

# Farms Underwater?

**Objective:** Students will broaden their understanding of the origins and production of food as they gain familiarity with oysters, a Marin agricultural product.

**Summary:** Students will initially explore oysters in varied states then, through discussion, learn about culture and marketing.

**Time:** 1½ hours

**Student Grouping:** Whole class

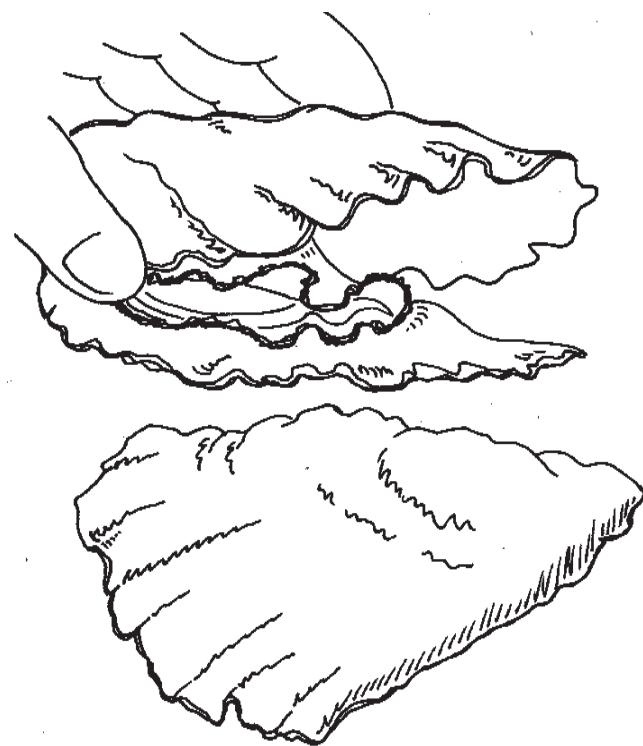
**Materials:** One package (about 30) of shelled oysters (frozen or fresh), three raw oysters in the shell, one tin of smoked oysters and one jar of oysters, a stout knife (an oyster knife if you have one) for opening the fresh oysters, plates or bowls to put oysters on for observation, recipe ingredients, cooking and eating utensils, pan for recipe below, towels or napkins for drips.

**Background Information:** The food and clothing we use every day have a long history before we encounter them. To get them from a raw state to us, many people are employed and many processes are undertaken. Processes, people, packaging and transportation are all parts of agriculture that we generally take for granted as we go through each day. One type of agriculture that people are not generally familiar with is aquaculture. Aquaculture is growing food in the water. Finfish, shellfish and various kinds of kelp are grown in water. Here in Marin County, oysters have been grown in Tomales Bay and Drakes Estero commercially since the 1870s.

**Marin Ag. Facts:** Humboldt County is the only place in California that produces more shellfish (oysters and mussels) than Marin County. There are variations in cultivation methods, but oyster farmers generally buy baby oysters from a farm specializing in the production of the young shellfish. These baby oysters, called "seed," are placed in fine mesh net bags in the bay where they filter microscopic algae, their food, out of the water. As they grow, oyster farmers keep them from growing together into clumps and transfer them to progressively larger bags with coarser mesh. The more bay water that can circulate through these bags, the more algae is available to the oysters to eat, allowing them to grow big and tasty. Once large enough, they are harvested and sold as oysters in the shell. Oysters that will be sold smoked or processed in some way don't have to be bagged and are commonly grown on oyster shells attached to ropes hanging from submerged racks. They are allowed to clump together and don't need to be transferred from bag to bag. When harvested, they are cracked open and processed (smoked, canned, bottled and/or frozen).

Many local restaurants like to buy our local Tomales Bay and Drakes Estero oysters. In recent years, as few as 7 farms could produce almost 8 million pounds of oysters that were worth about \$2.5 million!

*Opening a fresh oyster:* Fresh oysters must be kept cool and moist to remain alive. Hold the oyster in your palm (preferably wearing a heavy glove) with deep portion of shell down. Working over a towel or bowl, insert the knife at the hinge, turning and prying until you break the hinge. Insert the knife along the flatter shell far enough to cut the muscles holding the shells together. Cut the oyster free of its shell and put it into a bowl for observation.





**FOOD FOR THOUGHT** □ Agricultural Classroom Activities for Growing Minds

## Preparation:

1. Decide which of the following recipes you will use and collect all materials.
  2. You may want to try opening an oyster if you have never done this before. A sturdy blade is more important than a sharp one. An oyster knife will help and be safer.

## Procedure:

1. Have students look at all three types of oysters. Encourage them to tell what they know about them. Mention the packaging and encourage discussion about that as well.
  2. Open containers and place them where everyone has access to them. Open the raw oysters where students can watch.
  3. Have students explore each type of oyster. Assign several students the task of keeping notes of observations on the chalkboard: appearance, smell, taste (optional), etc. Have note-takers work in shifts so all can make observations.
  4. Cook one of the oyster recipes.
  5. As it bakes/simmers, look at the ingredients as a whole class and discuss with students where they came from: Milk from store—came from creamery—came from

<b>“Baked Oysters”</b>	<b>Recipes</b>	<b>“Oyster Stew”</b>
2 pints oysters		Put in saucepan:
Mix:		4 tablespoons butter
1 cup bread crumbs		$\frac{1}{2}$ teaspoon Worcestershire sauce
2 cups cracker crumbs		1 teaspoon celery salt
1 cup melted butter		Cook slowly 5 minutes.
Put a thin layer of crumb mixture in a shallow buttered baking dish.	Add:	
Cover with half the oysters.		1 pint oysters
Sprinkle with salt and pepper.	Heat gently until the oyster edges start to curl.	
Add:	Add, if there is any:	
4 tablespoons oyster liquid or clam juice		oyster liquid
2 tablespoons milk or cream	Season with:	
Repeat layers. Cover the top with the rest of the crumbs. Bake 20 minutes at 450°.		salt and pepper
Makes 8 dinner-size servings, enough for 30 small tastes.	Makes 4 dinner-size servings, enough for 30 small tastes.	

dairy—cow milked; or, bread from store—purchased from bakery—flour bought, made at a mill—wheat from farm—grown with sunshine, soil and water.

## Questions for Discussion:

- What is involved in agriculture besides growing food on a farm?
  - What kinds of jobs are involved in agriculture?
  - Do you know anyone who works in an agriculture-related job?
  - How did you like the oysters? Why?
  - Do you know any other types of agriculture here in Marin County?

## Extensions:

- Follow up with “Life Story of a Lunch” activity on page 77.
  - Repeat the procedure with another agricultural product such as locally grown beef or milk products.
  - Provide copies of oyster recipes for students to share with their families.

## *Recipes*

## “Oyster Stew”

Put in saucepan:

4 tablespoons butter

$\frac{1}{2}$  teaspoon Worcestershire sauce

1 teaspoon celery salt

Cook slowly 5 minutes.

Add:

1 pint oysters

Heat gently until the oyster edges start to curl.

Add, if there is any:

oyster liquid

Season with:

salt and pepper

Makes 4 dinner-size servings, enough for 30 small tastes.

