



# Activity 14: Water We Eating? -Aquatic WILD-

## Age:

Grades K-12

## Time:

20-60 minute periods

## State Essential Learning Requirements:

Reading 2.1, 2.2, 3.1

Writing 2.2

Communication: 1.1, 1.2, 2.5, All of 3

Science: 1.2, 3.2

Geography: 1.1, 2.1, All of 3

Economics: 1.1, 1.2

Arts: 3.1

## Materials:

Aquatic WILD activity provided: You need pencil and paper, world map, magazines and newspapers, field trip.

## Overview:

Students visit a local supermarket or grocery and compile a list of products that originate in aquatic habitats.



## Washington adaptation provided:

Pamphlets are provided on Washington aquatic species and how they may be prepared for a meal.

## Objectives:

- To explore food sources from Washington's aquatic environment.
- To apply knowledge of Washington's aquatic life to inform the public.

## Critical Questions Addressed:

1. Value of Salmon

## Resources:

- Pamphlets on food we eat from aquatic sources in Washington

## Directions:

Create a poster or pamphlet for one species. Include in your advertisement:

- Where to find the fish/marine species.
- Describe the regulations to harvest these species.
- Precautions to take before eating.
- How to prepare the species to eat.
- Where people can go for more information.
- What the public can do to ensure more for the future.

## Extensions: Make a Difference

Use the advertisements for community awareness. Submit these advertisements/pamphlets to your local Conservation District, Cooperative Extension Agent or Fish and Wildlife Employee for display and distribution. Check your local grocery store for display space.

# WATER WE EATING?

## OBJECTIVES

Students will: 1) identify foods derived from aquatic sources and their geographic origins; and 2) describe the importance of aquatic environments as food sources. NOTE: Younger students may not identify geographic origins of foods.

## METHOD

Students visit a local supermarket or grocery (optional) and compile a list of products that originate in aquatic habitats.

## BACKGROUND

Aquatic habitats (oceans, estuaries, marshes, lakes, rivers, etc.) provide humans with a wide array of products which are sold commercially. Some of these are obvious; e.g., fish, shellfish, wild and domestic rice, and cat food. Other items like fertilizer, soup stock, watercress, water chestnuts and vitamins are not so well known. Seaweed, for example, is a source of algin, carrageenan, and agar—used as stabilizers, thickeners and emulsifiers in hundreds of food products. These seaweed derivatives are used to make the texture of things like ice cream and shampoo smooth and creamy; and to help keep ingredients like the chocolate in chocolate milk in suspension. Certain types of seaweed, which are actually forms of algae, are consumed directly by humans. For example, nori is

used in sushi, and irish moss, lauer and dulce (dulse) are used in other dishes. In another example, the meat in oysters is eaten directly by humans; oyster shells are ground up for use as calcium supplements for humans and poultry.

Another source of aquatic food products is aquaculture. Aquaculture is an ancient form of cultivating aquatic plants and animals for food. Early Egyptians raised fish for food in small ponds. Today China may have the most advanced aquaculture programs. Nearly 40% of the fish consumed in China comes from fish farms. In the United States, aquaculture produces many fish common to our markets. Perhaps as much as 99% of the rainbow trout consumed in the United States comes from aquaculture. As we use the terms, aquaculture typically refers to freshwater programs, and mariculture to marine programs, for raising aquatic plants and animals for commercial purposes. Catfish, lobster, shrimp, oysters and salmon are all examples of aquatic animals now being raised commercially through aquaculture and mariculture programs. The hatching and raising of aquatic animals for release in streams, lakes and oceans is also considered a form of either aquaculture or mariculture.

It is also important to realize that all the food we eat—whether or not it comes from an aquatic source—uses water at some time, directly or indirectly in its development, processing or distribution. Agricultural uses of water account for 33% of human use of water in the United States. That means that over 600 gallons per day for each person in the United States is being diverted by irrigation and livestock use from the natural aquatic sources. It takes about 40 gallons of water to produce a single egg, 80 gallons per ear of corn, and 2,500 gallons for one pound of beef.

This activity does not specifically address potential ethical questions which may be raised concerning human aquaculture and mariculture practices. It is designed to focus on students' recognizing the role of water in the production of foods, including from aquatic environments.

**Age:** Grades K-12

**Subjects:** Social Studies, Science, Health

**Skills:** analysis, classification, description, discussion, drawing (younger students), identification, inference, listing, mapping, media construction (younger students), observation, psychomotor development (younger students), reading, research, small group work, synthesis, writing

**Duration:** one or two 20 to 60-minute periods; additional time if field trip is included

**Group Size:** any

**Setting:** indoors

**Conceptual Framework Reference:** V.A., V.A.1., V.A.2., V.A.3., V.A.5., V.B., V.B.1., VI.A., VI.A.1., VI.A.2., VI.A.3., VI.A.4., VI.A.5., VI.B., VI.C., VI.D., VI.D.1., VI.D.2., VI.D.3., VI.D.4., VII.A., VII.A.1., VII.A.2., VII.A.3., VII.A.4., VII.B., VII.B.1., VII.B.2., VII.B.3., VII.B.7.

**Key Vocabulary:** food, aquaculture, mariculture

**Appendices:** Local Resources

3. Compile a master list of aquatically-derived products. If necessary, do research to answer the following: Where do they come from? How are they obtained? Where and how are these products processed? How are they used?
4. On a world map locate the origins of as many items on the list above as possible.
5. Have a discussion or brainstorm a list of natural and human activities that impact the availability of aquatic food products.
6. Summarize the lesson by emphasizing how much every aspect of our lives depends upon aquatic environments. Point out that aquatic environments not only provide us with all the products the students listed, but they provide the natural homes for countless life forms.

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### ***EXTENSIONS***

1. Research aquaculture and mariculture. Compare the food produced by each to the food produced through commercial fishing. What kinds are produced by each? What impacts, if any, are there on populations of fish and shellfish as a result of each approach?
2. Determine how agriculture, and particularly irrigation, affects natural aquatic habitats.
3. Compare aquatic products found in conventional markets in the United States with products found in markets specializing in foods from Asia. (Japan, China, Philippines, Viet Nam, etc.)
4. Classify the aquatic food products according to the kinds of aquatic habitats in which they are found: salt-water (ocean, estuary, marsh, etc.) and freshwater (lake, pond, stream, river, etc.)

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### ***EVALUATION***

1. Name five specific foods derived directly from aquatic sources. List their country or region of origin.
2. Name an aquatic plant or aquatic animal that you can find in a local store and that is also found growing or living in your state.
3. Name an aquatic product that is used in food production but is not necessarily eaten directly. How is it used?
4. Describe three ways that aquatic habitats are important to humans as food sources.



## Water We Eating? -Aquatic WILD- Student Worksheet

### Resources:

- Pamphlets on food we eat from aquatic sources in Washington

### Directions:

Create a poster or pamphlet for one species. Include in your advertisement:

- Where to find the fish/marine species.
- Describe the regulations to harvest these species.
- Precautions to take before eating.
- How to prepare the species to eat.
- Where people can go for more information.
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