

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 factors 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
- 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)

Recovery includes:

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

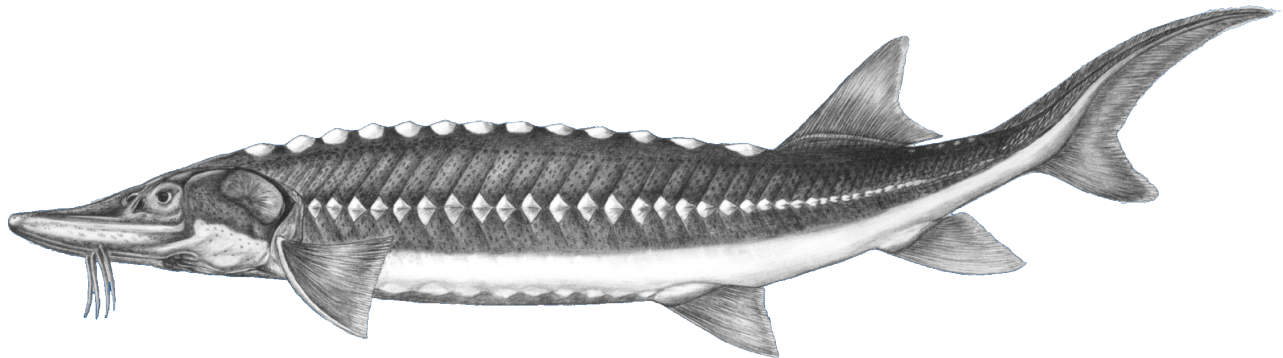
Reflect on what the decline of the Nechako white sturgeon means to you. If it was to become extinct, what have we lost?

Nechako White Sturgeon

Facts and Endangered Status

Fill in the facts below about the Nechako white sturgeon:

- The Nechako white sturgeon only lives in the _____ River.
- Nechako white sturgeon are _____ distinct from Fraser River white sturgeon – meaning that Nechako white sturgeon do not spawn with other populations of white sturgeon.
- There are less than _____ Nechako white sturgeon left!
- _____ fish 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 Endangered. 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

Learn more about SARA by going to http://www.sararegistry.gc.ca/default_e.cfm.

(Material from the Learn to Fish program, Freshwater Fisheries Society of BC)

Nechako White Sturgeon

Reasons for Endangered Status

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

Draw a picture of one of the things that is being done now to help recover the species.

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 **Nechako** River.
- Nechako white sturgeon are **genetically** 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 **20-30** years old. There are not many **juvenile or young** 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:

overfishing

landscape changes - Kenney Dam

introduction of exotic species

shallower river due to dam

dikes and drainage projects

temperature

industrial and municipal pollution

riverbank encroachment

reduced or changes in food source for juvenile sturgeon

block access to spawning sites from dam

dam eliminates spring flooding

climate change influence food and water

dam traps nutrients

agriculture, removing water from the river

changes to turbidity and river chemistry from dam

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

GRADE: _____ TEACHER: _____

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?

Activities:

Were the activities engaging to the students? Yes or No

Was the timeline of the activities a good estimate?
Too 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?