# **UNIT 4C. GOIN' FISHIN' – IDENTIFYING SALMON SPECIES**

TIME	LEVEL
60 minutes	Introductory

BENCHMARKS	
Next Generation Science Standards	LS1.A
NGSS Science & Engineering Practices	-Developing & using models
Common Core State Standards–ELA/Literacy	CCRA.R.1.
Common Core State Standards–Writing	CCRA.W.7.
Common Core State Standards–Speaking & Listening	CCRA.SL.1.
OR Social Sciences Academic Content Standards	HS.63.

#### INTRODUCTION

Have you ever picked out the face of a friend in a crowd? We recognize someone by discovering the details, which make him or her different from others; pulling them into relief from the "faceless" masses. In Goin' Fishin', students learn the major anatomical parts of a salmon, how these parts vary from one species of salmon to another, and how to recognize a coho or sockeye from other salmon (similar to picking someone out of a crowd).

In this section, students develop the skills and understanding necessary to identify five of the salmon species found in the Columbia River watershed. This activity introduces salmonid external anatomy and species characteristics through a simulation in which the student is going fishing, but has a very specific license: there are stiff penalties for catching the wrong fish. During the activity, "Goin' Fishin'...," students get to know the salmonid species by studying their similarities and differences, then devising an identification key to sort them out.

Don't forget to use your Adopt-a-Stream-Foundation's Field Guide to the Pacific Salmon as an excellent reference in this unit. Keep it with you and refer to it first when you have questions.

#### **OBJECTIVE:**

Students will become familiar with the anatomy of salmonids and identify similarities and differences among the five salmonid species

#### **MATERIALS:**

- Reference materials about salmonid species provided in this Unit
- Adopt-A-Stream Foundation's Field Guide to the Pacific Salmon
- STUDENT HANDOUT 4C-1: Goin' Fishin
- ➤ (5) STUDENT HANDOUTS 4C-2: Fish and Fish Facts
- STUDENT HANDOUT 4C-3: Sample dichotomous key

#### **KEY QUESTIONS**

- What are the parts of a salmon? Do these parts change as salmon migrate? Will I be able to recognize a salmon in the stream?
- How are salmon anatomically distinct from other fish in Northwest streams? How many kinds of salmon are there? How do I tell them apart?

VOCABULARY: (Brief definitions of vocabulary terms are found in the Glossary.):

anadromous
life cycle
Sockeye
Pink
Steelhead
physiological adaptations

#### **PROCEDURE:**

1. Before you begin this activity, review the bibliography to select reference materials for your students. Organize the reference materials that you have available, and ask your students to review the reference materials about salmonid species. Have them note the differences between the species including timing of life cycles, habitat requirements and physical features. Consider assigning one species to each group of students, who will produce an annotated poster describing the anatomy of a representative of their species. You might even ask them to write a poem or story about their species, and then present this to the class.

2. Let's go fishing...

3. Say to your students, "You are going on a most excellent fishing trip, but there are things you have to do to get ready. You've got your pole, you've got your license, and you've got your snacks and drinks. However, you have to know what kind of fish you plan to catch. Your license is very specific-- if you take home the wrong kind of fish, you could be fined lots of money!"

"Unfortunately you left this part of your preparation until last and your friends are ready to go. You have ten minutes to devise a chart or tool you can use to identify the fish that you might catch. Make your tool an instrument of identification for all the possible fish you might run into. After all, if fishing is bad, you and your friends may go somewhere else."

### **HELPFUL HINTS**

• You might want to include information about: age, color, size/weight, sex differences, and habitat, along with anything else you find helpful. Remember: too much information is just as bad as too little!

• You might ask your students to make their own fishing licenses. These licenses can have spaces for species identifications, rules and fines, and a title section. Organize the spaces for writing so that the licenses can be folded, like a brochure.

• Organize students into groups, then pass out the STUDENT HANDOUTS, and ask them to follow the directions therein.

• After your students have created their tool for identifying the fish (their key), break them into small groups. Provide each group with several pictures with STUDENT HANDOUTS 4C-2: Fish and 'Fish Facts' on the reverse. Have them take turns 'fishing' from the selection of pictures, and identifying the species that they have caught. (An alternative is to exchange tools and evaluate their ease of use in sorting and identifying pictures of salmon.)

4. Share the sample dichotomous key (STUDENT HANDOUT 4C-3) or a key from a published field guide with your students. Compare this sample key with their tools for identification. Do this in groups, or as a class discussion.

5. Identify which salmonids live in your river basin. Have students discuss the status of these fish populations. Are they listed as threatened or endangered? Students can do research through local media articles and agency publications to determine the status of salmonids in local watersheds.

#### **EVALUATION**

6. Set out "unknowns" (pictures of salmon that students haven't seen) for students to identify with their keys. You might bring in fresh fish, and have students use their keys to identify them. A good way to do this is to have groups exchange their keys, and then evaluate the facility with which they are able to use these tools to identify the fish.

Remind students that these are just examples of some individual adult fish and that there is great variation even within species. The descriptions below are contained in STUDENT HANDOUTS 4C-2, except that the student pages do not have names appended.

#### COHO:

Vital Statistics:

1. 27 inches, 11 lbs, gray mouth with white gums. Caught in shallow water.

2. 20 inches, 6 lbs, gray mouth with white gums. Caught in slower moving stream with small gravels.

3. 23 inches, 8 lbs, you've seen these fish (younger ones) in the same stream for over a year.

#### CHINOOK:

Vital Statistics:

- 1. 36 inches, 28 lbs, this is a husky looking fish. You caught this one in a very large stream.
- 2. 42 inches, 43 lbs, a monster!! You pull out a scale and count the rings... it is 7 years old!
- 3. 36 inches, 30 lbs, gray/black mouth. You caught this fish in a fast moving, deep stream.

#### SOCKEYE:

Vital Statistics:

- 1. 20 inches, 7 lbs, your fish is very red.
- 2. 18 inches, 5 lbs, you caught this fish very close to a lake.
- 3. 21 inches, 8 lbs, your fish has a dull green head and the body is turning a reddish color.

### PINK:

Vital Statistics:

1. 18 inches, 5 lbs, you caught your fish down by the coast.

2. 15 inches, 4.5 lbs, your fish has a reddish cast to it.

3. 20 inches, 6 lbs, your fish was hanging out with some very odd-looking humpbacked fish.

### CHUM:

Vital Statistics:

1. 24 inches, 7.5 lbs, you caught your fish where water was flowing pretty well and there was medium sized gravel in the stream.

2. 28 inches, 9 lbs, you caught your fish close to the ocean.

3. 30 inches, 10 lbs, your fish is greenish blue with white tips on its pelvic and anal fins.

NAME: \_\_\_\_\_

# **STUDENT HANDOUT 4C-1**

### Goin' Fishin'

### LET'S GO FISHING...

You are going on a most excellent fishing trip, but there are things you have to do to get ready. You've got your pole; you've got your license; you've got your snacks and drinks. However, you have to know what kind of fish you plan to catch. Your license is very specific and if you take home the wrong kind of fish you could be fined lots of money!

Unfortunately you left this part of your preparation until last and your friends are ready to go. You have ten (10) minutes to devise a chart or tool you can use to identify the fish that you might catch. Make your chart or tool an instrument of identification for all the possible fish you might run into; after all, if fishing is bad, you and your friends will go somewhere else.

**HELPFUL STUDENT HINTS:** You might want to include information about: age, color, size/weight, sex differences, and habitat, along with anything else you find helpful.

After your have created your tool for identifying the fish, break up into small groups. Each group has several pictures of fish with "fish facts" on the reverse. Take turns 'fishing' from the selection of pictures, and identifying the species that you have caught.

Finally, look at the sample dichotomous key that your teacher will make available. Compare the sample with your tools for identification.

# **Fish and Fish Facts**

### FISH #1:

Vital Statistics:

- 1. 27 inches, 11 lbs, gray mouth with white gums. Caught in shallow water.
- 2. 20 inches, 6 lbs, gray mouth with white gums. Caught in slower moving stream with small gravels.
- 3. 23 inches, 8 lbs, you've seen these fish (younger ones) in the same stream for over a year.



# **Fish and Fish Facts**

### FISH #2:

Vital Statistics:

- 1. 36 inches, 28 lbs, this is a husky looking fish. You caught this one in a very large stream.
- 2. 42 inches, 43 lbs, a monster!! You pull out a scale and count the rings... it is 7 years old!
- 3. 36 inches, 30 lbs, gray/black mouth. You caught this fish in a fast-moving, deep stream.



# **Fish and Fish Facts**

#### FISH #3:

Vital Statistics:

- 1. 20 inches, 7 lbs, your fish is very red.
- 2. 18 inches, 5 lbs, you caught this fish very close to a lake.
- 3. 21 inches, 8 lbs, your fish has a dull green head and the body is turning a reddish color.



# **Fish and Fish Facts**

#### FISH #4:

Vital Statistics:

- 1. 18 inches, 5 lbs, you caught your fish down by the coast.
- 2. 15 inches, 4.5 lbs, your fish has a reddish cast to it.
- 3. 20 inches, 6 lbs, your fish was hanging out with some very odd-looking humpbacked fish.



# **Fish and Fish Facts**

### FISH #5:

Vital Statistics:

- 1. 24 inches, 7.5 lbs, you caught your fish where water was flowing pretty well and there was medium sized gravel in the stream.
- 2. 28 inches, 9 lbs, you caught your fish close to the ocean.
- 3. 30 inches, 10 lbs, your fish is greenish blue with white tips on its pelvic and anal fins.



### **STUDENT HANDOUT 4C-3**

### **Dichotomous Key for Five Salmon Species**

1.	
a. Dorsal, adipose and caudal fins spotted	Go to #2
b. Dorsal, adipose and caudal fins not spotted	Go to #3
2.	
a. Caudal fin is speckled on the upper half only	Coho
b. Caudal, dorsal and adipose fins are heavily spotted	Go to #4
3.	
a. Caudal fin is divided into distinct lobes; Pectoral, anal and pelvic fins have a dark band on the tedges.	trailing <b>Chum</b>
b. Caudal fin is lobed, but less distinctly; no dark band on the edges of the pectoral, anal and cau	idal
fins	Sockeye
4.	

Note: Male salmon have a hooked upper jaw and large, bony gill covers. Some are humpbacked.

b. Male has pronounced hump......Pink