

Lesson 3-4: Sturgeon Decline

Time of Lesson: 1.5 hour

Instruction Objectives: Students can reflect on how the environment of the Nechako white sturgeon has changed over the past 100 years, and how that has affected the survival of the species.

Strategies and Activities: Discuss how the habitat in the Nechako River for the sturgeon has changed over time, from 10,000 years ago to 100 years ago to now. Brainstorm on the meanings of 'adaptation' and 'survival' and relate to human experiences, re-examine the life cycle and link life cycle, habitat and survival together. Review restoration projects currently occurring for Nechako white sturgeon. Allow work on Unit Project.

Materials:

- YouTube Video: *Every Sturgeon Counts - Part 4* (<http://www.youtube.com/watch?v=YhrEJUEi-ow>)
- SMARTboard PowerPoint presentation: *NWS Decline*
- Website: www.nechakowhitesturgeon.org for a list of current restoration projects.

Student Assessment:

- Observation and participation in class discussion and activities.
- Ability to identify at least two restoration projects for Nechako white sturgeon.
- Participation in Speed Quiz.

Activity (20 minutes)

Bring up on the SMARTboard YouTube Video: *Every Sturgeon Counts - Part 4* (<http://www.youtube.com/watch?v=YhrEJUEi-ow>). Scroll to 21:26 and watch this section of the video: **Procedure for Releasing Sturgeon Safely** (21:26 to 31:20).

Key Points

This video highlights the impact humans can have on sturgeon.

There are safe ways to reduce the risk of injury or death of the animal if it is caught in a net.

The people in the video use science and research as a practical means that lead to conservation of a species.

Activity (40 minutes)

Bring up on the SMARTboard the PowerPoint presentation: *NWS Decline*. This presentation reviews the factors that affect sturgeon survival and reintroduces the term recruitment failure.

Key Points

The low survival rate of young sturgeon is the leading reason why the species is endangered and at risk of becoming extinct in the next twenty years.

Altered habitat, human impacts, pollution, and climate change are all factors that impact young sturgeon survival.

These factors affect their ability to hide from predators, affect their food source, and affect their general habitat.

Ask

What factor or factors do you think are the ones that are most responsible for the recruitment failure?

Is the population recoverable - can we save it from extinction?

Introduce the term 'adaptation'.

Adaptation: a change by which an organism or species becomes better suited to its environment.

Many species over time are able to adapt to changes in their environment, so they are able to survive over the long term. Nechako white sturgeon are adapted for a particular habitat and river condition (habitat and food). However, the habitat of the Nechako white sturgeon has changed dramatically over the past 100 years.

Continue with the slideshow to view a quick overview of the work the NWSRI is doing to help protect and recover the Nechako white sturgeon population. Begin a class discussion about this work. Visit www.nechakowhitesturgeon.org for an up-to-date project list.

Ask

Of the projects you just saw, which ones do you think are the most important for helping Nechako white sturgeon? Why?

What can **we** do to help the Nechako white sturgeon?

Activity (20 minutes)

Allow students to work on their Unit Project.

Closure (10 minutes)

Play Speed Quiz. Split the class into two groups. Have one student from each group go in turn and compete to see who can answer the following questions correctly (the first to put up their hand gets to answer first).

What does endangered mean? *at risk of going extinct*

How large is a Nechako white sturgeon? *3 m long*

How many sturgeon are in the river? *350 or less*

What food do juvenile sturgeon eat? *macro invertebrates*

What is the fin on the back of a sturgeon called? *dorsal*

Sturgeon do not have scales, they have ____? *scutes*

Name one tributary to the Nechako River. *Murray Creek, Stoney Creek, Nautley, Stewart*

At what ages does a female sturgeon start spawning? *40 years old*

Sturgeon spawn in deep turbid water over clean _____? *gravel or rocks*

Where is the only known spawning site for Nechako white sturgeon? *in Vanderhoof, upstream of the Burrard Ave bridge, in the Nechako Migratory Bird Sanctuary*

What is the main food source for adult sturgeon? *salmon*

The shape of their tail - heterocercal - helps the sturgeon stay where in the water column? *at the bottom*

What life stage comes after the egg hatches? *larval, larvae*

What is the area adjacent a river called? *riparian zone*

What is the word to describe how an animal changes over time to changes in their environment? *adaptation*