# Lesson 1-1: Introduction to the Nechako White Sturgeon

Time of Lesson: 1 - 1.5 hours

**Rationale:** The purpose of this lesson is to provide the students with an overview of the Nechako white sturgeon and the challenges it currently faces. The goal is to have students be aware of local issues in order to connect to the Nechako watershed.

**Instructional Objectives:** Student can participate in a discussion about the Nechako white sturgeon and explain what the endangered status means.

**Strategies and Activities:** Story about sturgeon, brainstorm about Nechako white sturgeon, define and discuss endangered status.

#### Materials:

- Book: "The Tale of the Great White Fish" by Maggie Devries
- SMARTboard PowerPoint presentation: Introduction to this Course
- Handout: Endangered Species

Prerequisite Concepts and Skills: None.

#### **Student Assessment:**

- Observation and participation in class and small group activities.
- Completion of worksheets.
- 'Ticket out the Door' "What does endangered mean?" "How large is a Nechako white sturgeon" "How many sturgeon are in the river?" etc.



## **LESSON PLAN**

# Activity (5-10 minutes)

Have PowerPoint presentation Introduction to this Course on the SMARTboard with the opening slide showing.

Start a general conversation about what the students already know about the Nechako white sturgeon. Write on white board their key points.

Key Points

Largest freshwater fish in North America, reaching over 3 metres in length and 100 years old.

Lived during the time of the dinosaurs.

Some may have participated in sturgeon releases in 2008 and 2009.

# Activity (15-20 minutes)

Show Introduction to this Course PowerPoint presentation. Stop presentation where needed to continue conversation, or play through.

Ask

Why do we care so much about the Nechako white sturgeon?

What does endangered mean?

**Endangered:** Species in danger of becoming extinct.

Extinct: Species does not exist any longer.

**Extirpated** (optional term): A species no longer existing in the wilds of Canada, but exists elsewhere.

# **Activity (10 minutes)**

On the white board work through a brainstorming exercise to come up with as many <u>factors</u> affecting the decline of the Nechako white sturgeon and then the ways we are working to recover the species.

Ask

What factors have caused the species to become endangered?

What is being done to help recover the species?



# Factors include:

- overfishing
- introduction of exotic species
- dikes and drainage projects
- industrial and municipal pollution
- reduced or changes in food source for juvenile (young) sturgeon

# Recovery includes:

- stop fishing
- endangered status
- research into their biology, reproduction, habitat needs etc.
- research into global warming
- · building the Conservation Centre

- climate change influence food and water temperature
- hydroelectric dam building (Kenney Dam): block access to spawning sites, eliminate spring flooding, trap nutrients on which salmon depend, reduce downstream turbidity so that juveniles are more visible)

in Vanderhoof that will work as a hatchery to help improve juvenile survival in the river. Construction to be completed in spring 2014

- adding better substrate into the river
- education & awareness (River's Day, school presentations)

# Activity (10-15 minutes)

Handout Worksheets 1a & 1b. Work through the worksheets as a class or in small groups. All the information for the worksheet should have been covered in the PowerPoint presentation and through class discussions.

# Closure (10 minutes)

Read Tale of a Great White Fish by Maggie DeVries. This book may be available in your school library. If not, please contact us!

Ask

Reflect on what the decline of the Nechako white sturgeon means to you. If it was to become extinct, what have we lost?



# Nechako White Sturgeon Facts and Endangered Status

The Nechako white sturgeon are	Fill in the facts below about the Nechako white stur	geon:
<ul> <li>Nechako white sturgeon are</li></ul>	• The Nechako white sturgeon only lives in the	River.
meaning that Nechako white sturgeon do not spawn with other populations of white sturgeon.  There are less than Nechako white sturgeon left!  If ish are needed to have a healthy population in the Nechako River.  Nechako white sturgeon spawn when they reach years old. There are not many fish in the Nechako River.  Nechako white sturgeon are at risk of becoming in the next twenty years!  SARA - Endangered Species  Nechako white sturgeon are listed as an Endangered Species by the Species at Risk Act (SARA) of Canada. A species is classified as 'special concern' if they have characteristics that make them sensitive to human impacts or natural events. There are different levels of concern, from Vulnerable to Endangeree Endangered species are in danger of becoming extinct. What does extinct mean?  There are special rules for species that are endangered.  Can you keep Nechako white sturgeon if you catch one while fishing?  Can you keep any part of the Nechako white sturgeon (eg. a spine from its back)?  What will happen to the Nechako white sturgeon if we catch and keep them?  There are other species that can be seen or live in our area that are species of special concern:  Bull trout * American white pelican * Long-billed curlew * Short eared owl * Western toad		
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Learn more about SARA by going to <a href="http://www.sararegistry.gc.ca/default_e.cfm">http://www.sararegistry.gc.ca/default_e.cfm</a> .	·	·
(Material from the Learn to Fish program, Freshwater Fisheries Society of BC)		araregistry.gc.ca/default_e.cfm.



# Nechako White Sturgeon Reasons for Endangered Status

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raw a pictur	e of one of the	things that	is being do	ne now to he	elp recover th	e species.	
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# Worksheet 1a & 1b Answer Key

Worksheet 1a - Facts & Endangered Status

Fill in the facts below about the Nechako white sturgeon:

- The Nechako white sturgeon only lives in the <u>Nechako</u> River.
- Nechako white sturgeon are <u>genetically</u> distinct from Fraser River white sturgeon meaning that Nechako white sturgeon do not spawn with other populations of white sturgeon.
- There are less than 350 Nechako white sturgeon left!
- More fish are needed to have a healthy population in the Nechako River.
- Nechako white sturgeon spawn when they reach <u>20-30</u> years old. There are not many <u>juvenile or young</u> fish in the Nechako River.
- Nechako white sturgeon are at risk of becoming **extinct** in the next twenty years!

What does extinct mean?

## The species no longer exists, There are no animals of that species alive on the planet.

There are special rules for species that are endangered.

- Can you keep Nechako white sturgeon if you catch one while fishing? No
- Can you keep any part of the Nechako white sturgeon (eg. a spine from its back)? No

What will happen to the Nechako white sturgeon if we catch and keep them?

The numbers will continue to decrease and speed the rate of extinction.

Worksheet 1b - Reasons for Endangered Status

List 4 possible factors that impact Nechako white sturgeon and have contributed to them being classified as an endangered species:

<u>overfishing</u> <u>landscape changes - Kenney Dam</u>

<u>introduction of exotic species</u> <u>shallower river due to dam</u>

<u>dikes and drainage projects</u> <u>temperature</u>

industrial and municipal pollution riverbank encroachment

reduced or changes in food source for juvenile block access to spawning sites from dam

<u>sturgeon</u>
<u>dam eliminates spring flooding</u>

<u>climate change influence food and water</u>
<u>dam traps nutrients</u>

<u>agriculture, removing water from the river</u>

changes to turbitiy and river chemistry from dam

agriculture, pesticides and fertilizers seep into groundwater or overland into river



GRADE:	TEACHER:	
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# Feedback Form for Unit 1 - Lesson 1-1

Please fill in the information below. If you have additional comments, please make them directly in the lesson plan. Please feel free to email me any immediate concerns: michelle@mrconcepts.ca.

# **Background Information:**

Was there enough information provided to conduct the lesson successfully? Yes or No

If no, what additional information and/or resources would be useful for this lesson?

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Vere the activities engaging to the students? Yes or No
Vas the timeline of the activities a good estimate? oo Long Too Short Just Right
any comments?

#### Worksheets:

Were the worksheet(s) effective in teaching and/or reviewing the lesson material? Yes or No

Was the answer key helpful? Yes or No

#### **Additional Resources:**

If used, were the resources suggested or provided for this lesson useful? Yes or No What else would you suggest be needed for this lesson?

