



**Gulf of Georgia Cannery National Historic Site of Canada**  
12138 Fourth Ave. Richmond B.C. V7E 3J1

## Pre-visit Package: **Seafood for Thought**

**Grade(s):** 6-8

**Duration:** 90 mins

### **PLO's:**

#### Grade 6

Social Studies

- A1 apply critical thinking skills
- D2 analyse the significance of communications technologies in Canada
- D3 evaluate effects of technology on lifestyles and environments

#### Grade 7

Science

- evaluate human impacts on local ecosystems
- assess the requirements for sustaining healthy local ecosystems

Social Studies

- A1 apply critical thinking skills

#### Grade 8

Social Studies

- analyse the effect of commerce on trade routes, settlement patterns, and cultural exchanges
- analyse how people interacted with and altered their environments, in terms of resource use

\*Can be adapted to fit Grade 4 SC PLO's: analyse simple food chains and determine how personal choices and actions have environmental consequences

\*Can be adapted to fit Grade 5 SS PLO's: E2 describe the location of natural resources within BC and Canada and E3 explain why sustainability is important

### **Goals:**

- \*Students will learn about the current health of fish stocks in the Pacific Ocean
- \*Students will analyse different fishing methods
- \*Students will identify what the major impacts of different fishing methods have on marine habitat



### **Program Summary:**

Upon arriving at the Gulf of Georgia Cannery, students will engage in the following activities under the guidance of a Cannery Interpreter:

- Fishing Methods study & discussion (Fishing on the West Coast exhibit)
- Your Choices Matter Activity (Fish Wall)
- Titanium Chef Skit

### **Pre-Visit Activities:** *(see attached worksheets)*

- Food Chain Activity
- BC Salmon Activity
- Sustainability KWL Chart

### **Resources:**

Ocean Wise, <http://www.oceanwise.ca/>

Sea Choice, <http://www.seachoice.org/>

Marine Stewardship Council, <http://www.msc.org/>

*The Life Cycle of a Salmon*, Bobbie Kalman et al

### **Post-visit Activity:**

- Sustainability Group Activity *(see explanation below & attached worksheet)*

### **Teacher Key for BC SALMON ACTIVITY:**

**Sockeye:** Summer or Fall months, Fraser River to Alaska's Bristol Bay, Commercial fishing (overfishing)

**Chum:** Summer and Fall months, Oregon to Alaska and as far afield as Japan and Korea, Logging, agriculture, road and bridge construction, and municipal development

**Pink:** July to October, California to Mackenzie River, Logging, agriculture, road and bridge construction, and municipal development

**Steelhead:** November to May or April to October, California to Alaska Panhandle, Habitat damage, forest clearing, poor survival of smolts,

**Coho:** Summer to Fall months, BC coastal streams, from California to Alaska, Commercial Fishing (overfishing)

**Chinook:** Spring months, Rivers from California to Alaska, small number in the BC and Yukon streams, Killer Whales, recreational and commercial fishers

### **SUITABILITY GROUP ACTIVITY**

Divide your students into groups of 3. Assign each group member a website and have them analyze the different aspects of seafood sustainability. Have your students fill out the following handout and then present their findings to the rest of the members of their group.



## Food Chain Activity

Name: \_\_\_\_\_

Food chains connect all organisms. If an organism's food source is changed in any way, the organism's life changes too.

Animals get energy and nutrients by eating other animals or plants.

For example

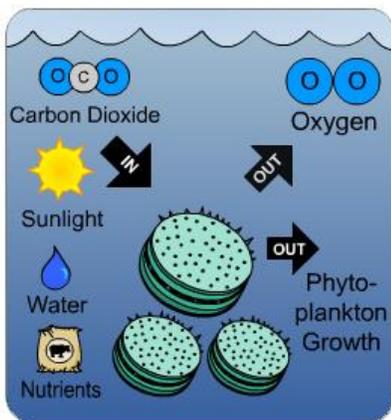
- Zooplankton eat algae
- Sardine eat zooplankton
- Tuna eat sardine
- Humans eat tuna

These links between animals and plants are called food chains.

### Changes to food chains

If one part of a food chain changes, the whole food chain is affected. For example, if a disease suddenly wiped out algae, it would affect sardines, tuna and many other animals.

Most animals and plants are part of more than one food chain.



Photosynthesis in the ocean

### Producers

Producers use light to produce their own food in a process called photosynthesis. Plants like kelp, algae, and phytoplankton are producers. They are at the start of the marine food chain.

### Consumers

Animals are called consumers because they eat other plants and animals.

### Herbivores

Herbivores are animals that eat mostly plants.

Abalone eat phytoplankton and algae.

Mussels filter their food out of the water. They eat algae, other small plants and animals and possibly bacteria that grow on pieces of plant debris.

Clams filter plankton from the water.

### Carnivores

Carnivores are animals that mostly eat other animals.



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Albacore tuna are top carnivores. They prey on schooling fish, such as sardine, anchovy, and squid. They eat an enormous amount of food to fuel their high metabolism, sometimes consuming as much as 25% of their own weight every day.

The diet of ling cod changes as the fish grows. Ling cod larvae eat zooplankton. Small juveniles living near the bottom of the water column prey upon small crustaceans. Larger juveniles shift to small fishes. Adults feed primarily on bottom fishes (including smaller lingcod), squid, octopi, and crab.

Young sturgeons eat invertebrates such as larval insects, crayfish, freshwater clams and older salmon eat fish such as herring and krill.

Spiny dogfish feed on small, schooling pelagic fish such as herring, and small invertebrates, such as shrimp, crab, and squid.

Small sablefish eat zooplankton (tiny floating animals) in their first weeks of life. Sablefish eat other fish, crustaceans, and worms as they grow older.

As juveniles, squid feed on copepods (small crustaceans). As they grow, they feed on krill and other small crustaceans, small fish, and other squid.

Juvenile halibut eat small crustaceans and other bottom-dwelling organisms. Mature halibut prey on cod, pollock, sablefish, rockfish, turbot, sculpins, other flatfish, sand lance, herring, octopus, crabs, clams, and occasionally smaller halibut.

### **Omnivores**

Omnivores are species that eat both plants and animal material as their primary food source.

Prawns and shrimp are omnivorous bottom feeders. They eat plants, marine worms, other prawns and shrimp, and protein detritus.

Sea urchins eat algae, plankton and kelp, as well as decaying matter, dead fish, sponges, mussels and barnacles.

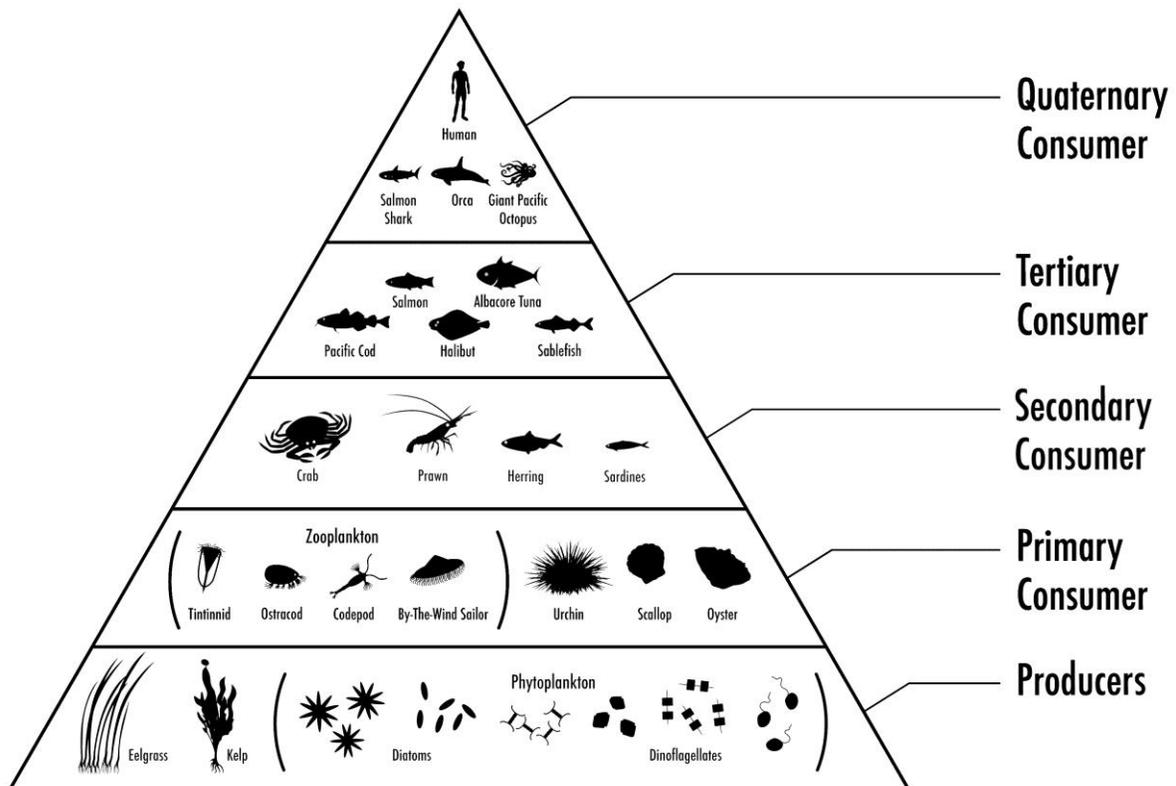
Larval rockfish feed on diatoms, dinoflagellates, tintinnids, and cladocerans, and juveniles consume copepods and euphausiids of all life stages. Adults eat demersal invertebrates and small fishes, including other species of rockfish, associated with kelp beds, rocky reefs, pinnacles, and sharp drop offs.

Young herring feed on phytoplankton and as they mature they start to consume larger organisms. Adult herring feed on zooplankton, tiny animals that are found in oceanic surface waters, and small fish and fish larvae.

Sardines eat plankton (tiny floating plants and animals).



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\*As a class, divide yourselves into 5 groups. In your group, identify the key characteristics of your organism then present your findings to the rest of the groups. Each group should research one different level of the pyramid above.



## Salmon of British Columbia

Name: \_\_\_\_\_

Use the website below to investigate British Columbia's 6 species of salmon.

<http://www.dfo-mpo.gc.ca/>

On the website search key words: *PACIFIC SALMON* and *SALMON FACTS*

Name of Species	Spawning Season	Location of Spawning	Current Threats to the Species



## Sustainability KWL Chart

Name: \_\_\_\_\_

Use the KWL Chart to identify what you already know about seafood sustainability and sustainability questions you would like answered at the Cannery. After your field trip, you can complete the last column.

K	W	L



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## **Sustainability Group Activity**

Name: \_\_\_\_\_

In groups of 3, assign one of the following websites to each group member.

Ocean Wise, <http://www.oceanwise.ca/>

Sea Choice, <http://www.seachoice.org/>

Marine Stewardship Council, <http://www.msc.org/>

Next, create and deliver a short verbal presentation to the rest of your group members regarding the purpose of your organization, what they are doing to support seafood sustainability, and how you can respond or support your organization.