



Lesson # 1 Sturgeon at Risk Introductory Activity

1. Give students the Know, Wonder, Learn organizer and have the students complete the first two columns at the outset of the class. Ask the students to move into groups of four or five and compare their responses listed in the Know column and ask them to create questions based on the points they have listed in the Wonder column. Students will complete the Learn column while viewing video clip at the end of class.
2. Ask students to brainstorm their responses to the following question: “Why are white sturgeon at risk in the Fraser River watershed?” Remind students that this exercise is intended to get them to make linkages to their prior knowledge and that all ideas are to be accepted at this point in the process as the class begins to pursue its study of this amazing species. For an alternative approach, this exercise could be done as think, pair, share activity that asks students to write their individual responses to the question before partnering with another students and then sharing responses with the class.
3. Ask students to record their ideas on Activity # 1.
4. After students create their own list, have them work together in their groups to predict which of these factors has the greatest impact on white sturgeon survival rates.
5. The teacher should list these ideas on their smartboard, overhead or blackboard. Students should then be asked to rank which of these potential threats are most significant.
6. Ask students to write a paragraph predicting why the white sturgeon population has been decimated over the last 150 years. Students should record their predictions and rankings on Activity #1 included in the package.

A study titled *Impacts to Abundance and Distribution of Fraser River White Sturgeon* by Hatfield, MacAdam and Nelson (2004) has identified the following factors (a copy of this PDF is included in the additional readings folder) This article lists 15 potential factors impacting White Sturgeon. Here is a list of some of the most significant:

River regulation – ie. dyke construction and maintenance, dredging and flood mitigation

Instream Construction – ie. bridge footings and harbour facilities, log boom yards

Gravel mining – extraction of sand and gravel for flood mitigation and aggregate supplies used in construction

Fishing – commercial, recreational, First Nation's of salmon and eulachon, by-catch issues and illegal poaching of white sturgeon

Pollution- herbicides and pesticides used in farming, fungicides (sapstains) used to preserve cut lumber at mills, sewage effluent and road run off

Land Use – riparian zone, foreshore and floodplain destruction due to farming, lumber mills, industrial sites, railways, highways and urban sprawl

Climate change – increased water temperatures and run off fluctuations impacting reproduction, spawning and early maturation

Food Supply – salmon and eulachon over harvesting

Hatcheries – risk of disease and predation from supported fish hatcheries

7. Distribute the Life Cycle of the White Sturgeon (Article # 1) to your students and the accompanying graphic organizer (Activity # 2). Ask students to read through this document then ask them to work in pairs and predict how each of these factors could impact the life cycle of white sturgeon.
8. View the Real Player video clip ***Sturgeon: Living Fossils of the Fraser*** included in this folder. This video clip will give students an excellent introduction to the unit they will be studying. (There are hundreds of other excellent geographic video clips stored and available to the public at this site) You will need to download Real Player to view this clip. While viewing this clip ask students to complete the Learn column of the Know, Wonder, Learn organizer.

Click on the following hyperlink to access the source of this clip:

http://vancouver.ca/greaterdot_wa/index.cfm?fuseaction=GVTV.storyDet&storyid=136

9. In preparation for the next lesson, ask students to read **Sturgeon at Risk** (PDF) and the **Sturgeon Background** file to give them information on the factors influencing white sturgeon survival.

Extension activity:

Students could form groups and look at the study titled ***Impacts to Abundance and Distribution of Fraser River White Sturgeon*** by Hatfield, MacAdam and Nelson (2004). This PDF could be jig-sawed by a class that wishes to look more deeply at the science of white sturgeon conservation. It provides a detailed analysis of the many factors influencing white sturgeon populations in the Fraser River watershed.