



Fish out of Water

Lessons, Games, and Activities That Bring the Ocean to the Classroom

Our Island

Martha's Vineyard, called "Noepe" or "In the Midst of the Sea" by the Wampanoag Tribe, is 20 miles long & 9 miles wide, and hosts 6 distinctive towns, each with its own character. From the 1900s to the 1950s, more than 50 percent of the land was in farming, and up to a dozen farms supplied all of the milk, most of the eggs, and some of the meat consumed by Islanders and summer residents. Today, the Island hosts 3 dozen produce farms, several with meat and dairy offerings, and a new shellfish farm industry. Take a drive, bike or long walk to explore the bounty the Island offers, experiencing the stories and heritage of the Island - first hand.



- Farms that sell by appointment or through retailers
- Farms with farm stands, farm stores
- seafood markets

2017 SEASON

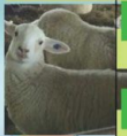
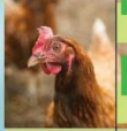
West Tisbury Farmer's Market
 summer market
 1027 State Road, Grange Hall
 Sat., June 10 - Oct 7: 9am-12pm
 Wed., June 21 - Aug 30: 9am-12pm
 winter market
 35 Panhandle Rd, Agricultural Hall
 Sat., Oct 14 - Dec 16: 10am-1pm
 except November 25

- 011 | Menemsha Oysters
- 012 | Creekville Oyster Company
- 013 | Menemsha Mussels
- 014 | Chilmark Oysters



farm stands where meat or dairy are available for purchase:

- Allen Farm
- Blackwater Farm
- Beetlebung Farm Meat
- Cleveland Farm
- Ghost Island Farm
- Mermaid Farm and Dairy
- Morning Glory Farm
- Native Earth Teaching Farm
- North Tabor Farm
- The FARM Institute
- The Grey Barn and Farm
- The Wandering Farm



- 09 | Cottage City Oysters*
- 010 | Wild Caught Shellfish

- 01 | Bluemoon Oysters
- 02 | Sweet Neck Oysters
- 03 | Roysters
- 04 | Spearpoint Oysters
- 05 | Honeysuckle Oyster Farm
- 06 | D & E Oyster Farm
- 07 | Long Point Oyster Farm
- 08 | Signature Oysters

* Farm.Field.Sea. and select Island farms & Oyster growers offer tours. Check individual listings for information.

Our Island



photo by Michael Berwind





School Seafood Celebrations

Chilmark School



Chilmark School



Chilmark School



West Tisbury School



West Tisbury School





Curriculum Connections

An introductory sequence to bring ocean education into your existing farm and garden curriculum.

1. Fish Anatomy

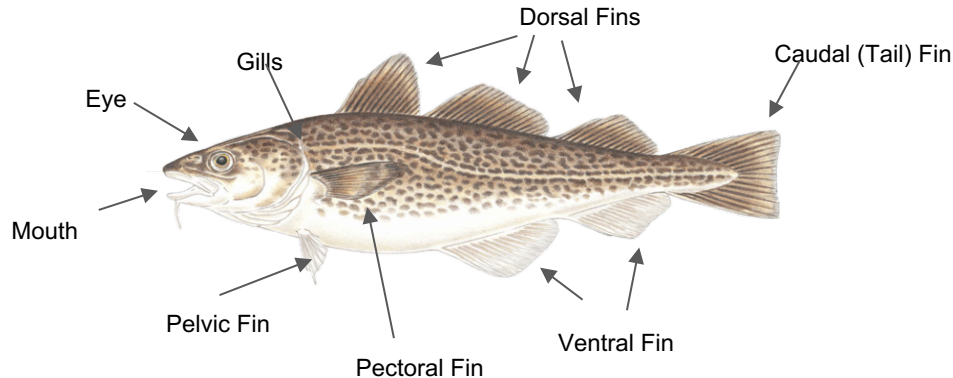
Where does our food come from?

Trees, the ground, farms, forests...and yes, the ocean! Do you eat fish, shellfish, or seaweed?

For now, let's focus on fish. How are fish different from the other animals we use for food?

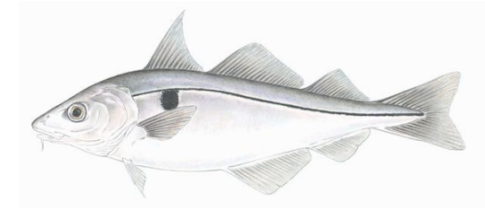
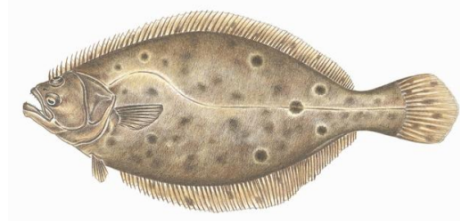
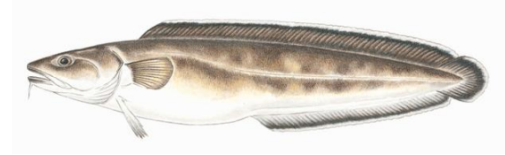
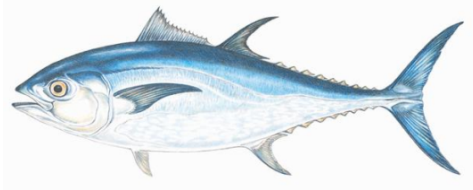
Fish live in water, which means they have adapted to live in a different environment than cows, sheep, pigs, chickens, and the other land animals we tend to find on farms. This means that fish are built differently than land animals!

To start our lesson, we are going to build our very own fish!



1. Fish Anatomy

Now that we know the basic parts of a fish's anatomy, could we use those parts to identify some types of fish that are caught in Massachusetts?



Now we know the parts of a fish, and some types of fish caught in Massachusetts!

Based on their anatomy, we can probably all agree that fish are pretty different from the other animals we commonly use for food. Can we think of any more ways that fish may be different from other farm animals? How about ways in which they are similar?

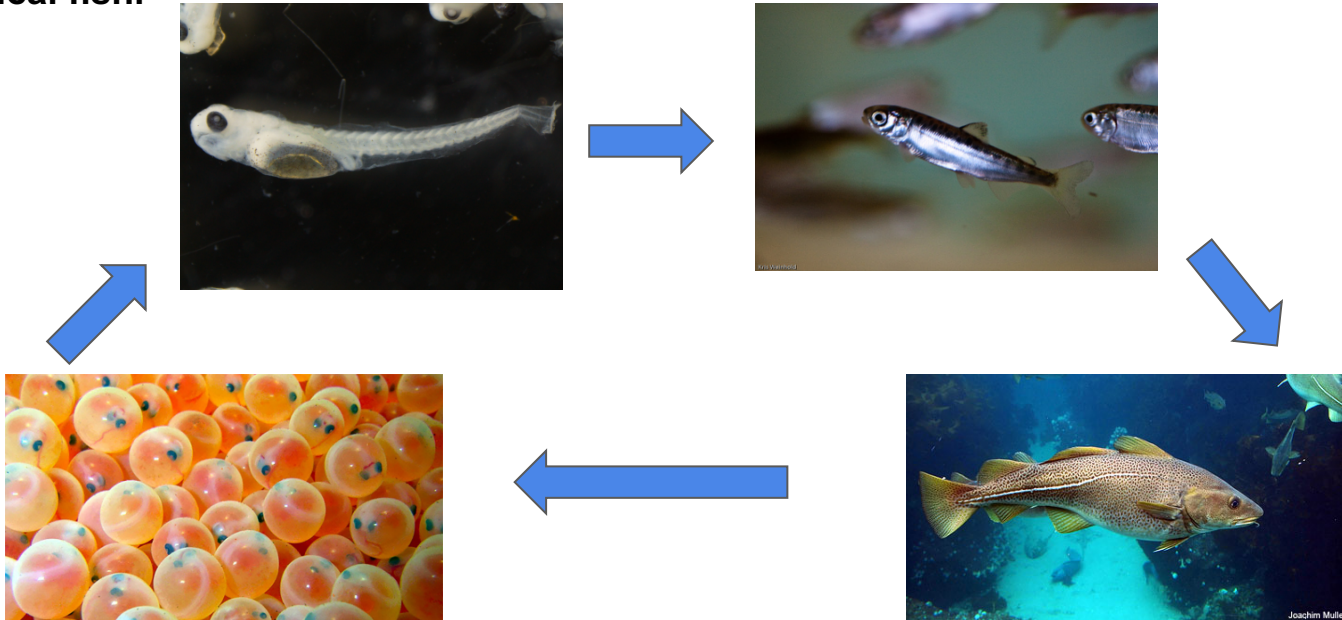


2. The Lifecycle of Fish

In our last lesson, we used anatomy to explore how fish are different from other types of animals we use for food. Can we think of ways in which fish are similar?

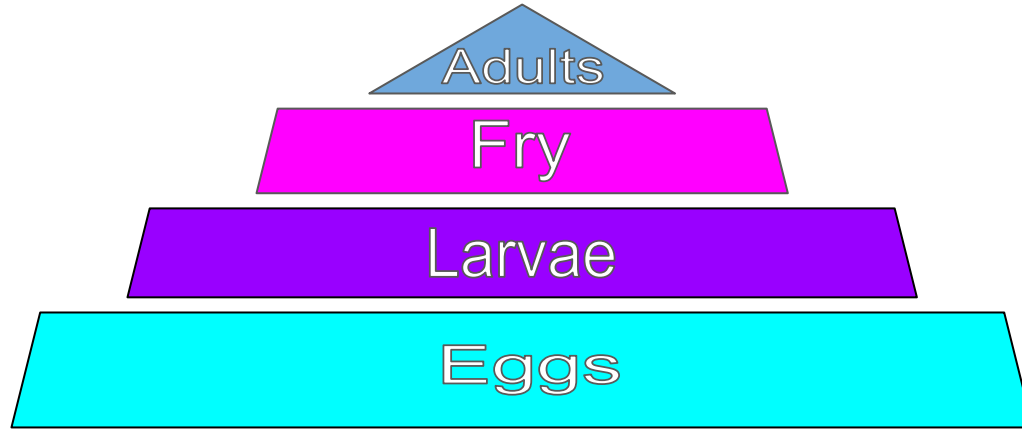
As it turns out, fish have at least one thing in common with chickens, and other birds we might find on a farm. Can anyone think of what that one thing could be?

Most fish are hatched from eggs! Let's start this lesson by exploring the life cycle of a typical fish.



2. The Lifecycle of Fish

Now that we've seen the life cycle of a fish, let's run a simulation to show how this life cycle plays out in nature...



Do we think this simulation was accurate? Why do we think there was the smallest number of adults by the end of the simulation? In the ocean, why do you think there would be fewer adults than eggs, larvae, or fry?

Think about this information. Have we thought about human involvement in this balance? What happens when we fish for food?



3. Overfishing

In our last class, we looked at the life cycle of fish and how that life cycle tends to play out in nature. Today, we'll be looking at how fishing could affect that life cycle.

Like last class, we will use a simulation to help us understand how different methods of fishing impact local fisheries.



Look at this bountiful fishery!



3. Overfishing

Compare your numbers for each method and style of fishing. What trends do we see? Did each group have a round where they harvested an entire species from their fishery?

This is called overfishing, and it is rapidly destroying our ocean ecosystems. Can we think of some ways to help prevent, or even reverse overfishing?

OVER-FISHING: WHY IT HAPPENS AND HOW TO STOP IT

Most of the world's countries are over-fishing their waters, or taking more fish than can naturally be replaced. As a result, the amount of fish caught worldwide peaked in the 1990s and has since declined by 8%.

The good news is that marine ecosystems can rebound relatively quickly if caught in time. Implementing proper management practices can increase the number of fish in the ocean by 50%. That's why Bloomberg Philanthropies is partnering with Rare, Oceana and EKO Asset Management Partners to reform fishing practices in key areas around the world, helping to restore fish populations and meet the dietary needs of a growing global population.

Factors that lead to over-fishing:

- 2x** **Too Much Capacity:** Industrial ships are able to catch two times more fish than there are fish available in the ocean, creating a race to the bottom as more vessels compete for fewer fish.
- Destructive Habits:** Fishing practices such as bottom-trawling, or dragging a heavy net along the ocean floor, and using dynamite and cyanide are dangerous ways to catch fish that do substantial harm to marine life and coral reefs.
- Weak Governance:** Limits on the number of fish that can be caught are often set too high or do not exist at all, leading to over-fishing that diminishes fish stocks and prevents fish from repopulating.

Strategies that protect against over-fishing:

- Controlled Access:** Controlling the number and type of fishing vessels helps to level the field for fishers and prevent depletion of fish populations.
- Protected Areas:** Creating protected areas where fish are allowed to reproduce unharmed from all fishing means more fish for local and industrial fishers in the long run.
- Catch Limits:** Introducing science-based limits to set a maximum amount of fish that can be caught in a particular area helps ensure there are enough fish left in the ocean to repopulate.

Learn more at www.bloomberg.org

Bloomberg Philanthropies



Thank you!

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<http://www.islandgrownschools.org/curriculum-toolkit>