



**Big Idea:** After completing the first five lessons, students will have learned background facts about the white sturgeon and will have a better understanding of why the Fraser River sturgeon is in peril. In this lesson, the students will generate practical ideas of how to protect the white sturgeon by improving its environment. Students will then communicate these ideas and their knowledge of the white sturgeon to the public in a brochure, poster, mural or public service announcement.

**Objectives:** Students will...

- consolidate their knowledge and understanding of the white sturgeon from the first five lessons
- generate practical ideas of how to improve our treatment of the environment
- use written, visual or verbal means to communicate this information to the public

**Curricula Links:** Science, Art, Language Arts, Social Studies

**Suggested Grade Levels:** 4 - 6

**Materials:**

- White Sturgeon Information
- Poster boards / blank white paper
- Examples of brochures, information posters or PSA's
- video camera / computer with video editing software

## Lesson Six - Sturgeon Stewardship

### Opening Motivator:

Ask students to think about the different types of advertisements that they have been exposed to. Discuss how organizations get a message out to the public (e.g. radio ads, telephone marketing, oral presentations, rallies, television ads, music videos, newspaper ads, posters, mass mailouts, brochures, skits, puppet shows, web pages, board games) and the pros/cons of each (e.g. cost, equipment required, time to produce).

### Classroom Activity:

- 1) Inform students that the Fraser River Sturgeon Conservation Society has asked your class to create advertisements to: increase public awareness of the white sturgeon; explain why this species is in peril; and what can be done to help them. The FRSCS has asked students to create a public service announcement (PSA) for television or a print ad in the style of a brochure, poster or mural.

**Teaching Tip:** *Allowing students to work toward their strengths can produce effective results. Instead of making a poster or brochure, teachers can allow students to select a different type of media (see examples in the opening motivator) to get their message across. For the purposes of this lesson, students will create a PSA, brochure or poster; however many of the same ideas apply to different types of advertisements the students might create.*

2) Watch recordings of public service announcements or distribute examples of brochures / posters that promote an issue or provide information to the public. Examine the characteristics of the PSA's or brochures / posters:

- small chunks of information (short paragraphs, numbered list, spoken sentences are brief, etc...)
- various types of visuals (pictures, graphs, diagrams, charts for the brochure/poster; props, background, visual effects for the PSA)
- well organized (titles, subtitles, important words in bold, captions for visual information, etc... for the brochure/poster; beginning/middle/end, logical, clear message, etc... for the PSA)
- appeal factor (bold / larger lettering, colour, boxes / underlining, etc... for the brochure/poster; makes and impact for the PSA)

**Teaching Tip:** *As you discuss expectations for the finished product, record the information and use this as your criteria for evaluating the brochure or poster. Also, display the information in the class so students can use this as a reminder of the expectations.*

3) Inform students that the Fraser River Sturgeon Conservation Society practices stewardship by directly interacting with the white sturgeon to conserve and protect them. Among the many initiative the FRSCS undertakes, they assess sturgeon stocks in the Fraser River, monitor the sturgeon through a tagging program, and report offenses that impact the white sturgeon. Realistically, students will not be able undertake these types of stewardship initiatives, however they can provide information about the white sturgeon and locally practice conservation within their school or home. With the class, brainstorm ideas of what information could be included in the brochure / poster / mural or the PSA and how to convey the information. Examples might include:

- characteristics of the sturgeon (text and pictures)
- history of the sturgeon (text)
- conservation practices at home or school (point form list)
- why sturgeon are in danger (point form list or pictures)
- number of sturgeon caught in the Fraser River (graph)

4) a) Poster Option - Some students will already have a good idea of how to set up a poster; however, a quick review of the basic set-up is advised. Remind students to use a large, easy to read title; large lettering for written information (This can be word processed, printed, cut out and then pasted on the poster.); and large, well-labeled visuals.

b) Brochure Option - To create the brochure, distribute one piece of blank white paper to each student. Ask students to measure the length of the paper and use a pencil to divide it into three equal sections. For letter size paper, each section should be 9.3 cm wide; for legal size paper, each section should be 11.9 cm wide. Then, instruct students to carefully fold the paper into three equal sections.

There are different variations to make a brochure:

- a) neatly print the written information and draw the visuals on the folded white paper
- b) use digital pictures and a word processor to input the information. There is a brochure template in Appleworks or MS Word to help students organize the information.
- c) word process the written information; print it out; and then paste it on construction paper that has been divided into three sections.

c) Mural Option - The mural should be done as a group and should use both visual and written information to get across the main idea related to sturgeon stewardship. Remind students that the visual information will be the focus of the mural, however any written information should be large enough so it is legible from a short distance.

d) Public Service Announcement (PSA) - The steps for doing a PSA will vary depending on the age of children that you have and their ability to use technology independently. After making groups (from 3-5 usually works best), the first step is to brainstorm ideas for the main message of the PSA. This is very important!! After the main message is decided upon, students then need to develop the script for a 20-30 second PSA. Encourage students to write out all spoken lines, write an explanation of what the person is doing and what is happening around them. Also include a list of props and backgrounds if these are to be included. After the PSA is mapped out, practice it and make necessary changes. Once the practice sessions are complete, video tape the PSA's and load the video clips onto the computer for editing. Some groups may be able to film the entire PSA in one shot and complete it without editing on a computer.

5) When the brochures, posters, murals or PSA's are complete, students should be given the opportunity to share the information with others (e.g. the rest of the class, another class, at an assembly, with family). Teachers can use criteria for an oral presentation to evaluate this aspect of Language Arts.

## **Conclusion and Reflections:**

Ask students to write responses to these questions and submit them to the Fraser River Sturgeon Conservation Society:

- a) What are three key ideas you have learned about the white sturgeon
- b) What is one thing that you are going to do (or not do) to help save the white sturgeon?

## **Extensions:**

1) Make a crossword puzzle or word search with the various words and facts learned throughout the six lessons. The DiscoverySchool website has a puzzle generator that students can use to make their crossword, word search or other type of puzzle. Find it at <http://puzzlemaker.school.discovery.com/> .

2) Visit the Fraser River Discovery Centre and participate in their sturgeon workshops, or go to the Vancouver Aquarium to see the sturgeon in the tanks. Students can then use this information in their brochure / poster.

3) Invite a local newspaper reporter into your classroom to showcase what the students are doing for their final project on the sturgeon.

4) Organize your class or neighbourhood and participate in 'The Great Canadian Shoreline Clean-up'. Visit <http://www.vanaqua.org> for more information.

5) Review the list of Field Trip Activities provided in this unit and choose a class field trip to extend or enhance the students' understanding of the Fraser River white sturgeon.

## Appendix 6.1 - Sources of Information for Brochure, Poster, Mural or PSA

Below are some ideas / resources that can be used by the students for their brochure, poster or mural:

- a) Visit various websites that provide suggestions about how to prevent global warming (e.g. <http://www.climatechange.gc.ca>). This is relevant because sturgeon require specific water temperatures for their eggs to develop into larvae.
- b) Visit websites that provide information on water pollution ([e.g. water education foundation - http://www.watereducation.org/doc.asp?id=1022](http://www.watereducation.org/doc.asp?id=1022)). This is relevant because the rate of sturgeon spawning is related to the amount of pollution in the water.
- c) Obtain information from local or provincial government on water conservation. This is relevant because keeping a stable amount of fresh water in our rivers and lakes is imperative to the survival of sturgeon and many other aquatic animals and plants.
- d) Visit environmental websites (e.g. <http://www.riversmart.org>) for more ideas of how to help our environment.
- e) Bring books or magazines that focus on the environment into the classroom (e.g. 50 Simple Things Kids Can Do To Save The Earth).



## Fraser River White Sturgeon Word Search

A T Y B P P S E E Z N Q Y K Y A I N P F  
I X R T L S Q H R O F R T I L D F O Q I  
I S S E E A S H I U A A W C Y U L E V S  
E A I T S Z D T V U T N I T Z L Y G S H  
J L U N D A A D T U I A R B U T F R C I  
Y C U I G B R S E A P A R T Z N J U I N  
S V J X U L E F J R N U I E K E W T W G  
U D G C X A A U K S M O Q C P F A S R E  
G Q N U U R X S M H N S V T Z M T K E E  
W I Y A S B D O S A M I G R A T E Y T A  
L E B R A B N A C I P E N S E R R T A V  
Q V F A X T E L I N E V U J G P S I W R  
U M P J A R B L D O Y G W E F G H C H A  
N J D N U C H S I P H O N H Y Z E Y S L  
Z Q U M X A H X G E I L U I I J D Q E Y  
Z S I V B N R A J X W U F K N T R U R E  
V L S I Y Y R F E U H E W N P W E P F S  
T E T N O Z A E J L E F Y Y O B A V G W  
M A N M F L Z L N D I J N L S W I P K P  
T R U V D N O I T A Z I L I T R E F S V

ACIPENSER  
FERTILIZATION  
INCUBATION  
POLLUTION  
TRANSMONTANUS

ADULT  
FISHING  
ISINGLASS  
SCUTES  
WATERSHED

BARBEL  
FRASER  
JUVENILE  
SIPHON  
WHITE

BLADDER  
FRESHWATER  
LARVAE  
SPAWNING

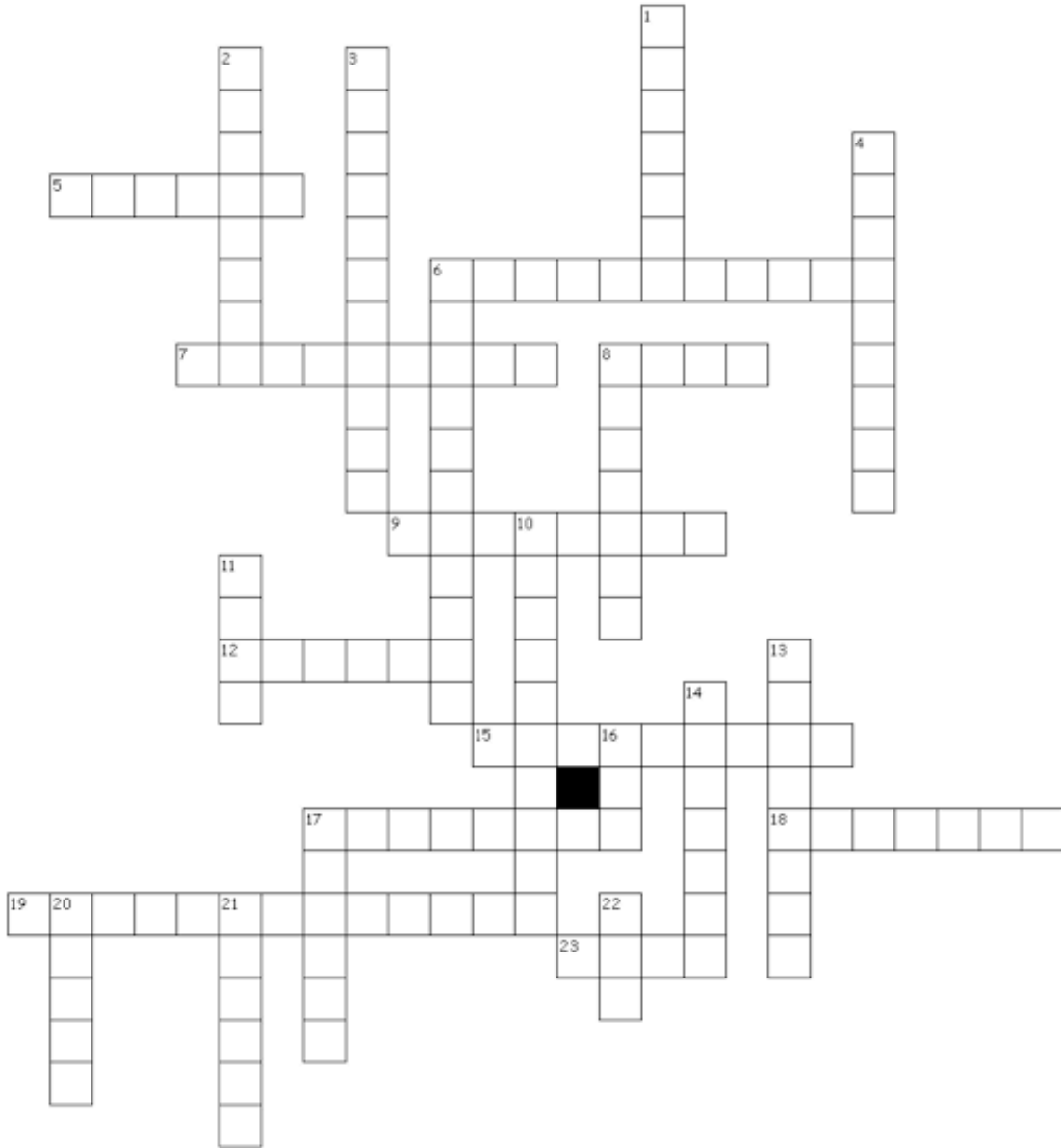
EGG  
FRY  
MIGRATE  
STURGEON

ESTUARY  
HABITAT  
MILT  
TEMPERATURE





# Fraser River White Sturgeon Crossword Puzzle





## Clues for Fraser River White Sturgeon Crossword Puzzle

### Across

5. a whisker-like sensor that hangs from the mouth area of a sturgeon
6. being deprived of oxygen
7. in fish species, when the egg from a female is joined with reproductive cells from the male
8. reproductive fluid of male fish
9. places where plants and animals live
12. the plural of larva; the first mobile stage of life after hatching
15. the land area from which water drains into a particular river system
17. behaviour and actions of male and female animals for the purpose of reproduction
18. living or closely associated with water
19. one of 27 species of sturgeon
23. an animal that is eaten by other animals (predators)

### Down

1. a small sac attached to the larvae that provides nutrients needed to survive and grow
  2. an animal that has not matured to a stage when it can reproduce
  3. body of water where the white sturgeon live
  4. a sticky substance that is made from swim bladders of fish
  6. a gas-filled sac found in some fish that permits them to control their buoyancy
  8. to move from one area to another, usually for feeding or breeding
  10. the process of keeping eggs in a favourable condition for hatching
  11. the basic unit of which all living things are made
  13. an animal that feeds on other animals (prey)
  14. the mouth of a river where the marine (salt) water meets and mixes with the fresh water of the river
  16. small, round cellular structures released by the female
  17. small, bony plates on the outside of the sturgeon that is for protection
  20. to emerge or come out of an egg
  21. suction of liquid and/or objects through a tube
  22. an early stage of life when fish have defined body parts; follows the larval stage
- 