the interviews to look for evidence of Traditional Ecological Knowledge regarding food harvesting in Gitxaala territories. They focus on four important harvesting activities:

- salmon fishing
- seaweed harvesting
- herring eggs
- shellfish (mussels, clams, cockles, abalone)

#### Suggested Activities

##### 1. Coastal Ecosystems

Review or introduce some of the main characteristics of the coastal ecosystem.

- Show some pictures of the rocky shores around Gitxaala.
- Locate the Gitxaala territories on a map. Point out the great extent of the coastline along all the islands and channels.
- Show pictures of some of the resources gathered from various ecosystems, such as berries, cedar from the forest, mussels, seaweed from the intertidal zone and salmon, herring from the ocean.
- Students can learn more about local resources by viewing the four short streaming videos, available online at Sustainable Forestry, Traditional Economies, and Community Well-Being, [www.ecoknow.ca/communityvids.html](http://www.ecoknow.ca/communityvids.html)

##### 2. Predicting Habitats

Tell students that, of the many resources the Gitxaala harvest from their territories, they will investigate four of them: salmon, seaweed, herring eggs and shellfish such as clams and mussels.

- Show pictures of the resources under study. If a computer lab is available, students could search for pictures of the resources and their habitat.
- Ask students to predict where people traditionally went to harvest these resources. You may want to do this as a class discussion, a group discussion, or an individual writing activity.

# Forests for the Future • Unit 7

---

- Depending on your class, some students may be familiar with these foods, while others may have no idea. Discuss the importance of having local knowledge to know where to go to harvest these foods.
- If you have time, students can research the habitat where each of these resources are harvested. One suggestion is to divide the class into four groups, with each group researching one of the resources, then reporting back to the class.

## 2. Harvesting Resources: Where and When

Ask students to read the interviews to find examples of Traditional Ecological Knowledge about where and when the Gitxaala harvested each of the four food resources under study.

- See Using the Interviews, p. 6 to decide whether to use the Thematic Interviews or Personal Interviews. If using the Personal Interviews, provide students with the Resource Backgrounders on BM 2-2.
- Students can record their data for each type of resource using Blackline Master 2-1, or you can instruct them to use this model to record data in their notebooks.
- Discuss with students how people know where and when to go for these resources. Point out that these are examples of Traditional Ecological Knowledge which incorporate significant knowledge about the species and their habitat.

## 3. Harvesting Resources: How

Ask students to return to the interviews to find information about how people harvest each of these resources.

- Ask students to add the information to their data collections sheets.
- If there is time, students can research the types of technologies that were used in the past to harvest these resources. Alternatively, you may provide posters or books showing the technologies involved.

## 4. Processing the Resources

Ask students to record data about how these resources are processed and preserved for winter use.

- Discuss the main ways that people preserve foods using traditional methods.

## 5. The Role of Weather

Ask students to write a summary of the role that weather plays in harvesting activities.

# TEK Data Collection: Harvesting Resources from the Sea

**Resource:**

**Where is it harvested?**

**When is it harvested?**

**How is it harvested?**

**How is it prepared and preserved?**

# Harvesting Resources Backgrounder

## 1. Seaweed

A special type of seaweed grows in certain areas of the shoreline where there is strong wave action. It only grows in the late spring, around May. Harvesting and processing it is a complex process, resulting in a tasty and nutritious food source that can last through the winter. The seaweed is dried, chopped and stored in cakes.

The scientific name of the seaweed that is used is *Porphyra*. It is similar to the seaweed used by the Japanese in sushi.

In the conversations, Agnes, Alberta and Teddy describe the harvesting and preserving processes, and talk about how the use of this valuable resource has changed in recent years.

## 2. Salmon Fishing

Salmon has always been the most important food resource for the Gitxaala. They depended on it for their main food source, and since Euro-Canadian contact, relied on commercial fishing for employment.

There are five species of salmon, each of which have different life cycles, including the time of year that they return to fresh water to spawn

Salmon Glossary:

*misoo*: sockeye

*yee*: spring

*gayniis*: dog, chum

*üüix*: coho

*st'imoon*: pink, humpback

## 3. Herring Eggs

Herring are small fish that live in large schools in the ocean. In the spring they spawn close to the shore, and their eggs are deposited in thick layers on seaweed lying close to the beach. In some places the eggs are deposited on eel grass. For centuries, the Gitxaala and other First Nations have used their understanding of herring behaviour to help them harvest the nutritious eggs. As well as collecting the kelp or eel grass covered in roe, people lay hemlock branches in the water near rocky shores. The fish spawn on the submerged hemlock branches, which can then be harvested. The herring eggs or roe was traditionally eaten fresh or dried.

## 4. Shellfish: Clams, Cockles, Mussels and Abalone

Shellfish occur in a variety of habitats. Clams and cockles live in the sand and gravel of the intertidal zone. Mussels attach themselves to rocks and structures such as pilings and wharfs.

Abalone live in a more vulnerable habitat, on rocky coasts below the low tide mark. Gitxaala and other First Nations people traditionally harvested it at extreme tides, the infrequent tides when the abalone was exposed to the air. However, in the late twentieth century, diving technology enabled people to dive below the surface to harvest the valuable abalone. They were over-harvested, and in order to conserve them, the Department of Fisheries made it illegal to harvest abalone, even for First Nations people.

Shellfish Glossary:

*bihal*: abalone

*ts'aax*: clams

*gaboox*: cockle

*gyels*: mussel

*hagwyn*: giant mussel

# Forests for the Future • Unit 7

## Lesson 3 Climate Change

### Materials

- Greenhouse Gases, Blackline Master 3-1
- Connecting with Weather and Climate, Blackline Master 3-2

### Reference

- BC Science 10 (McGraw-Hill Ryerson, Toronto 2008)
- BC Science Probe 10 (Nelson, Toronto 2008)

### Major understandings

1. Human activity can have a local or a global impact on ecosystems
2. One of the major causes of climate change is a change in the rate that greenhouse gases have accumulated in the Earth's atmosphere since industrialization. This is referred to as the enhanced greenhouse effect.

### Introduction

This lesson introduces or reviews the topic of Climate Change, with an investigation of the differences between weather and climate, and an examination of the causes of greenhouse gases.

For Science 10 classes, this lesson can be integrated into your study of Energy Transfer in Natural Systems.

### Suggested Activities

#### 1. Climate Change in the News

Review or introduce the topic of Climate Change by discussing with students a recent news item that relates to the effects of climate change or global warming.

#### 2. Weather or climate?

- Discuss the differences between weather and climate.
  - Ask students to tell if these statements have more to do with weather or climate:
    - a. My grandfather remembers the winters were much colder when he was a boy. (*climate*)
    - b. The night the Titanic sunk is was extremely foggy. (*weather*)
    - c. They say next weekend is supposed to be nice and sunny. (*weather*)
    - d. The geese and ducks seem to be migrating north earlier and earlier every year. (*climate*)
    - e. It's harder to dry fish these days than it was when I was young. (*climate*)
  - Ask students to make up similar statements and quiz each other.
- #### 3. Greenhouse Gases
- Have students read the article about Greenhouse Gases, BM 3-1.
  - As a class, discuss the impact of greenhouse gases on global warming and climate change.
  - Ask student to draw a diagram of how greenhouse gases work in the atmosphere.
  - For Grade 10 classes, further reference may be made to the science textbook.

## Forests for the Future • Unit 7

---

### 4. Connecting with Climate Change

Ask students to put themselves in the roles of observer of climate change and interviewer about climate change.

- Use the activity on BM 3-2.

### 5. Understanding Climate Change

Ask students to summarize what the following terms mean, making sure to include both natural phenomena and the impact caused by human activity:

- greenhouse effect
- global warming
- weather
- climate change

## Climate Change Backgrounder

# Greenhouse Gases

**G**reenhouse gases make up only a tiny fraction of the Earth's atmosphere, but they play a key role in making the Earth habitable, and have a great impact on climate.

Most of the atmosphere is made up of just two gases. Nitrogen is the largest component at 78%, while oxygen makes up about 21%. Of the remaining atmospheric gases, greenhouse gases make up a tiny fraction.

These green house gases include, in order of abundance:

- water vapour
- carbon dioxide
- methane
- nitrous oxide
- ozone
- chlorofluorocarbons.

## How greenhouse gases work

Greenhouse gases help to trap heat so that it doesn't escape into space, just as the glass structure of a greenhouse keeps in heat from the sun's radiation. Without natural greenhouse gases, life would not exist on the planet.

When radiation from the sun hits the atmosphere, some is reflected back into space and some passes through to reach the Earth's surface. The radiation is converted to heat energy, bouncing back to the atmosphere as longwave or infrared radiation.

Here's when the greenhouse gases do their work. Their molecules trap the infrared radiation as it heads back to space. The molecules then re-emit the radiation as heat and send it back towards the Earth. This forms a warm layer that acts like a blanket for the Earth. If the greenhouse gases didn't do their job, all the heat would escape back into space, and the Earth would be too cold to support life.

## The enhanced greenhouse effect

The greenhouse effect is natural, and is vital to life on the planet. However, human activity over the last 250 years has changed the amount of some of the gases in the atmosphere, thereby enhancing the greenhouse effect.

The most significant gas affected by human activity is carbon dioxide (CO<sub>2</sub>). Since the start of the Industrial Revolution, people have been burning fossil fuels like coal and oil to power machinery to drive factories, produce electricity and move people in trains, planes and cars.

As a result of all this activity, we have pumped increasing amounts of CO<sub>2</sub> into the atmosphere. This means that more heat is produced, and the Earth gets a little warmer.

## Storing carbon dioxide

In the past, CO<sub>2</sub> had a very short life-span. No sooner was it produced than it was stored in plants through photosynthesis. That is why the level of CO<sub>2</sub> remained low in the atmosphere for millions of years.

Now, however, that stored carbon dioxide is being released into the atmosphere at an alarming rate, and photosynthesis cannot keep up.

## Climate Change

Most scientists agree that the elevated levels of carbon dioxide in the atmosphere are impacting the overall temperature of the earth, and causing increased global warming.

There are many factors that help to bring about climate change, both natural and human. But it is clear that impact of human activity has changed the balance of the complex systems that control the Earth's climate.

## Connecting with Weather and Climate

You use the outdoors and our environment for many reasons. Some of the reasons may include recreational as well as practical reasons. Think about some of the things that you have noticed about the weather where you live since you were young. Have you noticed any changes in the weather?

List three things that you have noticed about the weather where you live.

- 1.
- 2.
- 3.

Imagine that you have been asked to interview someone you know about the weather and climate. Some things to consider asking in the interview are how often does the person use the outdoors? Is this person a hunter or a fisherman? Does this person collect berries or seaweed for food?

List five things you would ask in the interview to learn more about weather and climate.

- 1.
- 2.
- 3.
- 4.
- 5.

# Forests for the Future • Unit 7

---

## Lesson 4 Connecting TEK and Climate Change

### Materials

- Explaining Changes, Blackline Master 4-1
- Data Collection Sheet, Blackline Master 4-2

### Major Understandings

1. In the past people could rely on their Traditional Ecological Knowledge to predict when and where they could harvest these resources, but today the environment is less predictable.
2. Environmental changes may be attributed to a number of factors, including climate change, social change and industrial development.

### Introduction

In this lesson students add to their data collection by finding examples of TEK that illustrate different types of changes. Then they analyse the data to reach conclusions about the types of changes observed.

### Suggested Activities

#### 1. Explaining Changes

Have students think about how some of the environmental changes that have been observed might be explained, either by climate change or other factors.

- Use the activity on Blackline Master 4-1. Let students come up with other factors themselves. This will include topics such as pollution, overharvesting, logging, changes in predator/prey relationships.

#### 2. Changes in Resource Use

Ask students to identify any information that the Elders have observed about changes to the resources they have traditionally harvested. Have them record these changes on a data collection sheet.

Use BM 4-2 as a model. It consists of four categories of information:

- Observed changes: description of any changes to the resources, preservation methods, general weather changes and animal behaviour.
- Source: the name of the person interviewed, and the page found.
- Possible causes: Give any possible reasons suggested by the person being interviewed. If no suggestion given, leave blank.
- Type of Change: The student's conclusion about the type of change involved. (This will be completed in the next activity.)

#### 3. Where to get your food?

Discuss the changes in the food that people in Gitxaala use today compared to in the past. Ask students to answer these questions, in discussion or as a written activity:

- How much time is devoted to harvesting and processing traditional foods from the land and sea?

## Forests for the Future • Unit 7

---

- Why do you think people use less of their traditional foods today?
- Do you think Gitxaala community members should collect most of their foods from the land and sea? Why or why not?

### 4. Types of Changes

Discuss with students possible causes that could affect the ways that Gitxaala people harvest the resources today.

- Have the class brainstorm types of changes. (*Expected responses include: climate change, pollution from passing ships, social change, industrial development*)
- For each of the observed changes listed on their data collection sheet, have students complete the final column, assessing the type or types of changes that are involved.
- Have students share some of their assessments in a class discussion.

### 5. Examining the Evidence

Ask students to examine the data they have collected and decide on what evidence there is that Climate Change is impacting the harvesting and preserving of resources in Gitxaala today.

- Have students write a summary report of the research study, explaining their conclusions.
- In a class discussion or as a written activity, have students suggest ways that scientists could do more study to determine the effects of Climate Change on the environment and resources of the Gitxaala.

# Explaining Changes

Marvin (Teddy) Gamble has observed many things about how the weather and climate has affected things in his environment. Below are some of the changes that he noticed.

Think about what might have caused these changes? Could it be down to climate change, or could other factors be involved?

For each statement, tell:

- a. how climate change could have caused the change
- b. what other factors could have caused the change

1. There are fewer cockles available for harvesting today.

2. Some birds no longer fly south during the cold winter months.

3. Herring are spawning at unpredictable times.

4. There have been more jellyfish in the water. Jelly fish gets nets all slimy and can sting

# Data Collection: Observed Changes in Local Ecosystems

| Observed Change          | Research Source  | Possible causes    | Type of change |
|--------------------------|------------------|--------------------|----------------|
| mussels spawning earlier | Agnes Shaw, p. 8 | Spring comes early |                |

# Gitxaala Interviews

## Thematic Interviews

### Part One: Harvesting and Processing Traditional Foods

|                                  |    |
|----------------------------------|----|
| Seaweed .....                    | 26 |
| Salmon .....                     | 29 |
| Herring Eggs .....               | 32 |
| Shellfish.....                   | 35 |
| Part Two: Observing Changes..... | 38 |

## Personal Interviews

|                             |    |
|-----------------------------|----|
| Alberta Jackson .....       | 44 |
| Marvin (Teddy) Gamble ..... | 51 |
| Agnes Shaw .....            | 56 |
| Sam Lewis .....             | 61 |
| Martha Lewis .....          | 65 |

## Gitxaala Interviews

Three Gitxaala residents were interviewed in 2005 to learn about traditional harvesting practices and the changes that they have noticed in recent years. They were interviewed by Ernie Bolton, also a resident of Gitxaala, who speaks the Tsimshian language Sm'algyax, and by Caroline Butler, an anthropologist living in Prince Rupert.

Agnes Shaw interviewed on March 10, 2005.

Alberta Jackson interviewed on March 10, 2005.

Marvin (Teddy) Gamble interviewed on April 1, 2005.

Portions of interviews with two other elders conducted in an earlier project are also included.

Sam Lewis was interviewed on February 11, 2002.

Martha Lewis was interviewed on December 11, 2001

## **Conversational Language.**

---

As you read these conversations, remember that originally the people were speaking to each other, usually in the home of the person being interviewed. Their conversations were recorded and transcribed so that we could learn from them. Remember that often, when people are speaking together, they may not explain everything fully, knowing that the other person can fill in the blanks. So when you read these transcripts, you may feel that you do not completely understand their meaning. However, you will understand the important ideas that the people are talking about.

Sometimes, to explain certain ideas, the editors of the text add words or phrases. They use square brackets [like this] to add information. When you see the square brackets, you will know that the person didn't actually say those words, but that the editor added them.

# Part One:

## Harvesting and Processing Traditional Foods

The Gitxaala and other Northwest Coast First Nations have always used a wide variety of foods from the land and the sea. In the past it was important to their survival that they take care of the environment, and the people still hold this belief today

Many foods are harvested from the sea. Even more were used in the past. In the following section you will learn about four of them: seaweed, salmon, herring eggs and shellfish

### 1. Seaweed

---

A special type of seaweed grows in certain areas of the shoreline where there is strong wave action. It only grows in the late spring, around May. Harvesting and processing it is a complex process, resulting in a tasty and nutritious food source that can last through the winter. The seaweed is dried, chopped and stored in cakes.

The scientific name of the seaweed that is used is Porphyra. It is similar to the seaweed used by the Japanese in sushi.

In the conversations below, Agnes, Alberta and Teddy describe the harvesting and preserving processes, and talk about how the use of this valuable resource has changed in recent years.

#### Sam Lewis: Seaweed Harvesting

---

Caroline: When do you go and get seaweed?

Sam: That basically happens around May. They talk about seal seaweed. We call this stuff the *neüüla*, the very first seaweed. They're basically a little different than the seaweed we pick in May. They grow up a little higher. My grandmother...my grandmother was the only one that used to pick that. She says that's the first seaweed. But we don't call it seaweed, the one we pick in May. She calls it the *neüüla*, in other words, you would say "seal seaweed," I guess.

C: Seal seaweed?

S: Yeah. I believe to call it because the *üüla* in our language is "seal." So... my grandmother used pick that first stuff and they were very short. They were very hard to pick 'cause they were so short. That was the first seaweed she got. That probably happened in early April or something like that, I guess.

C: Do you see a difference between the seaweed you pick here and seaweed you pick on the west coast?

S: That's right. It's a big difference. There is more salt. Yeah... If you happen to be here during the month of May, some people pick seaweed our here, just outside of here.

C: It's more salty than the coast?

S: It is. There's a taste difference. And the seaweed from the reef tastes a lot different than the seaweed you pick on the cliffs. That's why people generally go for the reefs. You know, the reefs, when they're dried up. The seaweed are more tasty there than along the cliff side.

C: And what was your job when your family was picking seaweed?

S: To pack the sacks up, for my mom to dry that time...When my brother Raymond was alive, I was the youngest one that time, and my grandmother was out there...That's all my brother did that time, too. Sometimes, he and I would pick a little bit of seaweed and then we'd kind of leave my mom and my grandmother behind the reef... my dad and he and I would just go bomb around and do a little bit of hunting. That was the fun part of going out there, 'cause there's a whole lot of things to do at west coast. It's like a holiday, if you ever go out there. You catch the right weather, it's nice.

Our elders, like my grandmother, used to tell me, ...If you're going to go out beach combing or hunting or pick seaweed, leave the sea lions alone. Because if you start scaring them off the rocks, we're asking for a big Southeast wind, she said. So we kind of believed in that and didn't really bother them too much, eh.

There are elders who can predict about seaweed. One elder, during the winter, she predicted that there's gonna be lots of seaweed last year. And there was a lot of seaweed. She said there's gonna be a lot of berries, there's gonna be a lot of salmon berries, too.

C: How'd she know?

S: The winter was long and cold. If there's...I believe if there's a lot of barnacles on the rocks, the seaweed on the reef is not going to be so good. Yeah. That's got something to do with the cold weather, too. You know, when the weather's cold, there's not too much barnacles that'll come for spring, and the reef is gonna be good for seaweed. Yeah, when the cold lasts long. Really cold weather. And she said, "Oh boy, seaweed's gonna be good this year."

### **Alberta Jackson: Predicting the Seaweed Harvest**

Caroline: Some people told us about being able to tell it will be good for seaweed from a cold winter...are there other indicators?

Alberta: If there is a lot of snow, there will be a lot of fish. If no snow, no fish. That's what I heard.

C: Any other ways of predicting like that?

A: I don't know.

C: How do you know it is spring time? Are there animals that come out that show you it is spring?

A: For seaweed, when we see the grass is growing so we know they are getting ready. As soon as the grass is growing in the spring.

C: What is the plant that people used to tell for seaweed?

A: *'Piins*.

C: Wild celery.

A: Soon as they come out, the seaweed is coming out. That's what they look at.

C: Are there any other plants like that, that indicate things?

A: That's the only one I know. As soon as they start growing, we know it is seaweed out there.

C: And that is always right?

A: Yeah.

E: They are a certain length, eh, when you are supposed to go picking?

A: When they get about that long? [45cm - 18 inches.] That's how long the seaweed will be.

## Agnes Shaw: Predicting the Seaweed Harvest

---

Caroline: Last year you told me that when it is cold in winter, you have good seaweed. Does anything else need cold weather to grow?

Ernie: If it is really cold, what food will we get lots of?

A: When there is snow, when the tide is really low, then all those people were really happy, they rejoiced. There was going to be lots of seaweed. When all the barnacles come off the rock, and weeds. *Diids*. Sea grass. When they die. When they drift away. That's when they know, that there's going to be lots of seaweed. When it's cold, when the tide is down.

E: Is it still the same today? Is it different?

A: I think it's the same. When there is lots of snow, there is lots of seaweed. Looks like everything is going to be early again this year. That's what I see.

E: Because of weather?

A: Yes.

## Agnes Shaw: Processing seaweed

---

Agnes: We dried them really dry. Chopped seaweed is the first one. And the second one is put in a cedar box. Kicked it down with layers of bark in between. Ten days, it was kept in the box. My dad used to wrap a rope around the box so it wouldn't bust open. Ten days they left the seaweed in the box. Then they take it out and start to dry it.

About an inch thick. When they ate it, they cut a strip off it. Another time, they dampened it, and they chopped it. And they boiled or cooked it.

After they picked the first and second time, they went back to pick at the same place; that's what they used to make toasted seaweed. They pick three times. They made it three different ways.

I really liked to go around the west coast to pick seaweed. I travelled with Solomon Brown. He had a boat and took us around. And your mother, Gertie, we picked at the same time. And Auntie Josie. And lots of other women. To pick seaweed around Banks.

And now it's not like that, it's men that's picking seaweed.

Ernie (translating): Years ago they pick it 3 times. For chopping. Then they have a box, they kicked the seaweed into it. They leave it in there 10 days with weight on it to make it like a cake. Then they cut strips to eat it, or soak it. Or boil it. They put *hadel* in between it—bark. In layers, that's how they know how thick. The last pick is for toasted seaweed.

Caroline: And those three picks still happen?

E: They can still happen but nobody does those products. And another change; it was just women that picked, and there is men now. A big turn around.

C: When did men start picking?

E: When did it change?

A: Long time ago. Some of us are gone now that always do it. Go out Banks [Island]. We were all happy when we go there. I still remember your mother, Gertie, and Josie Brown.

C: Do people still pick in same areas?

A: Solomon Brown is the one that took us, Dorothy Brown's husband. Lots of us, and we were so happy when we're all together, all girls. And some of them just like Tania too [a young person]. To help the old ladies. I still remember that really good.

E: Is it the same reef you picked on, the same today?

A: They always pick on the same reef. And that's not the only place there is seaweed. There is some around here, over there [behind us]. White Rock. They found it on one rock, Loosahdzadix. That's where they anchored and found some seaweed. That's Eddie's territory. They found some on another place. Really good seaweed. And there's lots everywhere. Xshwan: that's another place there is lots of seaweed.

## **Alberta Jackson: Changes in Seaweed Harvesting**

---

Alberta: In April that's when we started picking some, my grandmother called it, seaweed. We don't pick it, we just roll it on the rock, with your hand. They had it in April. They say it is good, I haven't had it. May, that's when the real seaweed comes.

Caroline: Is that different now—is the seaweed growing differently?

A: Yeah. Years ago we used to go out when they first come out, then we go out again. But now you can't, it's just rotten. The second one is rotten. Years ago we went out in May and again in June and it was still good.

C: So now the June is bad.

Ernie: Is it because of the weather?

A: When it's raining, it's just rotten. Sometimes dry and wet. It don't taste as good. But first seaweed is what people go for and we hardly get the good weather for it. I haven't gone for so many years now.

C: So that second pick is missing now in June?

A: The first one grows in May.

C: And it is rotten in June?

A: Sometimes it grows, sometimes. But years ago we could go in the same place. In June we could go there again. But not anymore, they are rotten as they grow.

## **2. Salmon Fishing**

---

Salmon has always been the most important food resource for the Gitxaala. They depended on it for their main food source, and since Euro-Canadian contact, relied on commercial fishing for employment.

There are five species of salmon, each of which have different life cycles, including the time of year that they return to fresh water to spawn.

### **Salmon Glossary:**

misoo: sockeye  
yee: spring  
gayniis: dog, chum  
üüx: coho  
st'imoon: pink, humpback

### **Teddy Gamble: Harvesting Fish**

---

Teddy: In the winter the springs [spring salmon] are still coming. Some years not as many as others. The only thing with the winter springs that I have seen from what the guys have been catching, there aren't as many of the real big ones as there used to be. They seem to be around the 20 pound average. If that. A lot of guys used to come back with a 40 pounder quite often. I don't know why that is.

Caroline: When did that start to change?

T: The past two or three years there seemed to be a lot more winter springs. Around longer than before, a lot more of them. Sometimes there are just hardly any at all. I don't know if it is another run, or the runs have improved.

C: What about sockeye?

T: In some places, when commercial fishing, when we got moved out from where we had spent most of our time fishing and we went to different areas, the runs aren't coming in the way they used to. In Edye Pass over the past few years, the sockeye haven't come in in a decent run. They would show for a just a little while, there would be a few there. Some of the fisheries, for sockeye, a few of the guys are doing a bit better around Rachel Islands and out that area than they are along closer to the mouth of the Skeena. In the past few years the guys that fish in Skeena and up at the boundary line don't seem [to be] catching as much any more.

C: Is that a change in the way they are migrating?

T: It seems that way in the Edye Pass area. I don't know if they are coming in another way, or the commercial openings are between them. I haven't fished in Edye Pass for a long time, and I used to fish there for the majority of the sockeye season.

The other thing that is really coming around now too is a lot of cohos and a lot of chums. That seem to be early. When we go **food fishing** down at Mink Trap [Bay], when we used to go, it used to be straight sockeyes and nothing else. Now we are getting a pink or a coho a day. At the top end here there are a lot of coho or chum. In early June. And you are catching a lot of coho during the day commercial fishing, compared to when we used to get a larger amount on daybreak set or a night set. That's usually when they seem to come up, now I don't know if there are just more of them, you catch them just about all day long. Now a lot of places are closed to commercial fishing.

|  |
|--|
| <p><b>food fishing:</b> Under the Indian Act, First Nations families are given permits to harvest a certain amount of salmon for food and ceremonial purposes.</p> |
|--|

There is a lot more coho than before. When you go food fishing, you go to a lot of the different places, because there is no boundary [unlike commercial fishing] and you come away with a lot of chums and coho a lot earlier than we used to.

C: So in early June. When do you expect to see them?

T: In July and a little later for coho they would get lots of them. I don't know if that has to do with the closing of the troll fleet for a while. They are getting closer to the shore than they used to. That could be an explanation. I don't know where they can fish now, if they are in small pockets like us. When we gillnetted we used to see the trollers offshore off Freeman Pass, they trolled a lot out there, but I don't know anymore.

C: So people start food fishing in Mink Trap in early June?

T: First or second week of June. They usually try the top end of Principe [Channel] first. Check it out. Some of them are catching chums and coho and that is usually later, late June or July that they start coming in. Later on. There that early, that seems to me a little bit strange. We didn't have to sort through when we were fishing.

C: How do people know when to start their food fishing?

T: For salmon? I suppose it's over time they must have noticed when they were going to be here, and they prepare for it. Usually they always showed roughly around the same time. Most are always prepared. Someone always went out and tested if anything was coming in.

C: How does wind direction affect harvesting food?

T: Usually on the northwesterlies, they would blow in the fish.

C: In this area?

T: They would blow from the north, pushing them. It would be pushing the fish here. I know that on southeast winds we don't get as much fish.

I don't know if it is because when you fish on a southeast it is warmer than on westerlies. I don't know if that causes change in water temperature, or they say it blows the fish out to where they should be coming from.

C: What about rainfall? How does that effect harvesting?

T: I haven't noticed too much. Only notice if you are at a salmon creek, if you get rain, the fish that are waiting on the outside can move up the creek.

C: Because more water?

T: Yeah. That would be the only one.

C: What about temperature?

T: No. Not that I've noticed.

### **Martha Lewis: Smoking fish**

---

C: Did you go to a fish camp?

M: My uncle take us around there when my father die. They don't want us to stay behind here and they all take us to their camp. They got two houses in there, that place there. And that's where we live, all together. We're all happy together there. And they go out, the men go out and get some fish and the ladies, when they come back, and they go down the beach and started to slice the fish, clean the fish. And someone had to go up and hang them up in the big smokehouse, smokehouse there. I remember when I tried to slice the fish but my mother wouldn't let me. "You're gonna spoil it, Martha," she said. She gave me a small little fish, you know, and started to work on it, too. [laughter]

S: How old were you then?

M: That was after eight years old. Around nine, I think, that was...summer, you know.

C: What were the women doing while the men were fishing?

M: We have to get ready for the smoking and get ready for them...My mother had to get ready for, you know, how to smoke the fish, 'cause they got a big smokehouse there. And a certain young ladies that climb up there. They're the ones that hang fish up when you start...when they finished slice the fish.

C: After you were done smoking the fish, then what would you do?

M: And then, when everything's finished, you know, and then they put these together and they wrapped it up. They don't put them in the boxes or something like that, you know, when they're full dry. All those other ones, when we make them sliced, when my mother sliced them, they don't put them in the boxes or anything where they save it. I don't even know how they look after it whole winter. They never get spoiled at all. That's the one we ate whole winter

### **Agnes Shaw: Smoking fish**

---

Caroline: Has it become harder to dry things?

Ernie: Is there any difference to when you dried fish in your time until now.

Agnes: Nobody can do it anymore. There's a big smokehouse in Bonilla Arm. When the fishing is over, and those people really settled in at Bonilla Arm. I can't remember how many crew he had. There were four women in that big smokehouse. In that big smokehouse, they divide it in four sections, for those four ladies. One for

each lady. When they were hanging their fish, I can't remember how many fish in one section, for each woman. That big house in Bonilla Arm. They make it really dry. Same thing with *wooks*.

And then we have that with potatoes in wintertime. And smoked deer. And seal. That's how they eat it.

### **Alberta Jackson: Smoking Fish**

---

Caroline: What about you- do you remember a really cold winter for example?

Alberta: It wasn't really cold when I was young. Now it is getting really cold. Even in the summer time. And hot. Last summer was just boiling. I never feel that hot [before].

C: What does that mean for food? Did that change things for harvesting food?

A: I don't know about that. I don't think it changed anything.

C: What about processing? I heard people lost salmon in the smokehouse?

A: Overcooked.

Ernie: That hot weather last year, people lost a lot of fish.

A: You put the fire on and it gets so hot, it cooks the fish. That's what we do with fish, we smoke them, we don't cook them. I didn't put mine in right away, I used the freezer. I do sometimes put them in the smokehouse right away, but sometimes freeze them first.

C: So you can freeze fish before you smoke it? How do you know it is too hot to smoke fish?

A: When you see the fire is just flames. You have to open the smoke house.

### **3. Herring Eggs**

---

Herring are small fish that live in large schools in the ocean. In the spring they spawn close to the shore, and their eggs are deposited in thick layers on seaweed lying close to the beach. In some places the eggs are deposited on eel grass. For centuries, the Gitxaala and other First Nations have used their understanding of herring behaviour to help them harvest the nutritious eggs. As well as collecting the kelp or eel grass covered in roe, people lay hemlock branches in the water near rocky shores. The fish spawn on the submerged hemlock branches, which can then be harvested. The herring eggs or roe was traditionally eaten fresh or dried.

### **Sam Lewis: Herring Eggs**

---

Caroline: Now with the herring...Do you go out for herring roe?

Sam: Go up Kitkatla Inlet there in April, April and May. Get just, like, hundreds and hundreds of pounds of the herring eggs.

C: On the kelp?

S: Yeah. Get a whole bunch of it, put them out, put weights down on them, sink 'em. Then when they're full of herring, the corks and everything that's holding them up, they're barely floating. That's how many tons it's holding up. Herring eggs.

C: And then you'd freeze those?

S: Well, back then my mum used to dry a whole bunch of those. Sun dry them. Put 'em out in the sun—they're

just dry. Just like potato chips, too. And that was the best. The grass, too. That goes on some kind of grass we call *leggi*.

C: The herring eggs go on there?

S: Yeah. On the bottom. You go to the right place, you gotta try and figure out where there's not too much sand, the bottom is sandy. Because if you go to the wrong place, you're going to be taking a lot of stones in the herring eggs, eh. You don't just put them out just anywhere when you put your kelp out. Because if you do, you're going to end up with a lot of sand in the kelp.

You try to figure out where the best place is. Watch where it's spawning. Like sometimes it's spawning one place and you know that area's no good to put your kelp down there 'cause it's going to be just full of sand. Until the spawn moves over to a different area where you hope it moves there and then you're lucky. And you're gonna have real clean kelp—no sand, no rocks in there at all.

You have to go pick the kelp first before you get the other ones. And what we call *p'aatsah*, that's weeds. They grow on rocks, these weeds. When they grow on the rocks, you look at it, check it out. If there's no sand in there, they're good, eh. But, like I said, some places are bad, you get a lot of sand. So you just check it out, so it's good you can take a whole bunch home, too. There's weeds and then grass and then trees. A certain type of tree. What type, I don't know what it's called, but they're like porcupine trees.

C: So there's four different things that...

S: That's right, yeah, four different things on herring eggs.

C: Do you get most of it on the kelp or most of it on the grass?

S: Well that depends on how the spawn is there. If the spawn is big, it's gonna be big there and everything will get it. So, you know, when you put the kelp down, you don't put it down today and then you say, yep, it's going to be good tomorrow and take it out. You don't do it. You leave it there until that spawn is clear. Otherwise, if you pull it up, you're pulling it away, it's gonna be slimy. You've gotta wait until their job is done. You know, when the herring are finished. When they're finished, you can take it away. But if you pull it out, pulling it away from them, it's gonna be slimy. So my dad said you never take it away, leave it there for two days and then take it away or so. Wait until it's finished.

C: So how long does that usually take?

S: It depends. Sometimes the spawn will go on there for at least a week sometimes.

C: What about spawning or breeding behaviour, has that changed at all?

T: Herring spawn?

C: Any of the breeding times.

T: The only one I've paid much attention to is the herring spawn. The times when they spawn. I don't know if that had anything to do with the fishery than anything else. When I was young, I remember the big herring fishery and then it shut down and it just reopened again. Even after that there was a long period of time when the spawn wasn't that good so when you went, when people went to get their herring eggs, it didn't come back very thick on the kelp or the trees or anything. Then it started to come back and then there was the herring fishery. Just where I remember it used to spawn, where it would start first and move. I don't know if that has made lots of difference.

C: After the reduction fishery it took a long time for the spawn to come back?

### **Teddy Gamble: Herring eggs**

---

Teddy: I remember just from what people brought back it didn't ... their herring eggs weren't very thick on the trees or on the kelp.

Caroline: When did it start to come back?

T: In the 70s probably.

C: What about the time of the herring spawn?

T: It's been around the same time. Sometimes a little earlier one year and the next year a little later. Whenever they're ready and the temperature is right for them. It's always been quite consistent.

C: So there aren't any identifiable trends in terms of weather and timing?

T: Not that I would know.

### **Alberta Jackson: Drying Herring Eggs and Seaweed**

---

Caroline: So it is harder to dry herring eggs now?

Alberta: If it is raining, you have to put them in the shed, if it is blowing.

C: How do people cope with rain when they are trying to dry things? Put them in the shed?

A: As long as the air goes through.

C: So they don't need sunlight to dry?

A: No. They are not as fussy as the seaweed. If you keep the seaweed and don't dry it for a few days, it will turn red. It is supposed to be dried the next day.

C: So what if it rains the next day?

A: It goes off.

C: So if you don't get sunny weather, you have to throw the seaweed away?

A: Yeah.

C: 3 days?

A: It goes red.

C: But the herring eggs will still dry?

A: If they are outside, blowing.

C: Is the herring spawning at the same time as it always has?

A: Yeah, I think so.

### **Agnes Shaw: Herring eggs**

---

Caroline: Is herring spawning at the same time?

Ernie: Is it the same with the herring?

Agnes: I forgot when. April. And my daughter told me it is spawning in Vancouver already. That's what Cecil is doing now down there.

E: Is it different than what happened years ago?

A: Yes. The herring eggs now, it used to spawn across here. On this side, and through the pass. Where it spawned. The women would go out and put stuff down – to set kelp. And we can't do it now, the *Cumsiwah* wouldn't let us. And just dried, that's all they did years ago.

C: And it spawns at the same time?

E: Is it the same as every year?

A: Yes. Always in April.

#### 4. Shellfish: Clams, Cockles, Mussels and Abalone

---

Shellfish occur in a variety of habitats. Clams and cockles live in the sand and gravel of the intertidal zone. Mussels attach themselves to rocks and structures such as pilings and wharfs.

Abalone live in a more vulnerable habitat, on rocky coasts below the low tide mark. Gitxaała and other First Nations people traditionally harvested it at extreme tides, the infrequent tides when the abalone was exposed to the air. However, in the late twentieth century, diving technology enabled people to dive below the surface to harvest the valuable abalone. They were over-harvested, and in order to conserve them, the Department of Fisheries made it illegal to harvest abalone, even for First Nations people.

##### Shellfish Glossary:

bihall: abalone  
 ts'a'ax: clams  
 gaboox: cockle  
 gyels: mussel  
 hagwyn: giant mussel

#### Martha Lewis: Harvesting Shellfish

---

Caroline: When did you go and get the clams? In the winter?

Martha: Oh, clams, yeah...Sometimes I dry them. Now we freeze them. We freeze them now, after we clean them and we put them in the deep freeze....It's in October when the people started. But they aren't so good... they aren't so good on October, until November, then they're really good...March, then they stop. We don't have... we don't dig at March, around March. They get spoiled. They turned into milk inside it.

C: What other things did you gather with your mother, what other food?

M: *Gyels*, I don't know what they call that.

Sam: Mussels.

M: Mussels, yeah, mussels we call. You know that? Yeah. That's the one we used to get. But I don't know how many years we don't have it around here. I don't know what really happened.

C: It used to be around here?

M: Yeah, it used to be really lots. We just go out there and we get mussels and up there and across here. We used to get some but I don't know what really happened. They're all gone. Nobody found them out here.

S: There's some, but there's just not much, too. For some reason, they're gone too. There's very little. There's not much around here.

C: When did that happen? Do you know?

S: No idea, but we don't see too much of that around now.

## **Alberta Jackson: Processing Shellfish**

---

Caroline: How did people prepare smoked clams and cockles for eating? Boil them?

Alberta: When we dried clams, when really dried, bring them in and make them really crispy. Chopped them up for clam chowder. I don't know about cockles. We just eat them, don't dry them. My grandmother used to dry abalone.

C: In the smokehouse?

A: I think so.

C: How did she prepare them?

A: I just watched while she dried them—put them on bark and hung them up, smoked them and dried the But I don't know how she keeps them.

C: When they smoked and dried them, they put them in the smokehouse and then sun dried them, two steps?

A: Yeah.

## **Alberta Jackson: Abalone**

---

Caroline: What have you seen less of?

Alberta: Hardly see any seafood—abalone. One year we went to Banks [Island] and got 800 pounds. Few years after that we went over and there was nothing. All we found was about 6 abalone. I can't remember that year we went over, with Russell and Gloria [Gamble]. Could hear them walking on the rocks. Long time ago. I jarred it. Freeze them. We went over one year to get some. Nothing, really nothing.

## **Teddy Gamble: Changes in Clams and Cockles**

---

Caroline: What about clams or cockles, has that changed?

Teddy: Clams have always been really good there. Always been clams here. Cockles were pretty scarce for quite some years. They have been getting more and more for the last 5 years probably.

C: What would cause that up and down in cockles?

T: I don't know if picking too much, overharvesting for years and then there wasn't much on the beaches everyone went to. They weren't reproducing quick enough.

C: Has that happened before?

T: Not that I know. Just in my lifetime they were there, and they came in fewer numbers and stayed there for a while.

C: When did they start getting scarce?

T: I can't answer that.

## **Agnes Shaw: Changes in Gyels and Hagwyn (Mussels)**

---

Agnes: You see the *gyels* (mussels) now, sometimes this month when the *gyels* are inside, ready to be born, this time of the year. Now they are on the outside. (Already born—spawned early). Years ago they were inside at this time of the month (year). Everything this year is different. Way different.

Ernie: She noticed a lot of difference of weather and food. Mussels - when they are carrying, ready to spawn. The babies are on the outside.

Caroline: Because of weather?

A: I think that's why *gooym* (spring) is early. All the sunshine sometimes now. Early. The new grass is growing now. Especially the salmonberry bushes, their buds are coming out. June, that's when they are supposed to be there.

C: When did start coming early?

A: I think it is this year that I notice, it was early. Everything that's happening now, I was told, back then. That's what we're in now, those predictions.

E: The people years ago, grandparents, they told this, that's what going to happen. Things are going to be early. They knew this was coming.

C: How old was she when they told this?

E: Do you remember how old you were when they told you?

A: No. I was very little when I heard about it from my father, and his father. That's when I heard the story about what we're in now.

E: He knew that the weather in her future was going to change.

C: Mussels, salmonberries, are there other foods different because of an early spring?

E: Have you noticed this in any other food? Clams?

A: I noticed it in *hagwn* (giant mussel), the same as the *gyels*. They're not inside. My daughter Muriel gave me some *hagwn*, that's how I noticed. They were already cooked when they gave it to me. When I opened it to eat it, I noticed there was nothing in it. The *hagwyn* are supposed to look like *gahuus* (roots) at this time of year, inside the mussel. I was shocked when I saw it, when Muriel brought it over. There was nothing inside, I told Muriel that they were supposed to be inside at this time of the month. But they're not. The *hagwyn* already hatched.

## **Agnes Shaw: Cockles**

---

Caroline: What about *gaboox*—they came back this year, why are they better?

Ernie: Have you noticed if the *gaboox* are lots this year?

Agnes: Yes. There's lots this year.

E: Do you know why it is different? How did it change?

A: I really don't know. I noticed it last year too. And they were really small inside. Lots now. I think they are moving up now, when they come up to the surface.

E: She noticed there are lots of cockles this year. Last year they were small and this year they are big, full. She thinks there are more now.

## Part Two: Observing Changes

The interview excerpts in Part One included a number of changes that people observed in the availability of resources and the way of preserving them. In their discussions, people also mentioned other changes that they have witnessed in their lifetime. Here are some of them.

### Alberta Jackson: Berries and Seaweed

---

Caroline: What about berries? Has the way they grow changed over time?

Alberta: When it's too hot, then they don't ripen – they are just dry. Like now if it is really cold, same way with seaweed too. All those barnacles come out of the rock. And they don't grow. If it is really cold, they come off and then the seaweed grows. Same with the berries. That's what they [say]: if in summer there are a lot of berries, there will be a lot of fish.

C: Does the cold winter affect the berries?

A: No.

C: What berries aren't ripening because it is too hot?

A: All the berries. They are just dry. Need some rain.

C: They don't form properly, too small?

A: Yeah. There are hardly any berries around now.

C: So you have seen a difference in abundance?

A: There used to be blueberries here, where the houses are.

C: So building has changed that?

A: Yeah.

### Martha Lewis: Berries

---

Caroline: What about berries? Did you pick berries?

Martha: Yeah, I do pick berries. Blueberries. There's hardly any berries around here now...All the trees, the branches are out. I used to go around from there and pick blueberries and salmonberries. I used to make blueberry jam. And I freeze those salmonberries.

C: Were there any other kind of berries?

M: Huckleberries...Huckleberries...and what do you call that *waakyil*, grayberries?

C: Stink currant, right?

S: Yeah, that's right.

M: Yeah, really hard to pick it around here. We had to go out somewhere and go out way up in the bushes and get some.

C: What time of year?

M: In spring...

C: What about things that stop people from being able to get their food?

M: Oh, yeah, from logging camps. They're not supposed to do that, from all around here and up the inlet there. On one island, they cut all the trees off and all the camps down there, they're not supposed to do that. And around Banks, too, there, they cutting it for logging, logging camps.

C: And what happens when they cut the trees down?

M: You know, they're not supposed to do that. They're not supposed to do that, cutting the trees from the camps, you know. The other camps there, there's no trees left there anymore.

### **Teddy Gamble: Weather Changes**

---

Caroline: Can you describe changes in weather patterns in your lifetime?

Teddy: I noticed that years ago when we were younger, in November we would get two or three weeks of really freezing weather and strong winds here and that hasn't been happening here for quite some time. If it comes, it is only for a short time. We get another one later, January or February, we get another blast of freezing weather. But that hasn't been happening for I don't know how long.

C: That happened regularly before?

T: When I was small, that was a good time because the roads iced up and there was a little bit of snow. We got to slide. We built sleds or used anything that would slide down the hill.

C: So November, then January or February?

T: Yeah. And it would warm up a bit and not be as cold as those times.

C: And how much snow would you get?

T: Not too much. Last time I remember we had a bit of snow was in the 60s I think. We got a little amount. Not all that deep but more than what I could remember and we haven't had much since.

C: The last time was the 60s?

T: That's all I can remember. The snow seemed quite deep then – I was shorter.

C: What about other changes? Winds were strong – what direction?

T: Blowing down from the Inlet, northerly winds.

C: What about other times of the year, is the summer different?

T: I remember summers being really quite nice with a lot of westerly winds. The last few years, I am not sure how far back it goes, there has been a lot of southeast, during the fishing seasons. More than there was before.

C: Is that 5 or 10 years?

T: Maybe 10, I would go as far back as 10 but it wouldn't be as accurate. More southeast winds in the summer time than I can remember, while we are fishing. We used to have more northwest years ago, almost always. Northwest used to blow all the time.

Ernie: That was the only wind we'd get: northwest.

T: Lots of northwest. Not all the time. It would calm down and we'd get really good fishing. Never so bad you had to anchor up.

C: Now it is bad?

T: I think so. Now you get storms or gales. Southeast in the summer. Northwest used to blow for a couple of days and then come down.

C: What about rainfall, has that changed?

T: Wintertime feels like, we get lots of rain when it does rain. I don't know if it is getting drier, if we are getting as much each day. I don't notice a big difference. It seems a little drier, it doesn't rain as often. In the winter months, sometimes we go for a long time without rain. It doesn't seem to be as often, drier spells between. Or at least it seems like it.

C: Is that just recently?

T: The last 10 years I guess. Then when we do get it, it seems to rain more, for a week sometimes. Before it would stop, rain a couple of days and then be dry for a day and then start again.

C: Did your parents or grandparents tell you stories about changing or extreme weather?

T: Not that I can remember. When we lived in the canneries, I can remember it didn't rain all summer. It never seemed like it rained. But it didn't seem like... the weather was really nice but it didn't get super hot like where you would really sweat and feel like the sun is burning you. It would be sunny all the time but it didn't seem as hot. But maybe that was just the way it was at the cannery, in the Slough there.

C: Now?

T: Now if you are out in the sun, it feels like your head and shoulders are burning if you don't have a hat on. Maybe getting older makes a difference, less hair.

C: Some of the changes are social changes, when they are harvesting, not weather, but I never thought it might be about aging.

### **Alberta Jackson: Drying**

---

Caroline: We talked about how rain impacts processing. Are there other things – if it is too hot, hard to smoke fish. Other impacts on preparing food?

Alberta: I was just telling Merle, I don't know how those old people keep their dried fish. We try to keep it. Just turns spoiled, no matter what we do, to keep the really dried fish. The scorched ones. They don't turn out. Those old people, that's what they had, dried fish put away. Now I just throw it in the fridge, deep freeze.

C: It has become harder to keep?

A: Harder to keep those, and the herring eggs too. Put it in the fridge.

E: So would the weather be different?

C: Or even the moisture in the houses?

E: Back then, they were used to the cold.

C: Where would your mother have kept her herring eggs and dried fish?

A: I don't know but I think... she hasn't been keeping those dried fish long. Because they just go moldy. Like on halibut, the strips, you can keep it long.

C: The halibut *wooks* keeps better? And the salmon is harder?

A: The dried ones we don't know how to keep.

E: The smoked ones are hard to keep.

A: They were dried and smoked. We can't keep them long. I don't know how the old people did that.

## **Teddy Gamble: Changes in Food Processing**

---

Caroline: What about processing, has that changed because of weather?

Teddy: No, everyone is doing the same. The only thing our people aren't doing as much is smoking, smoking the fish. And dry it too. Our spring weather, I don't know if it is a bit wetter, we don't see people hang herring eggs. Or when the halibut start coming back, and you catch halibut for drying. You used to see a lot of those out on racks during the day when we were growing up. Don't see too much of that anymore.

C: *Wooks*. That was in the springtime?

T: Yeah. Last year I think most people tried to dry inside their houses because of the rain.

C: Does it work as well when you dry in the house?

T: It takes longer.

C: How much longer?

T: Probably a week.

C: And outside?

T: For halibut about 3 or 4 days. If your weather is really good and it's hot.

C: Traditionally people would harvest halibut in the spring?

T: Coming up pretty soon. End of May.

C: After seaweed?

T: After seaweed and during seaweed. About the same time.

## **Agnes Shaw: Weather Changes**

---

Caroline: What do you do if it is raining too much when you want to dry seaweed?

Agnes: I dry it downstairs. And Tani spreads it on seaweed boards. She sets up the 2x4s in the basement and puts boards on that. The next day the sun shines again, they go all outside. If you pile them on top of each other, they'll go red.

Caroline: What about when it is really hot in the summer, how does that change how you get food?

Agnes: No different from that hot weather we had last summer.

(note during translation: Ernie thinks most people had their food by the time it got hot, so it didn't impact their harvesting – did all the collecting in the Springtime.)

Agnes: (Notes that she doesn't get as much seaweed anymore. There isn't room in the boats for everyone to go pick).

Caroline: Aggie said your mother had seen lightening once in her life.

Ernie: Do you remember last Spring, *gooym*, the lightening? Did you see that in your time?

Agnes: No. That's how it was a long time ago. And it doesn't happen all the time now. Those people say that when there is lightening during the summer, and thunder, they told me that they are chasing the bears and goats. They chase them into their house (dens). That's why the old people say that, that's why it thunders and lightening. They chase them out of their houses. Bear and the goat are coming out again, that is why it is thundering and lightening.

[At end of tape: says that it has changed, men didn't change diapers because it affected their hunting. Whatever the men do. It was never in our culture for men to look after their babies – *hawask* (taboo)]

### **Agnes Shaw: Animal Behaviour**

---

Caroline: Are there other animals doing strange things because of changing weather?

Agnes: I think no. June, that's when the seals are having their pups? And deer. I think it is still the same.

Ernie: In June that is when everything gives birth, seal, deer. No change.

C: Any animals that have come into this area?

A: No. Just one that Ralph found. When me and my sister Lily were riding with him. In one corner down there, that's where this animal, big moose, was laying. There was really stink. I never forget it. And it's really stink. Over there, maybe that's where it came from, and it drifted to where it was. And then Ralph towed it around the corner, so the other people will see it. Really stink.

There was no wolf on this island. Real none. And I blamed Uncle Norman Lewis. It was him that kept a trapline, it was my father that had that trapline. He trapped her father's trapline. And they found these animals there, two of them. Baby wolves. Pups. They took them. When this village was small they lived down there. Took two wolves and raised them on the village. Quite a while ago they ran away. That's why I blamed him there are wolves on this island. That's why I think they are here. Before I got married.

C: Were there animals that were used to be here that you don't see now?

E: The animals that were here, are some of them gone?

A: Nothing else but deer. And just recently the deer came on the island. They all got on the island. It wasn't like that before, it was just on islands.

### **Alberta Jackson: Unusual Animals**

---

Caroline: Have you seen any strange animals come into the area because of weather?

Agnes: I seen a bird when we stayed at the old house. Early morning, I got up. There was a bird running down the street. Not flying. Its wings were back, and its neck was long, and it was running around. Yellow beak and white. The wings are way in the back. First time I saw it. Big long beak.

C: You were in your old house?

A: Yeah, about 30 years ago.

C: What time of year was it?

A: In the spring.

C: Any other things that didn't belong?

A: Not that I know of. Barry, Larry's son found a big dead turtle outside here. Really big, 60 pounds. Dead, floating on the water. The Fisheries came and took a picture.

### **Agnes Shaw: Deer**

---

Caroline: are there any animals or plants less abundant because of weather?

Ernie: Have you noticed any difference in animals, less in her time, or more?

Agnes: Deer. Many times, my grandson Keith, that's how I tasted deer, many times he hasn't got one. He still goes out to look for deer and he can't get one. He hasn't got any this year. But I think there are so many wolves—that's why. They cleaned it off.

E: Were there lots years ago?

A: Lots on the islands. That's why the deer are on Bonilla [Island], because of my father's transplant them there. James Lewis, William Lewis, brothers. In the summertime, they chased the deer off the islands with their dogs. Then they picked up the deer and put them in their hatch on their seine boats. On weekends, they would take them to Bonilla to drop them off their. That's why there's deer on that island. Years ago the deer had their fawns on islands. (They swim to islands to give birth). Used to be lots.

E: Did they do that to anything else?

A: No just deer, that I remember.

E: Used to be lots of deer years ago. Mentioned her father and uncle, these two people chased deer off the island. So many deer on the islands here. Deer gave birth on the islands.

A: They had good dogs. All they do is catch them.

C: Have people done other things like that, moved this, or tried to increase things, because of changing weather? Have they had to adapt like that?

E: Did they transplant anything else that you know of?

A: There was no otters on Bonilla. Those people don't know how they got there. 'Watsa. (There are some now). I don't know how they got across there. There's lots on there now. You see the deer now. No jars back then. No deep freeze. They made it really dry.

# Alberta Jackson

March 10 2005

Interviewers: Ernie Bolton and Caroline Butler

## Changes in Seaweed

Caroline: Can you describe any changes in weather you have seen in your lifetime?

Alberta: Oh yeah. Way different when we were small. When we were small, we don't go outside at night. We know it is time to stay at home. Before dark we have to be home. Now you can stay out.

The weather is different now than before. In April that's when we started picking some, my grandmother called it, seaweed. We don't pick it, we just roll it on the rock, with your hand. They had it in April. They say it is good, I haven't had it. May, that's when the real seaweed comes.

C: Is that different now – is the seaweed growing differently?

A: Yeah. Years ago we used to go out when they first come out, then we go out again. But now you can't, it's just rotten. The second one is rotten. Years ago we went out in May and again in June and it was still good.

C: So now the June is bad.

E: Is it because of the weather?

A: When it's raining, it's just rotten. Sometimes dry and wet. It don't taste as good. But first seaweed is what people go for and we hardly get the good weather for it. I haven't gone for so many years now.

C: So that second pick is missing now in June?

A: The first one grows in May.

C: And it is rotten in June?

A: Sometimes it grows, sometimes. But years ago we could go in the same place. In June we could go there again. But not anymore, they are rotten as they grow.

C: Are there are foods that have changed when you pick them?

A: Herring eggs is like that too. If you don't dry it right away it gets spoiled. You have to go by the weather to dry it.

## Weather Changes

E: Have you seen more snow when you were young? Was the rain worse in your time?

A: No. We don't see the snow since years ago. Hardly any snow.

C: You remember more snow when you were younger?

A: No. It was cold but we don't get snow. When we do get snow, we get a lot of snow.

C: That's different from when you were a girl?

A: It's just about the same.

## Berries

C: What about berries? Has the way they grow changed over time?

A: When it's too hot, then they don't ripen – they are just dry. Like now if it is really cold, same way with seaweed too. All those barnacles come out of the rock. And they don't grow. If it is really cold, they come off and then the seaweed grows. Same with the berries. That's what they [say]: if in summer there are a lot of berries, there will be a lot of fish.

C: Does the cold winter affect the berries?

A: No.

C: What berries aren't ripening because it is too hot?

A: All the berries. They are just dry. Need some rain.

C: They don't form properly, too small?

A: Yeah. There are hardly any berries around now.

C: So you have seen a difference in abundance?

A: There used to be blueberries here, where the houses are.

C: So building has changed that?

A: Yeah.

C: Were there other places you used to pick berries?

A: You could go out in [Prince] Rupert, and Lewis Island. That island used to have houses there, I think people are living there now. Used to pick salmon berries there.

## **Drying Herring Eggs and Seaweed**

C: So it is harder to dry herring eggs now?

A: If it is raining, you have to put them in the shed, if it is blowing.

C: How do people cope with rain when they are trying to dry things?

Put them in the shed?

A: As long as the air goes through.

C: So they don't need sunlight to dry?

A: No. They are not as fussy as the seaweed. If you keep the seaweed and don't dry it for a few days, it will turn red. It is supposed to be dried the next day.

C: So what if it rains the next day?

A: It goes off.

C: So if you don't get sunny weather, you have to throw the seaweed away?

A: Yeah.

C: 3 days?

A: It goes red.

C: But the herring eggs will still dry?

A: If they are outside, blowing.

C: Is the herring spawning at the same time as it always has?

A: Yeah, I think so.

## **Abalone**

C: What have you seen less of?

A: Hardly see any seafood—abalone. One year we went to Banks [Island] and got 800 pounds. Few years after that we went over and there was nothing. All we found was about 6 abalone. I can't remember that year we went over, with Russell and Gloria. Could hear them walking on the rocks. Long time ago.

E: How old was Mercy?

A: I think 10. And Mercy is 34 now.

C: So you could pick 800 pounds in how long?

A: Two days, there were three of us. I forgot how many Russell and Gloria got.

C: That was just what you got? What did you do with 800 lbs of it?

A: I jarred it. Freeze them. We went over one year to get some. Nothing, really nothing.

## **Cockles**

C: What about other foods? Cockles?

A: I haven't been out on a boat... but they do get it where it is now.

C: Do any of the foods taste different now?

A: No.

C: Is the season for clams and cockles the same length of time?

A: Yeah. October when we have clams, cockles in November. Till January. April you still pick clams, but smoke them and dry them. After that we work on seaweed.

## **Weather**

C: What about you- do you remember a really cold winter for example?

A: It wasn't really cold when I was young. Now it is getting really cold. Even in the summer time. And hot. Last summer was just boiling. I never feel that hot [before].

C: What does that mean for food? Did that change things for harvesting food?

A: I don't know about that. I don't think it changed anything.

C: What about processing? I heard people lost salmon in the smokehouse?

A: Overcooked.

E: That hot weather last year, people lost a lot of fish.

A: You put the fire on and it gets so hot, it cooks the fish. That's what we do with fish, we smoke them, we don't cook them. I didn't put mine in right away, I used the freezer. I do sometimes put them in the smokehouse right away, but sometimes freeze them first.

C: So you can freeze fish before you smoke it? How do you know it is too hot to smoke fish?

A: When you see the fire is just flames. You have to open the smoke house.

## Unusual Animals

---

C: Have you seen any strange animals come into the area because of weather?

A: I seen a bird when we stayed at the old house. Early morning, I got up. There was a bird running down the street. Not flying. Its wings were back, and its neck was long, and it was running around. Yellow beak and white. The wings are way in the back. First time I saw it. Big long beak.

C: You were in your old house?

A: Yeah, about 30 years ago.

C: What time of year was it?

A: In the spring.

C: Any other things that didn't belong?

A: Not that I know of. Barry, Larry's son found a big dead turtle outside here. Really big, 60 pounds. Dead, floating on the water. The fisheries came and took a picture.

C: Were animals or birds doing strange things last summer when the weather was really hot?

A: I don't know. I saw a dog outside, a white dog, tongue hanging out, rolling around in the puddle. It

was just hot. He came back looking for the puddle, but there was nothing in it.

E: Do you remember what year you saw those penguins?

A: No.

C: You saw the penguins?

A: On our way into Rupert. I saw them in the binoculars. I said, see those penguins, going down to the water. Matthew Hill was behind us.

C: When was that?

A: I don't know – maybe Matthew remembers. He phoned us after. This side of Oona River we saw them. Just small. They ran down with the tide and ran back up with the tide. On the beach. Flapping their little wings. I couldn't believe it when we saw it. Penguins. Matthew phoned. He seen it too.

C: Have you seen them since?

A: No.

E: It was about 40 years ago?

A: I think so.

E: I was 17 years old.

## Predicting

---

C: Some people told us about being able to tell it will be good for seaweed from a cold winter...are there other indicators?

A: If there is a lot of snow, there will be a lot of fish. If no snow, no fish. That's what I heard.

C: Any other ways of predicting like that?

A: I don't know.

C: How do you know it is spring time? Are there animals that come out that show you it is spring?

A: For seaweed, when we see the grass is growing so we know they are getting ready. As soon as the grass is growing in the spring.

C: What is the plant that people used to tell for seaweed?

A: 'Piins.

C: Wild celery.

A: Soon as they come out, the seaweed is coming out. That's what they look at.

C: Are there any other plants like that, that indicate things?

A: That's the only one I know. As soon as they start growing, we know it is seaweed out there.

C: And that is always right?

A: Yeah.

E: They are a certain length, eh, when you are supposed to go picking?

A: When they get about that long?

C: 18 inches. [45 cm]

A: That's how long the seaweed will be.

## Drying

C: We talked about how rain impacts processing. Are there other things – if it is too hot, hard to smoke fish. Other impacts on preparing food?

A: I was just telling Merle, I don't know how those old people keep their dried fish. We try to keep it. Just turns spoiled, no matter what we do, to keep the really dried fish. The scorched ones. They don't turn out. Those old people, that's what they had, dried fish put away. Now I just throw it in the fridge, deep freeze.

C: It has become harder to keep?

A: Harder to keep those, and the herring eggs too. Put it in the fridge.

E: So would the weather be different?

C: Or even the moisture in the houses?

E: Back then, they were used to the cold.

C: Where would your mother have kept her herring eggs and dried fish?

A: I don't know but I think... she hasn't been keeping those dried fish long. Because they just go moldy. Like on halibut, the strips, you can keep it long.

C: The halibut *wooks* keeps better? And the salmon is harder?

A: The dried ones we don't know how to keep.

E: The smoked ones are hard to keep.

A: They were dried and smoked. We can't keep them long. I don't know how the old people did that.

## Weather

E: Did they have really hot weather when you were young?

A: No. I never felt that heat back then, what we felt last summer.

E: Was it really cold back then? She never felt that kind of weather back then. Not as cold either.

C: So it is more extreme now?

The dried fish is smoked and scorched?

A: You have to really dry it. I dry it too, but it doesn't turn out. My mother told me it was good in the fall, when they really dry them. Not when they are really fresh [up the river].

C: So you have to keep them in the freezer now.

A: They don't have deep freeze years ago but they still kept the fish.

C: Do you think it was because they could make it dryer then, or where they stored it?

A: I don't know. My grandmother used those tin cans. She put the seaweed in there with paper and packed them. She kept them. Same way with smoked cockles and clams. Put them in a can and put them away.

## Plants Used for Food

C: What are some of the other foods you ate when you were young?

A: A lot of things my mother used to fix, like wild rhubarb. Get it on the island, chop them up. Indian rhubarb. They are long. She boils them all day, and then mix it with flour. Then she put them in jars. She fix that, jar them and put them away. Rice. Wild Rice. That what she mixed it with.

C: Was that dinner, or dessert?

A: Dessert. With grease and sugar.

C: Like a pudding?

A: Yeah.

C: What was that called?

A: I don't know what they called it.

E: It was this colour – dark green.

A: I haven't tasted it for years, since my mother died. It was kind of sweet.

C: What was the bark people ate? Was that dessert?

A: You could eat that anytime. I was really young when my Dad took Russell's mother across here to get that. I still have my mother's own thing for scraping. All they do is wipe them when they pick them off the tree. My mother and Russell's mother. Scrape them.

C: The inside of the bark, hemlock?

A: Some kind of a tree, but I don't know which kind. Scraped it really thin. I don't know then, they cook it and keep it.

E: Jar it.

A: I think they fry it with sugar.

E: I think I tasted it once when my mother had it. It's really sweet.

A: Sugar and grease.

E: Thin strips of bark.

C: Oh, it's in strips. I thought it was mushed up.

E: No, strips, like spinach. How spinach looks. That's how they made it.

C: What other desserts?

A: I remember when Johnson's mother was still alive, she always make blueberry jam. One day she went away and stayed with her daughter when she was pretty sick, she said let's do the jam, in snow. I didn't try it. She whipped the snow with grease and sugar.

E: Fresh snow.

A: Whip it for a long time. Like ice cream. Then pour blueberry jam all over it. Never taste it for years.

C: I hear about making jam quite a bit. How did they eat it, on toast?

A: Toast. Anything.

E: Tea and bread. Then they'll eat jam. I remember seeing what Alberta just mentioned. First snow fall, they will find a clean spot and take a big basin. And fill the basin with snow. And then the lady just used her hand and whipped it. Whipped by hand. And with grease. And berries they picked. Any kind of berry, any kind of jam. Just like a slush.

C: What about *biloos*? What kind of syrup did they have when you were young?

A: My dad used to make his own. He fixed pancakes, and his own syrup. Burned it a little. Water in there and stirred it. Burned it.

E: What he fried? Sugar. I think I tasted it once.

C: Before there was sugar, how did people make things sweet?

A: Ever since I remember they had sugar.

C: I guess there was nothing sweet but berries before that?

E: Our great great grand parents had it.

A: Once I saw my mother fixing goowayk - with berries.

E: They would grow by at the lake?

A: They boil it and put flour in it – *goowayk*. They do that with any berries.

E: They use any berry, to make this dessert- mix it with flour, and make a gravy. And put sugar and grease in there.

C: All the desserts have sugar and grease.

A: That's how it is with *moolks* (crab apples). There is another one too – kind of red. *Mihesk*. My mother used to mix *moolks* and *mihesk*. I can barely remember in Kumowdah. My dad went up to look for them up the lake. *Mihesk*, like huckleberries, but they're different. On a small branch.

Someone went out to get crab apples. Then someone was whipping it up with their hands. That's when it turns really white, then they cook it a little bit. I forget what they call it.

In the fall, Russell's mother told my dad to go up to where they found the red berries, and take all the leaves off of the tree. Next year, go up there and you will see how much it has grown. Went up the next year and got really lots. Take all the leaves off and the next year they come out more.

C: What about seals, is there anything different with seals because of weather? How many, how they taste?

A: No.

C: More seals than when you were young?

A: I don't know.

E: I think there are more—in the Skeena, it's just loaded.

C: People used to eat more seals? How many did your dad bring home in a year?

A: Depended on when we want some.

E: Can catch a seal any time of the year. Just like now with salmon – when you want one you go and get it. When ever they want something in the winter time, they go and get it.

C: What would your family rely on for food? They relied on having salmon put away? They didn't rely on seal?

E: No, they didn't rely on seal. Whenever my dad wanted a salmon, he would go out and troll.

A: Seal and deer they could get all year round.

E: Only berries these people really preserved for winter. Berries and fruit. Years ago they would buy fruit and preserve it. Peaches, cherries, crabapples. My mother used to be loaded with all of this. Back then many of them did that. Jarred cherries.

A: Everything used to be jarred.

C: Did your mom make pies like you do?

A: Not that I know of, if she had fresh stuff.

E: Same thing with fruits –apples and oranges. Only time we get them when we can afford them.

A: Peel it and mix it with sugar and grease. Too bad we don't have a lot of grease. Have to ask around.

C: When did grease start getting hard to come by.

A: Just lately. Used to just trade, gallon to gallon. Seaweed and grease. Not anymore.

C: Seaweed is expensive too.

E: My mom – seaweed, dried halibut, my mother would bring it to Sunnyside and that is what she would distribute to her friends up the line.

She just gave it to them. Maybe another day, the people would come back and do the same thing to her, give her berries.

A: They didn't sell them before, just trade. Give it to them, and they would give us what they had.

C: So it wasn't a direct trade. How long has it been since grease was expensive?

E: Ever since the new generation got involved.

A: Like clams. We don't sell clams, we give it away. Now they sell them.

E: This new generation came. As soon as alcohol introduced. That was when all our food started to be sold.

A: Whenever they go out, my mother would take some to the people who didn't go out. Clams, berries. We don't sell them, even though we had a hard time picking.

C: So it started with the generation younger than you?

E: 35 years old or so. 20 years ago it started to be sold.

A: Before, nobody sells anything.

E: When people pick too much, they don't waste it. They distribute it, to help people who don't get out.

C: Like *syt goolm got*.

A: Not now. You have to buy it.

C: How do people find grease now?

A: Through friends. My cousin is married to Kitimat. We just give it away to our friends and they give us what we don't get.

C: What is the word for that, it isn't the same as trading.

A: It's kind of a trade, but we never say – I want this.

E: We never say trade.

[Ernie says you would trade for other things, but food is a gift. The verb *to trade* is not used to refer to food. I never heard my mom say I'll trade you —she gives.]

She would just say—Enjoy it. They never asked to

trade. After she gave them stuff, the people would come and give her things.

A: We don't sell.

E: Even now, the people in surrounding areas get some of our food. They know who to buy from. Back then, they never said I'll trade you.

C: And that's how it worked in the village too. Your mother would give things to people. Would things come to you that way?

E: If they went and got something. But my mom would not expect it. She doesn't expect anything in return. She was always giving.

C: The chief's house –when people would harvest, they would give some to Alice Gamble, and if people were hungry she would give some.

E: Whatever she gets, she puts away. During the winter, Edward Gamble would call people to eat with him, and that's what he would bring out to eat with them. So they have a lot of stuff that people give. People would bring them half. That is what he would use to feed people. I hear stories that Edward Gamble – there would never be leftovers, everyone would be given something to take home. Gifts.

C: Agnes said it was only women who picked seaweed and now men. Do you remember that changing?

A: Yeah. It started when they wanted to sell it. The men took us out but they don't pick. They collect the sacks. Lug them up and down. Pack them to the boat.

They don't care what they pick when they sell—they pick the rotten ones. So I don't buy it.

# Marvin (Teddy) Gamble

April 1 2005

Interviewers: Ernie Bolton and Caroline Butler

## Weather Changes

---

Caroline: Can you describe changes in weather patterns in your lifetime?

Teddy: I noticed that years ago when we were younger, in November we would get two or three weeks of really freezing weather and strong winds here and that hasn't been happening here for quite some time. If it comes, it is only for a short time. We get another one later, January or February, we get another blast of freezing weather. But that hasn't been happening for I don't know how long.

C: That happened regularly before?

T: When I was small, that was a good time because the roads iced up and there was a little bit of snow. We got to slide. We built sleds or used anything that would slide down the hill.

C: So November, then January or February?

T: Yeah. And it would warm up a bit and not be as cold as those times.

C: And how much snow would you get?

T: Not too much. Last time I remember we had a bit of snow was in the 60s I think. We got a little amount. Not all that deep but more than what I could remember and we haven't had much since.

C: The last time was the 60s?

T: That's all I can remember. The snow seemed quite deep then – I was shorter.

C: What about other changes? Winds were strong – what direction?

T: Blowing down from the Inlet, northerly winds.

C: What about other times of the year, is the summer different?

T: I remember summers being really quite nice with a lot of westerly winds. The last few years, I

am not sure how far back it goes, there has been a lot of southeast, during the fishing seasons. More than there was before.

C: Is that 5 or 10 years?

T: Maybe 10, I would go as far back as 10 but it wouldn't be as accurate. More southeast winds in the summer time than I can remember, while we are fishing. We used to have more northwest years ago, almost always. Northwest used to blow all the time.

E: That was the only wind we'd get: northwest.

T: Lots of northwest. Not all the time. It would calm down and we'd get really good fishing. Never so bad you had to anchor up.

C: Now it is bad?

T: I think so. Now you get storms or gales. Southeast in the summer. Northwest used to blow for a couple of days and then come down.

C: What about rainfall, has that changed?

T: Wintertime feels like, we get lots of rain when it does rain. I don't know if it is getting drier, if we are getting as much each day. I don't notice a big difference. It seems a little drier, it doesn't rain as often. In the winter months, sometimes we go for a long time without rain. It doesn't seem to be as often, drier spells between. Or at least it seems like it.

C: Is that just recently?

T: The last 10 years I guess. Then when we do get it, it seems to rain more, for a week sometimes. Before it would stop, rain a couple of days and then be dry for a day and then start again.

C: Did your parents or grandparents tell you stories about changing or extreme weather?

T: Not that I can remember. When we lived in the canneries, I can remember it didn't rain all summer. It never seemed like it rained. But it didn't seem like... the weather was really nice but it

didn't get super hot like where you would really sweat and feel like the sun is burning you. It would be sunny all the time but it didn't seem as hot. But maybe that was just the way it was at the cannery, in the Slough there.

C: Now?

T: Now if you are out in the sun, it feels like your head and shoulders are burning if you don't have a hat on. Maybe getting older makes a difference, less hair.

C: Some of the changes are social changes, when they are harvesting, not weather, but I never thought it might be about aging.

## **Canneries**

---

C: What months would you spend at cannery when you were young?

T: From the end of school, end of June, used to come home two weeks after school started.

[Ernie went as soon as Dad done food fishing and mother done smoking fish – mid-June, or the 20th. Would stay until cannery shut down in September. Different families went at different times- some took their kids out of school to do harvesting. Ernie left school to harvest. Some parents kept kids in school.]

C: How old were you when they stopped going?

T: Mid sixties. Dad's boat was built in 67 and we were still there. Probably 68 or 69.

[Ernie – we left Sunnyside in 62 – it was gradually shutting down.]

C: So it didn't rain much at the cannery?

T: Not in the summer months anyway. I'm not noticing too much rain in the summer months but more now.

[More rain now than in the cannery. It was hot there. When Ernie worked there, he wished he worked outside because it was always nice. I notice rain after August there. Now we get more.]

E: In the fall there was lots of rain at Sunnyside.

C: After September?

T: Yeah.

C: How have the changes in weather impacted the animals and plants – have they changed in the way they look, size or colour?

T: No. Nothing that I've noticed.

C: What about spawning or breeding behaviour, has that changed at all?

T: Herring spawn?

C: Any of the breeding times.

## **Herring Spawn**

---

T: The only one I've paid much attention to is the herring spawn. The times when they spawn. I don't know if that had anything to do with the fishery than anything else. When I was young, I remember the big herring fishery and then it shut down and it just reopened again. Even after that there was a long period of time when the spawn wasn't that good so when you went, when people went to get their herring eggs, it didn't come back very thick on the kelp or the trees or anything. Then it started to come back and then there was the herring fishery. Just where I remember it used to spawn, where it would start first and move. I don't know if that has made lots of difference.

C: After the reduction fishery it took a long time for the spawn to come back?

T: I remember just from what people brought back it didn't ... their herring eggs weren't very thick on the trees or on the kelp.

C: When did it start to come back?

T: In the 70s probably.

C: What about the time of the herring spawn?

T: It's been around the same time. Sometimes a little earlier one year and the next year a little later. Whenever they're ready and the temperature is right for them. It's always been quite consistent.

C: So there aren't any identifiable trends in terms of weather and timing?

T: Not that I would know.

## **Dolphins**

---

C: Have you seen any strange animals come into the region that weren't here before?

T: A few years ago, the dolphins. They were coming into Ogden [Channel], I've never noticed in there. There were always a lot of porpoises but not dolphins. I don't know if they were chasing the salmon or herring.

They were there ... they were coming in just in the winter months and spring time. Or before spring time. They would come around for a while and then go away. I'm not sure what, the Pacific Striped? Not the bottlenose.

C: And they hadn't been in here before?

T: Not that I remember. Traveling through Ogden is when I saw them.

C: And when did you start to see them?

T: Roughly 20 years ago. I haven't travelled too much in the last few years to notice if they are still coming in. Two years ago I took some guys on a dive survey, and I did actually see some. But I didn't use my boat much this year.

C: Are they in a big pod?

T: Yeah. Sometimes there's hundreds of them. There has always been porpoises but not the dolphins. That was new to me. I don't know if they had never been there before, or I hadn't noticed them before.

C: Are there any other animals like that?

T: No. I haven't seen any. Only what we see all the time.

## **Birds**

---

C: What about things you used to see and aren't here.

T: No. I still see things we've always seen. The porpoises have always been here. In herring season, more and more seagulls start coming, and the eagles come around.

One of the things, I don't know if it is just me, in the past few years, there are robins around in the spring. But there are these other ones, I think they call them a thrush, but we call Been, they look like a robin. I've been seeing them over the winter months. Not many of them, but once in a while we see them. They usually disappeared and came back around the same time as the robins.

C: Some of them have stayed?

T: Yeah. The only thing I don't see too much of as far as birds are concerned are Blue Jays.

C: There used to be more?

T: Yeah. We don't see too many of them any more. When we were kids there were quite a few of them around. A lot more than what I have seen around here for a while.

C: When did the thrushes start staying over the winter?

T: I haven't paid much attention, just the last 5 years.

C: And the blue jays, there were lots when you were kids.

T: There were lots. I don't know if it was the expansion of the village...

C: I was going to ask, because it is not as treed here.

T: I'm not too sure if that is why.

## **Salmonberries**

---

C: Are there any animals or birds that you have seen acting strangely because of strange weather? No? What about berries – have they changed?

T: We still get a lot of the salmonberries. There used to be a lot more for *dzawes* (salal berries) and stuff but that is probably all gone because of the expansion of the village. They are still growing some places in the village but where they picked the most is built over.

## **Slime**

---

C: What about the slime that was on the water last year?

T: Yeah. It wasn't too bad here, not that we fished here that much. Used to get a little bit. In Area 3 outside Union Inlet, we had to go up there to catch fish. I've seen it there.

C: So it wasn't just this year there was slime.

T: No, I've seen it before.

C: So you got pushed up to that area when, after 1998?

T: When they started giving fewer days fishing in the Skeena. Basically when they closed it for the cohos.

The Skeena was opening later and later, so, and here was opening later, same time as the Skeena. We used to get commercial fisheries here at the same time as the Skeena.

C: So you started going to Area 3 and saw the slime.

T: Yeah. It's been there. I don't know, I've never talked to people that fish there all the time, throughout their lifetime. Have to talk to Port Simpson.

C: And there was slime here too?

T: Not very often. And not as bad as up there.

C: And when did you see it here, was that all your life?

T: Wasn't here that often. I don't think it even registered with me if it was more or less. Didn't happen all that often. I didn't think too much of it in my net fishing out here. Think more of the jellyfish out here.

## **Jellyfish**

---

C: What about jellyfish, are there more or less than there used to be?

T: Seems like more. I'm not too sure. Before I never used to catch as much as often. It seems to be a continuous flow of it now. Sometimes you could go and fish and clean your net in a quick set. Now you can catch as much throwing your net out and wheeling it in as if you had had it out for half an hour. The last time I went to Edye Pass, I had a load of jellyfish there. My brother was there and he was just finishing when I set and told me there was lots of jellyfish. So I pulled it in and there were lots.

C: What time of year do you see those?

T: Now, right from the beginning when we start fishing commercially, and they stay for the whole time.

C: And before how was it?

T: I remember there was a bit. There just seems to be a bit more than there used to be. Never a whole net full of the big red ones.

I know Ogden [Channel] used to have a whole

lot. Seine boats would complain about them all the time. When we gillnetted we used to get some but not lots. Now it seems to be lots. I've heard some the trollers complain that their whole lines would be full. I don't know if it is temperature. I hear on the news that the scientists say it is water temperature and it is El Nino that causes some change.

## **Indicators**

---

C: Are there plants or animals that give indications of weather or changing seasons?

T: Not that I know.

C: Plants or animals that give indications of abundance, connections between species?

T: Not that I heard. The only thing people talked about was a lot of snow on the mountains, should be a decent run of salmon coming back.

C: Four years later?

T: No, if they see it in the spring, they will say this year will be a better year.

C: So it isn't for the brooding stock?

T: No, what's coming back. There is lots of water to support that. But I have seen a lot of snow on the water and it hasn't increased my catch. They might be lying to me!

## **Fishing**

---

C: What about seals? Are there any changes there?

T: Not around here. I know there are lots in the Skeena. I guess since I started to move in there to fish more. The last 15 years or so. But I wouldn't notice before because I didn't do much of my fishing there.

C: What made you move into the Skeena to fish?

T: Our areas out here all started to shut down, smaller areas. It started into smaller areas. It hadn't really started, just about the time I bought my boat. 91-92. With my old boat, I used to fish a lot of different areas.

C: Top end of Banks [Island]?

T: And top end of Principe [Channel], below Kennedy [Island]. Until the main sockeye runs into the

Skeena. I was not a river fisherman, around Smith Island. I usually went to Ede Pass and fished around there.

C: What about herring abundance?

T: I wouldn't know too much about that because of the commercial fishery. The seine fishery every year different amounts would show and what they would catch. It went down there for a little while and I think there was one year they didn't show till late, and one year they were all small. They didn't really show in numbers. They still had a seine fishery and they caught all the big ones and there wasn't much of a spawn left. The fishermen finally closed it down themselves. The Fisheries [Department of Fisheries] were telling them to keep going. The [Band] Council tried to have the Inlet closed for a commercial seine fishery for years but wasn't successful. Just to rebuild the stocks for a few years. That would be good for the commercial fisherman too. But Fisheries wouldn't do that. It's been maintaining itself a little bit. But the spawning areas they used get is not there anymore. They used to set their kelp there.

## **Deer**

---

C: What about deer?

T: Deer are starting to come back. There haven't been any nearby for quite some time. Especially on Porcher where lots of our people used to go. They didn't get many there for quite a long time. But the last 5 years there have been more deer sightings.

## **Weather Changes**

---

C: Can you describes any interventions made to cope with changing weather? Have they created new ways to do things, or transplanting because of weather.

T: No, other than us not getting enough sun and drying it. For drying purposes. If they don't get it when they expect it, they just keep going until they do get it. So eventually they get what they want.

# Agnes Shaw

March 10, 2005

Interviewers: Ernie Bolton and Caroline Butler

## Changes in Weather

---

Caroline: Can you tell us about different weather.

Ernie: Have you noticed any different weather – has it changed from your time up to today?

Agnes: Little bit different today. You see the *gyels* (mussels) now, sometimes this month when the *gyels* are inside, ready to be born, this time of the year. Now they are on the outside. (Already born—spawned early). Years ago they were inside at this time of the month (year). Everything this year is different. Way different.

Ernie: She noticed a lot of difference of weather and food. Mussels - when they are carrying, ready to spawn. The babies are on the outside.

Caroline: Because of weather?

Agnes; I think that's why *gooym* (spring) is early. All the sunshine sometimes now. Early. The new grass is growing now.

Agnes: Especially the salmonberry bushes, their buds are coming out. June, that's when they are supposed to be there.

Caroline: When did start coming early?

Agnes: I think it is this year that I notice, it was early.

## Predictions

---

Agnes: Everything that's happening now, I was told, back then. That's what we're in now, those predictions.

Ernie: The people years ago, grandparents, they told this, that's what going to happen. Things are going to be early. They knew this was coming.

Caroline: How old was she when they told this?

Ernie: Do you remember how old you were when they told you?

Agnes: No. I was very little when I heard about it from my father, and his father. That's when I heard the story about what we're in now.

Ernie: He knew that the weather in her future was going to change.

Caroline: Mussels, salmonberries, are there other foods different because of an early spring?

Ernie: Have you noticed this in any other food? Gaboox, clams?

Agnes: I noticed it in *hagwn*, the same as the *gyels*. They're not inside. My daughter Muriel gave me some *hagwn*, that's how I noticed. They were already cooked when they gave it to me. When I opened it to eat it, I noticed there was nothing in it. The *hagwyn* are supposed to look like *gahuus* (roots) at this time of year, inside the mussel. I was shocked when I saw it, when Muriel brought it over. There was nothing inside, I told Muriel that they were supposed to be inside at this time of the month. But they're not. The *hagwyn* already hatched.

Ernie: Have you noticed any different taste of these, clams, cockles, gels, from your time up to now?

Agnes: No, no different taste.

## Cockles

---

Caroline: what about gaboox – they came back this year, why are they better?

Ernie: Have noticed if the gaboox are lots this year?

Agnes: Yes. There's lots this year.

Ernie: Do you know why it is different? How did it change?

Agnes: I really don't know. I noticed it last year too. And they were really small inside. Lots now. I think they are moving up now, when they come up to the surface.

Ernie: She noticed there are lots of cockles this year. Last year they were small and this year they are big, full. She thinks there are more now.

## Deer

---

Caroline: are there any animals or plants less abundant because of weather?

Ernie: Have you noticed any difference in animals, less in her time, or more?

Agnes: Deer. Many times, my grandson Keith, that's how I tasted deer, many times he hasn't got one. He still goes out to look for deer and he can't get one. He hasn't got any this year. But I think there are so many wolves – that's why. They cleaned it off.

Ernie: were there lots years ago?

Agnes: Lots on the islands. That's why the deer are on Bonilla, because of my father's transplant them there. James Lewis, William Lewis, brothers. In the summer-time, they chased the deer off the islands with their dogs. Then they picked up the deer and put them in their hatch on their seine boats. On weekends, they would take them to Bonilla to drop them off their. That's why there's deer on that island. Years ago the deer had their fawns on islands. (They swim to islands to give birth). Used to be lots.

Ernie: Did they do that to anything else?

Agnes: No just deer, that I remember. Two seine boats, in "Nach'own" – Bonilla Arm. One for dad, and one for my other dad. That's what I call him, that's what they teach me. James Lewis. My parents teach me what I'm going to say. To call my dad's brother, *Ba ba'asm James*. That's how I teach Tani too [her granddaughter]. That's how the old people teach us.

Ernie: She is explaining what to call her uncles. They don't call their dad's brother uncle, they call him dad.

Ernie: Used to be lots of deer years ago. Mentioned her father and uncle, these two people chased deer off the island. So many deer on the islands here. Deer gave birth on the islands.

Agnes: They had good dogs. All they do is catch them.

Caroline: Have people done other things like that, moved this, or tried to increase things, because of changing weather? Have they had to adapt like that?

Ernie: Did they transplant anything else that you know of?

Agnes: There was no otters on Bonilla. Those people don't know how they got there. 'watsa. (There are some now). I don't know how they got across there. There's lots on there now. You see the deer now. No jars back then. No deep freeze. They made it really dry.

Goomsm – Fall. That's when they keep it very long. When they get a little bit moldy, my mother used to wash the mold off. And then they put it on top of the stove to keep it dry. Really dry. And they put them back again where they keep it. No jars, no deep freeze. And they got lots of food, those people. Long time ago. Sea-

weed too.

Caroline: Has it become harder to dry things?

Ernie: Is there any difference to when you dried fish in your time until now.

## Smoking fish

---

Agnes: Nobody can do it anymore. There's a big smokehouse in Bonilla Arm. When the fishing is over, and those people really settled in at Bonilla Arm. I can't remember how many crew he had. There were four women in that big smokehouse. In that big smokehouse, they divide it in four sections, for those four ladies. One for each lady. When they were hanging their fish, I can't remember how many fish in one section, for each woman. That big house in Bonilla Arm. They make it really dry. Same thing with *wooks*.

And then we have that with potatoes in wintertime. And smoked deer. And seal. That's how they eat it.

## Social Change

---

After fishing, our parents, that's when they got all their groceries: sugar, potatoes, rice. After that, right after, trapping. That's the only time they got money. Now, it's not like that anymore. It's different. Now, every month, welfare. And they don't even think of collecting food. And this is what I see now. It's hard now. It's only my daughter that is doing it for me now, half-smoked fish. And she puts it right in the deep freeze now.

Ernie: Is it hard to dry now?

Agnes: Oh. (Yes)

Ernie: Is it the weather now?

Agnes: Yes. And there is no smokehouse around right now. I've got one, and (little) Jake built it for me. Nobody else can fix it now, just me. Really dry. And nobody fixes it now. That's the one, it's really hard for me. I want to eat it at times but I don't have any. And *wooks*.

Ernie: She mentioned a lot of change about fish. Before they didn't have problems drying, but the weather has changed. The young people don't collect what they used to collect for food. They all depend on welfare now. The fish camp, there was a big smokehouse, they had sections for each family to dry their fish. Dried a lot of fish, made *wooks*.

Caroline: Has seaweed been affected by changing weather?

## **Picking seaweed**

---

Agnes: We dried them really dry. Chopped seaweed is the first one. And the second one is put in a cedar box. Kicked it down with layers of bark in between. Ten days, it was kept in the box. My dad used to wrap a rope around the box so it wouldn't bust open. 10 days they left the seaweed in the box. Then they take it out and start to dry it.

About an inch thick. When they ate it, they cut a strip off it. Another time, they dampened it, and they chopped it. And they boiled/cooked it.

After they picked the first and second time, they went back to pick at the same place; that's what they used to make toasted seaweed. They pick three times. They made it three different ways.

I really liked to go around the west coast to pick seaweed. I travelled with Solomon Brown. He had a boat and took us around. And your mother, Gertie, we picked at the same time. And Auntie Josie. And lots of other women. To pick seaweed around Banks.

And now it's not like that, it's men that's picking seaweed.

Ernie: Was the seaweed different in your time?

Agnes: No different.

Ernie: Is it different the way people pick it?

Agnes: Yes.

Ernie: Years ago they pick it 3 times. For chopping. Then they have a box, they kicked the seaweed into it.

Agnes:

Ernie: They leave it in there 10 days with weight on it to make it like a cake. Then they cut strips to eat it, or soak it. Or boil it.

Agnes: About this thick.

Ernie: They put hadel in between it – bark. In layers, that's how they know how thick. The last pick – for toasted seaweed.

Caroline; And those three picks still happen?

Ernie: They can still happen but nobody does those products. And another change; it was just women that picked, and there is men now. A big turn around.

Caroline: When did men start picking?

Ernie: When did it change?

Agnes: Long time ago. Some of us are gone now that always do it. Go out Banks [Island]. We were all happy when we go there. I still remember your mother, Gertie, and Josie Brown.

Caroline; Do people still pick in same areas?

Agnes: Solomon Brown is the one that took us, Dorothy Brown's husband. Lots of us, and we so happy when we're all together, all girls. And some of them just like Tania too (young). To help the old ladies. I still remember that really good.

Ernie: Is it the same reef you picked on, the same today?

Agnes: They always pick on the same reef. And that's not the only place there is seaweed. There is some around here, over there (behind us). White Rock. They found it on one rock, Loosahdzadix. That's where they anchored and found some seaweed. That's Eddie's settlement. They found some on another place. Really good seaweed. And there's lots everywhere. Xshwan: that's another place there is lots of seaweed.

Ernie: No change, always in the same spot. Not the only place for seaweed. The surrounding area here.

## **Animal behaviour**

---

Caroline: Are there other animals doing strange things because of changing weather?

Agnes: I think no. June, that's when the seals are having their pups? And deer. I think it is still the same.

Ernie: In June that is when everything gives birth, seal, deer. No change.

Caroline: Any animals that have come into this area?

Agnes: No. Just one that Ralph found. When me and my sister Lily were riding with him. In one corner down there, that's where this animal, big moose, was laying. There was really stink. I never forget it. And it's really stink. Over there, maybe that's where it came from, and it drifted to where it was. And then Ralph towed it around the corner, so the other people will see it. Really stink.

There was no wolf on this island. Real none. And I blamed Uncle Norman Lewis. It was him that kept a trapline, it was my father that had that trapline. He trapped her father's trapline. And they found these animals there, two of them. Baby wolves. Pups. They

took them. When this village was small they lived down there. Took two wolves and raised them on the village. Quite a while ago they ran away. That's why I blamed him there are wolves on this island. That's why I think they are here. Before I got married.

Caroline: were there animals that were used to be here that you don't see now?

Ernie: The animals that were here, are some of them gone?

Agnes: Nothing else but deer. And just recently the deer came on the island. They all got on the island. It wasn't like that before, it was just on islands.

## Weather indicators

Caroline: Last year you told me that when it is cold in winter, you have good seaweed. Does anything else need cold weather to grow?

Ernie: If it is really cold, what food will we get lots of?

Agnes: When there is snow, when the tide is really low, then all those people were really happy, they rejoiced. There was going to be lots of seaweed. When all the barnacles come off the rock, and weeds. *Diids*. Sea grass. When they die. When they drift away. That's when they know, that there's going to be lots of seaweed. When it's cold, when the tide is down.

Ernie: Is it still the same today? Is it different?

Agnes: I think it's the same. When there is lots of snow, there is lots of seaweed. Looks like everything is going to be early again this year. That's what I see.

Ernie: Because of weather?

Agnes: Yes. I hear today there are lots of oolichans up the Skeena, up in Terrace. Tenth of March, years ago. That's when they come. Years ago nobody watched that (keep track – DFO). We bought them for 25 cents a pail. Years ago. They salt them and dry them. 10th of March. It's been a while now that there has been oolichans there. (note: over a week)

Ernie; How long have you noticed this?

Agnes: it just happened. My daughter told me they have been picking them already. In Terrace.

Ernie: How many years like that, you ever notice?

Agnes: No.

Ernie: It never usually happened until the 10th of

March.

Caroline: Is herring spawning at the same time?

Ernie: Is it the same with the herring?

Agnes: I forgot when. April. And my daughter told me it is spawning in Vancouver already. That's what Cecil is doing now down there.

Ernie: Is it different than what happened years ago.

Agnes: Yes. The herring eggs now, it used to spawn across here. On this side, and through the pass. Where it spawned. The women would go out and put stuff down – to set kelp. And we can't do it now, the Cum-siwah wouldn't let us. And just dried, that's all they did years ago.

Caroline: And it spawns at the same time?

Ernie: Is it the same as every year?

Agnes: Yes. Always in April.

Caroline: What do you do if it is raining too much when you want to dry seaweed?

Agnes: I dry it downstairs. And Tani spreads it on seaweed boards. She sets up the 2x4s in the basement and puts boards on that. The next day the sun shines again, they go all outside. If you pile them on top of each other, they'll go red.

Caroline: What about when it is really hot in the summer, how does that change how you get food?

Agnes: No different from that hot weather we had last summer.

(note during translation: Ernie thinks most people had their food by the time it got hot, so it didn't impact their harvesting – did all the collecting in the Springtime.)

Agnes: (Notes that she doesn't get as much seaweed anymore. There isn't room in the boats for everyone to go pick).

Caroline: Aggie said your mother had seen lightening once in her life.

Ernie: Do you remember last Spring, *gooym*, the lightning? Did you see that in your time?

Agnes: No. That's how it was a long time ago. And it doesn't happen all the time now. Those people say that when there is lightening during the summer, and thunder, they told me that they are chasing the bears and goats. They chase them into their house (dens). That's

why the old people say that, that's why it thunders and lightening. They chase them out of their houses. Bear and the goat are coming out again, that is why it is thundering and lightening.

Ernie: Aggie said your mother saw lightening while at Standard cannery.

Agnes: I never lived at the cannery. They came and got me in the boat, went everywhere fishing halibut, gillnet. And I used to mend nets, at Carlisle. I lived in a lot of canneries. That's what James did. Not very long, he'll come in and pick me up. He always takes me and the kids with him, in his boat. I never finished my job in the cannery. I never had a real steady income.

Humpback Bay, there was another cannery. That's where we stayed too.

Didn't operate very long and they quit. There is still a wharf out there, I see it on the plane. That was the last cannery where I stayed before.

Lowe Inlet, I used to work at Lowe Inlet. I still remember, I see Edward Gamble there. David Gladstone. Where the cliff is. Where they see the fish jump up. They sit there and watch fish going up.

[At end of tape: says that it has changed, men didn't change diapers because it affected their hunting. Whatever the men do. It was never in our culture for men to look after their babies – *hawask* (taboo)].

# Sam Lewis

Interviewed February 11, 2002

Interviewer Caroline Butler

## Salmon Fishing and Processing

Caroline: What about the food gathering that you've done?

Sam: Oh, we did a lot of that... Come sockeye season in, probably around June...we'd take our trip either with my cousin Eugene's boat or my brother Rennie would go out and get us the sockeye we need for serving for our winter food.

C: So you can most of that?

S: Yeah, can it, and smoke a lot of sockeye, a lot of sockeye. He smoked a lot of that. Jar a lot of it. We probably go about 7 dozen jars of fish a year.

C: And how many fish do you use?

S: Well, we smoke at least 50 sockeye, total, per year. That will get us right through. Because there's a lot of functions that happen here in the village. If we have visitors coming out, we have a smorgasbord and we cook up a lot of that smoked fish, or seaweed. So everything we get here, we use a lot for the community, when we have dinners or something like that.

## Seaweed Harvesting

C: When do you go and get seaweed?

S: That basically happens around May. They talk about seal seaweed. We call this stuff the neta, the very first seaweed. They're basically a little different than the seaweed we pick in May. They grow up a little higher. My grandmother... my grandmother was the only one that used to pick that. She says that's the first seaweed. But we don't call it seaweed, the one we pick in May. She calls it the neüüla, in other words, you would say "seal seaweed," I guess.

C: Seal seaweed?

S: Yeah. I believe to call it because the üüla in our language is "seal." So my grandmother used to pick that first stuff and they were very short. They were very hard to pick 'cause they were so short. That

was the first seaweed she got. That probably happened in early April or something like that, I guess.

C: Do you see a difference between the seaweed you pick here and seaweed you pick on the west coast?

S: That's right. It's a big difference. There is more salt. If you happen to be here during the month of May, some people pick seaweed out here, just outside of here [the community of Lach Klan].

C: It's more salty than the coast?

S: It is. There's a taste difference. And the seaweed from the reef tastes a lot different than the seaweed you pick on the cliffs. That's why people generally go for the reefs. You know, the reefs, when they're dried up. The seaweed are more tasty there than along the cliff side.

Our elders, like my grandmother, used to tell me, ... If you're going to go out beach combing or hunting or pick seaweed, leave the sea lions alone. Because if you start scaring them off the rocks, we're asking for a big Southeast wind, she said. So we kind of believed in that and didn't really bother them too much, eh.

There are elders who can predict about seaweed. One elder, during the winter, she predicted that there's gonna be lots of seaweed last year. And there was a lot of seaweed. She said there's gonna be a lot of berries, there's gonna be a lot of salmon berries, too.

C: How'd she know?

S: The winter was long and cold. I believe if there's a lot of barnacles on the rocks, the seaweed on the reef is not going to be so good. Yeah. That's got something to do with the cold weather, too. You know, when the weather's cold, there's not too much barnacles that'll come for spring, and the reef is gonna be good for seaweed. Yeah, when the cold lasts long. Really cold weather. And she said, "Oh boy, seaweed's gonna be good this year."

## **Food sources**

---

C: How much do you think [food that your house eats], your household...how much of it do you think is gathered, like what percentage?

S: Well, the whole year, you probably split it right down the middle. It's probably half the year or a little more of all Indian food. It's about a half a year or just a little more of all Indian food we have here. Very few, very few steaks or beef, like that—very few. It's mostly all Indian food. That's why we smoke the sockeye, can the fish, and everything, put it in the fridge. Cockles...Right now we got a bag of cockles in the cooler we're having today.

C: So what are the things that people buy?

S: Potatoes, rice, and vegetables. Right now, that's about all we need—potatoes, rice, and vegetables. That's all we need in a month. Yep, that's about all. And the rest is all here—seaweed, salmon, seal, the deer, halibut, cockles.

C: Do you get a lot of deer in a year, now?

S: Um, it's been kind of slow for the past two years. You don't see too much deer. But a lot of people survive on that here, eh, deer meat. Like this year, you never know, could be a good year. I'm hoping it's a good year because that's what we need is deer meat, now.

We jar the deer meat here. My mom and my sister jar them all as soon as my brother-in-law gets a deer or something... He goes out and he comes back and next morning, they'll be working, jarring the deer meat and all that.

## **Halibut fishing**

---

S: I'll tell you about my dad when we halibut fished, eh. My dad would never just throw his line over here, just like that. "Oh, I'm going out here. OK, let's go." Some days, he'd stand by the door, looking out. He'd be lining the mountain up, eh. A certain way, he'd line it up. When he says it's time to let go of that anchor, it has to go, 'cause we're on the spot where he wants to be. And if he missed that spot just a little, he's not going to catch the amount of fish he wants, eh. If he's right on, if there's halibut there, he's gonna get some.

C: How do you think that people found those spots, though?

S: I really don't know. Well, through his dad, eh, through his dad. My brother, right now, really knows those spots, eh. Especially just on the other side of this island here, you don't really just throw your line over there. You've gotta go by markings. There's a little island like that, and there's a little hole you see. When you see that little hole, let go.

It was a small area. And we'd expect halibut to be there. But he's not going to leave that area if there's no halibut.

C: No? What would he do?

S: He's gonna wait. If he waits, he'll wait for maybe a couple of days and he'll go back there. Bang, there it is. Yeah, he's gonna wait or he'll just move a little bit, just a little bit away from it. But he'll go back there and check it again. And he'd say, "There's gonna be halibut there. Once they're there, I'm gonna get them." And he could get lots when they're there.

## **Crabs**

---

C: What about crabs?

S: Well, crabs...Like they're good now. Throughout the summer time, you might find crabs, a lot of empty crabs, eh, around here.

Right after the salmon season, when the fish start coming out of the river, they're dying, eh. They're eating all the fish that's coming down the river, the dead fish.

C: So they're really good in the fall, then?

S: Yeah. Right after the salmon season's and lot a dead fish in the rivers, eh. And we notice there're a lot of crabs there, too.

C: And people use traps for them?

S: Yeah.

C: Did people always use traps for crab?

S: No, no, no. We used to go along the beach with our long pole and look down. We see them sitting along the rocks or in the mud. And my mother and I used to catch a lot of crabs like that. Never used, never used the crab pots before.

C: You used to stab them with a pole?

S: Yep. Just poke 'em with a pole, pull 'em in.

C: How would you know where to look when you were poling?

S: Well, as soon as the tide's low, low water. Then you see a lot of crabs along the rocks.

## Octopus

---

C: And...what about octopus?

S: Oh yeah, my dad was real good at that. We used to have to dig, get 'em out of the rocks, and it was hard, eh. They were like the best thing to use for bait.

C: You use them for anything else?

S: You could put it in the jar, too. You put it in a jar, but we always just cooked ours and we never did jar devilfish. But a lot of people do right now.

C: So you'd...get them from the rocks, mostly?

S: Not just any rocks. The rock has to be terribly big. Go searching for it and you'll find a little hole on there. You see some fresh feed there, where they have been eating clams or cockles or whatever. You can tell, it's in front of the entrance, and you know there's one in there if it looks fresh.

C: How do you know if it's fresh?

S: You'll see the fresh stuff it's eaten.

C: What else did you use for halibut bait?

S: Best thing you use for halibut fishing is, when you leave your gear in overnight, is rock cod and devilfish, 'cause the bait stays on the hook for hours and hours, eh.

## Birds

---

C: What about birds? Did you ever use any of the birds around here?

S: Ducks.

C: You'd shoot 'em?

S: Yeah.

C: What time of year?

S: That's when...that's when the herring roe would go strong up the inlet, Kitkatla Inlet, or anywhere past here. The herring were spawning. After they spawned, then you'll see a lot of ducks, black

ducks, big orange-beaked ducks. They'll be real fat. They barely fly around. A lot of guys'll go chase them and shoot them.

C: ... they were eating the herring roe?

S: Yeah, that's right. They'd get real fat. And geese...a lot of people live on that around here, eh. Go geese hunting. Very few get the odd swan. You see that once in a while here.

C: What about seabird eggs? Did you ever go for those?

S: Seagull eggs. Yeah. Years ago we used to get a lot of that, but that's kind of slowed down right now. Not too much. The only place where we picked those is when we're out halibut fishing out west coast.

C: That's when you would get them?

S: On the big rocks. Sometimes, if you're lucky, you get about 20, 30 eggs out of there. And an island, when we were halibut fishing, we'd go there. And that island has hundreds and hundreds of seagulls around there. If you go there at the right time you could end up with about a hundred and some odd seagull eggs, if you get there at the right time.

C: So people don't do the seagull eggs as much any more?

S: Not that much, no.

C: And you'd just eat them like regular eggs?

S: Yep. You can just boil it or you can fry it, have it with your bacon. The best part about that is the ladies use them to make their homemade cake. Yeah, and they say it's better.

## Herring

---

C: Now with the herring...Do you go out for herring roe?

S: Go up Kitkatla Inlet there in April, April and May. Get just, like, hundreds and hundreds of pounds of the herring eggs.

C: On the kelp?

S: Yeah. Get a whole bunch of it, put them out, put weights down on them, sink 'em. Then when they're full of herring, the corks and everything that's holding them up, they're barely floating. That's how

many tons it's holding up. Herring eggs.

C: And then you'd freeze those?

S: Well, back then my mum used to dry a whole bunch of those. Sun dry them. Put 'em out in the sun—they're just dry. Just like potato chips, too. And that was the best. The grass, too. That goes on some kind of grass we call leggi.

C: The herring eggs go on there?

S: Yeah. On the bottom. You go to the right place, you gotta try and figure out where there's not too much sand, the bottom is sandy. Because if you go to the wrong place, you're going to be taking a lot of stones in the herring eggs, eh. You don't just put them out just anywhere when you put your kelp out. Because if you do, you're going to end up with a lot of sand in the kelp.

You try to figure out where the best place is. Watch where it's spawning. Like sometimes it's spawning one place and you know that area's no good to put your kelp down there 'cause it's going to be just full of sand. Until the spawn moves over to a different area where you hope it moves there and then you're lucky. And you're gonna have real clean kelp—no sand, no rocks in there at all.

You have to go pick the kelp first before you get the other ones. And what we call p'aatsah, that's weeds. They grow on rocks, these weeds. When they grow on the rocks, you look at it, check it out. If there's no sand in there, they're good, eh. But, like I said, some places are bad, you get a lot of sand. So you just check it out, so it's good you can take a whole bunch home, too. There's weeds and then grass and then trees. A certain type of tree. What type, I don't know what it's called, but they're like porcupine trees.

C: So there's four different things that...

S: That's right, yeah, four different things on herring eggs.

C: Do you get most of it on the kelp or most of it on the grass?

S: Well that depends on how the spawn is there. If the spawn is big, it's gonna be big there and everything will get it. So, you know, when you put the kelp down, you don't put it down today and then you say, yep, it's going to be good tomorrow and take it out. You don't do it. You leave it there until that spawn is clear. Otherwise, if you pull it up,

you're pulling it away, it's gonna be slimy. You've gotta wait until their job is done. You know, when the herring are finished. When they're finished, you can take it away. But if you pull it out, pulling it away from them, it's gonna be slimy. So my dad said you never take it away, leave it there for two days and then take it away or so. Wait until it's finished.

C: So how long does that usually take?

S: It depends. Sometimes the spawn will go on there for at least a week sometimes.

# Martha Lewis

Interviewed December 11, 2001

Interviewed by Sam Lewis and Caroline Butler

## Harvesting Shellfish

---

Caroline: When did you go and get the clams? In the winter?

Martha: Oh, clams, yeah...Sometimes I dry them. Now we freeze them. We freeze them now, after we clean them and we put them in the deep freeze.... It's in October when the people started. But they aren't so good...they aren't so good on October, until November, then they're really good...March, then they stop. We don't have... we don't dig at March, around March. They get spoiled. They turned into milk inside it.

C: What other things did you gather with your mother, what other food?

M: *Gye/s*, I don't know what they call that.

Sam: Mussels.

M: Mussels, yeah, mussels we call. You know that? Yeah. That's the one we used to get. But I don't know how many years we don't have it around here. I don't know what really happened.

C: It used to be around here?

M: Yeah, it used to be really lots. We just go out there and we get mussels and up there and across here. We used to get some but I don't know what really happened. They're all gone. Nobody found them out here.

S: There's some, but there's just not much, too. For some reason, they're gone too. There's very little. There's not much around here.

C: When did that happen? Do you know?

S: No idea, but we don't see too much of that around now.

## Smoking fish

---

C: Did you go to a fish camp?

M: My uncle take us around there when my father die. They don't want us to stay behind here and they all take us to their camp. They got two houses in there, that place there. And that's where we live, all together. We're all happy together there. And they go out, the men go out and get some fish and the ladies, when they come back, and they go down the beach and started to slice the fish, clean the fish. And someone had to go up and hang them up in the big smokehouse, smokehouse there. I remember when I tried to slice the fish but my mother wouldn't let me. "You're gonna spoil it, Martha," she said. She gave me a small little fish, you know, and started to work on it, too. [laughter]

S: How old were you then?

M: That was after eight years old. Around nine, I think, that was...summer, you know.

C: What were the women doing while the men were fishing?

M: We have to get ready for the smoking and get ready for them...My mother had to get ready for, you know, how to smoke the fish, 'cause they got a big smokehouse there. And a certain young ladies that climb up there. They're the ones that hang fish up when you start...when they finished slice the fish.

C: After you were done smoking the fish, then what would you do?

M: And then, when everything's finished, you know, and then they put these together and they wrapped it up. They don't put them in the boxes or something like that, you know, when they're full dry. All those other ones, when we make them sliced, when my mother sliced them, they don't put them in the boxes or anything where they save it. I don't even know how they look after it whole winter. They never get spoiled at all. That's the one we ate whole winter

## Berries

---

C: What about berries? Did you pick berries?

M: Yeah, I do pick berries. Blueberries. There's hardly any berries around here now...All the trees, the branches are out. I used to go around from there and pick blueberries and salmonberries. I used to make blueberry jam. And I freeze those salmonberries.

C: Were there any other kind of berries?

M: Huckleberries...Huckleberries...and what do you call that *waakyil*, grayberries?

C: Stink currant, right?

S: Yeah, that's right.

M: Yeah, really hard to pick it around here. We had to go out somewhere and go out way up in the bushes and get some.

C: What time of year?

M: In spring...

C: What about things that stop people from being able to get their food?

M: Oh, yeah, from logging camps. They're not supposed to do that, from all around here and up the inlet there. On one island, they cut all the trees off and all the camps down there, they're not supposed to do that. And around Banks, too, there, they cutting it for logging, logging camps.

C: And what happens when they cut the trees down?

M: You know, they're not supposed to do that. They're not supposed to do that, cutting the trees from the camps, you know. The other camps there, there's no trees left there anymore.