

## Lesson 3-1: Nechako White Sturgeon External Anatomy - Form & Function

**Time of Lesson:** 1 hour

**Rationale:** The purpose of this lesson is to describe the external anatomy of the Nechako white sturgeon and relate its form with how it lives in its environment (function). This lesson introduces the Unit Project, which will allow students to summarize all they have learned about the Nechako white sturgeon.

**Instructional Objectives:** Student can identify 5-10 external parts of the sturgeon. Introduce Unit Project: *My Nechako white sturgeon*.

**Strategies and Activities:** Life size replica of the Nechako white sturgeon with worksheet, life cycle poster, art project. Present Unit Project and discuss.

### **Materials:**

- SMARTboard PowerPoint presentation: *External Anatomy of Nechako White Sturgeon*
- Handout: *Worksheet 3a - NWS External Anatomy* (double-sided)
- Display: *Life-size Nechako White Sturgeon* replica available from NWSRI
- YouTube Video: *Every Sturgeon Counts - Part 5* (<http://www.youtube.com/watch?v=YhrEJUEi-ow>)
- Handout: *Unit Project - My Nechako white sturgeon*

### **Student Assessment:**

- Observation and participation in class and small group activities.
- Ability to identify the external parts of the sturgeon and relate those to function.
- Completion of Handouts.

## LESSON PLAN

### Introduction (5 minutes)

Introduce the new Unit and the rationale:

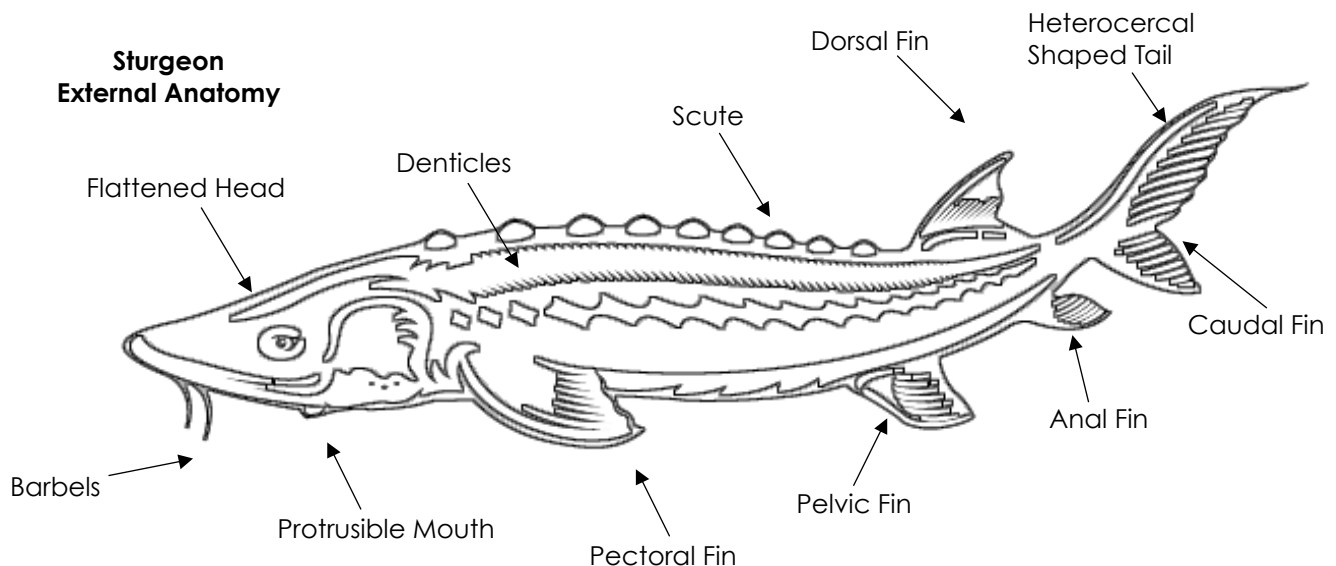
- To identify the shape and life cycle of the Nechako white sturgeon and relate this information to how and where it lives and what it needs to survive.
- To gain a deeper awareness of the endangered Nechako white sturgeon and the many challenges the species currently faces.

### Activity (5 minutes)

Introduce the Unit Project: *My Nechako white sturgeon* and provide Handout. Answer any questions about the project. Give a clear timeline for the project.

### Activity (10 minutes)

Show the plush display model of the Nechako white sturgeon. Have students gather round, touch it and name as many parts of the sturgeon that they know already.



### Activity (10 minutes)

On SMARTboard bring up YouTube Video: *Every Sturgeon Counts* (<http://www.youtube.com/watch?v=YhrEJUEi-ow>). Scroll to Part 5 at the 32 minute and 57 second mark. Watch the roughly 2 minute video on sturgeon external anatomy.

## Activity (20 minutes)

Have PowerPoint presentation *NWS External Anatomy* on the SMARTboard. By looking at an animal, we can learn a lot about how it lives by the shape of its body. Start a short discussion about **Form & Function**. Write on white board the students' comments.

### Key Points

Every animal (and plant) has a shape that is made up of a number of body parts. Each body part has a FORM or SHAPE. The form (e.g. shape of the head) of the body or body part determines how the animal will move, eat, mate, protect itself etc. This is the FUNCTION.

Form influences function and function influences form.

Over a very long, long time form-function can change depending on changes in the environment. If the change in the environment is 'sudden', the animal may go extinct.

Go through *NWS External Anatomy* on the SMARTboard. Stop where necessary to discuss the content. Handout *Worksheet 3-1a External Anatomy* prior to or after working through the slideshow.

### Ask

What does the body form of the Nechako white sturgeon tell us about how it moves, eats, and protects itself?

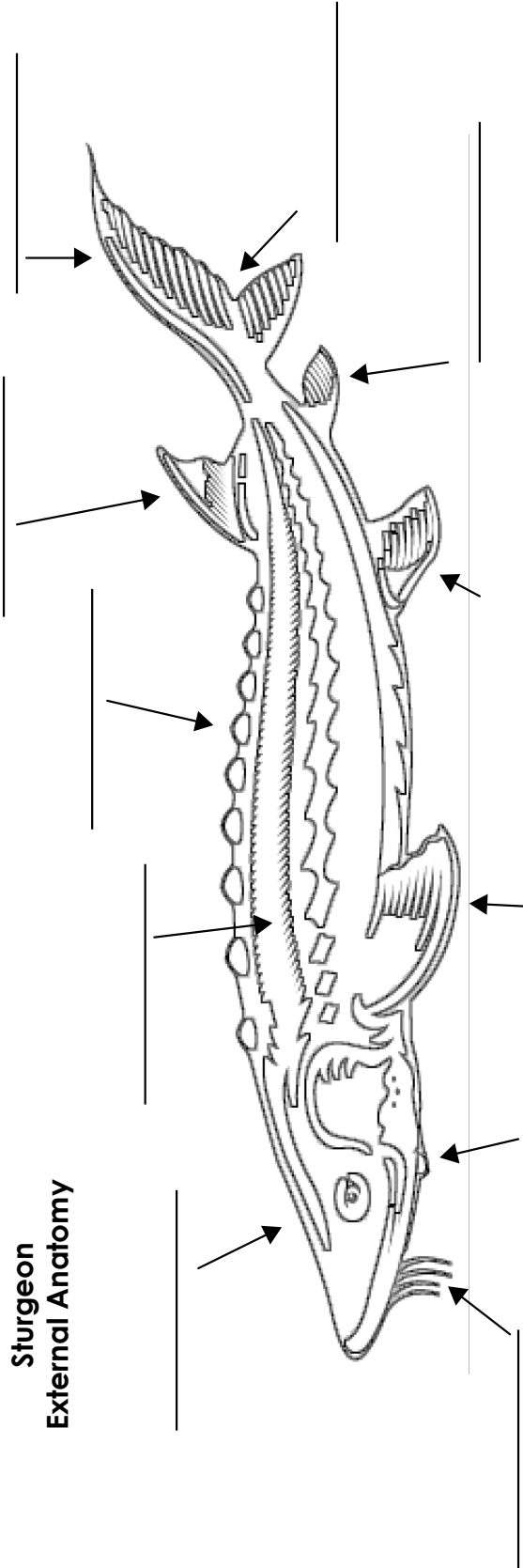
Form	Function
<b>Flattened Head</b>	Shaped for bottom feeding.
<b>Protrusible Mouth</b> - comes out of the body.	Mouth comes out of body and suctions food off the river bottom.
<b>Barbels</b> - 4 located under the head ahead of the mouth.	Sensory. Used to smell for food. Useful in murky or dark water.
<b>Dorsal Fin</b> - fin on the back of the sturgeon.	Used for stabilizing and preventing rolling.
<b>Caudal Fin - heterocercal</b> , meaning that the top is longer than the bottom.	Used for propulsion.
<b>Anal Fin</b> - located near the anus.	Used for stabilization
<b>Pelvic Fin</b> - located ahead of the anal fin.	Used for stopping and turning and movement up and down the water column
<b>Pectoral Fin</b> - fins closest to the head.	Used for stabilization and downward movement.
<b>Denticles</b> - type of small toothlike plate - no scales on a sturgeon.	Used for protection against other fish. Smooth in one direction (head to tail), rough in the opposite.
<b>Scute</b> - large sharp scales. There are five rows of scutes on the body of a sturgeon.	Used for protection. Sharper in juvenile sturgeon because they are smaller and have more chance of predation. Easy to cut your hand on a scute.

Sturgeon do not have bones, but a **cartilaginous skeleton**.

# Nechako White Sturgeon External Anatomy

Fill in the body part names of the sturgeon. Colour your sturgeon as it would look in nature.

Does the sturgeon have a bony or cartilage skeleton? \_\_\_\_\_



# Nechako White Sturgeon External Anatomy

Fill in the boxes with the body FORM and its FUNCTION.

FORM	FUNCTION