

# Fish Farming in Iowa?

## Grade Level(s)

3<sup>rd</sup> grade

## Estimated Time

30 minutes

## Purpose

Students will explore diversity in agriculture through a fun lesson about fish farming, comparing fish farming in Iowa to raising fish in Florida.

## Materials

### ▪Links:

Website with virtual resources: [www.linncoag.com](http://www.linncoag.com) -2020/21 virtual learning drop down tab- February

Instructional video: [Iowa Fish Farms - YouTube](#)

Iowa fish FarmChat: Eagle's Catch Tilapia  
<https://www.youtube.com/watch?v=8EA04bxH7uk>

Drive Through Florida Ag Mag <https://faitc.org/wp-content/uploads/2018/04/Drive-through-FL-Seafood-v9-ilovepdf-compressed-2.pdf>

Optional Iowa shrimp FarmChat  
<https://www.youtube.com/watch?v=ALN23lMOXaE&list=PL6fqYHxqQAnltohm6nIKuE6g6173TPywO&index=12>

### ▪Worksheets:

Research flyer guidelines worksheet

### ▪Other:

Tablets

PowerPoint review quiz

## Vocabulary

**Aquaculture:** the cultivation of aquatic organisms (such as fish or shellfish) especially for food

**Fish farm:** a place where fish are artificially bred or cultivated for food, restocking lakes for angling, or to supply aquariums

**Overfishing:** to fish to the detriment of a fishing ground or to the depletion of a kind of organism

**Seafood:** shellfish and sea fish served as food

**Sustainability:** relating to, or being a method of harvesting or using a resource so that the resource is not depleted or permanently damaged

**Wild-caught:** taken from the wild rather than being bred from domestic stock

## Interest Approach – Engagement

Watch the Iowa Fish FarmChat <https://www.youtube.com/watch?v=8EA04bxH7uk>

- What kind of fish was Eagle's Catch raising?
- How did they care for the fish?
- Where do they sell the fish once they are market size?
- What other fun facts did you learn from the video?

## Background - Agricultural Connections

Did You Know? (Ag Facts)

- Shrimp is the #1 consumed seafood in the United States. Canned tuna and salmon are second and third.
- In the United States the term *seafood* refers to all edible aquatic life and can include both salt-water and fresh-water species.
- Seafood is a nutrient-dense source of dietary protein that is relatively low in calories and saturated fat compared to some other protein sources.
- USDA's MyPlate dietary guidelines recommend two servings of seafood per week.

**Seafood** (fish and shellfish) are a nutrient-dense source of dietary protein. Compared to other sources of protein, seafood is low in calories and saturated fat and rich in key nutrients including zinc, magnesium, phosphorous, potassium, and vitamins A, B12, and D. Seafood is also a primary food source of omega-3 fatty acids, EPA, and DHA.<sup>3</sup> The American Heart Association and the Dietary Guidelines for Americans recommends eating two, 3.5 ounce servings of fish per week.<sup>4</sup>

The seafood we purchase at retail markets can come from a variety of sources. **Aquaculture** is the farming of aquatic organisms such as fish, **crustaceans**, **mollusks**, and aquatic plants. **Fish-farming** can involve raising fish commercially in tanks or other man-made enclosures such as ponds or concrete fish runs. These farms manage their water (flow, oxygen levels, etc.) and the growth of fish from the fertilization of eggs until harvest. Other fish farms follow similar principles, but use a cage system in a natural water source such as a lake or ocean. These farms use the same water and habitat as wild fish, but keep their fish in separate enclosures. Regardless of the type of system, it is considered a *farm* if humans manage the breeding, feeding, and growth of the fish. In the United States, trout and catfish are the most commonly farmed fish species. World-wide, the seafood most commonly farmed are shrimp and salmon.<sup>5</sup>

Some of the seafood we eat is supplied through fishing. This seafood is usually labeled as **wild-caught** and is harvested using nets, trawls, or other devices. Wild harvest commercial fishermen work closely with government agencies to help ensure that wild

stocks are not **overfished** in US waters. The National Marine Fisheries Service identifies areas considered essential to living marine resources and regulates the use of these areas so that the habitats remain healthy, sustainable, and productive. Although many waters are managed through quotas on the number of fish that can be caught and restrictions on the size of fish that can be harvested, the breeding, feeding, and growth of the fish are not managed by humans in any way.

Many species of fish and shellfish can be raised on farms or caught from the wild. The dietary value of fish resulting from both (farmed or wild-caught) production methods is equal. In addition to a dietary comparison, a look at the environmental impacts of each system is critical to maintaining the long-term **sustainability** of fish farming and wild-caught fisheries. It is estimated that wild-caught fisheries have reached their maximum sustainable yield, while the world's appetite for seafood is growing.<sup>6</sup>

One solution to this challenge is the aquaculture industry, which can satisfy the growing demand for seafood in an environmentally friendly and sustainable manner. US aquaculture operations raise fish such as trout, tilapia, barramundi, and cobia that can replace more familiar species on menus yet still meet customers' wants and needs. Other farms are raising traditional marine species such as cod, flounder, and halibut. The availability of these species from farms allows consumers to access their favorite seafood while wild fish stocks recover.

## **Procedures**

1. Watch the instructional video- link provided above.
2. Instruct the students individually or as a group to spend some time reading the “Drive Through Florida Ag Mag” <https://faitc.org/wp-content/uploads/2018/04/Drive-through-FL-Seafood-v9-ilovepdf-compressed-2.pdf>
3. Pass out the mini-poster guidelines worksheet.
  - Create a mini poster showcasing what you learned from the Iowa FarmChat and Florida Ag Mag. Be sure to answer the following questions:
    - A. What is fish farming?
    - B. Describe one type of fish farm
    - C. 1-2 fun facts
    - D. Choose a seafood of choice; draw a picture and explain the route from water to plate.
4. PowerPoint review game: Instruct the students to hold up their answers using the shapes corresponding with their answer of choice. Shapes provided in the kit or online. Quiz answers are in the PowerPoint.

## **Organization Affiliation**

Lesson adapted from NATIC Overfishing and aquaculture lesson.

Morgan Hibbs, Linn County Farm Bureau

## **Agriculture Literacy Outcomes**

T2.3-5.e Understand the concept of stewardship and identify ways farmers/ranchers care for soil, water, plants and animals.

T1.3-5.a Describe similarities and differences between managed and natural systems.

**Iowa/ Common Core Standards**

3-LS2-1. Construct and argument that some animals form groups that help members survive.

3-LS4-3. Construct and argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there many change.