**Aquaculture Timeline**

**Topic:** History

**Time:** 30 minutes

**Materials:** Aquaculture Time Materials (print and cut ahead of time)

**Goals:**

* Students will understand that aquaculture (AQ) has existed for millennia across various cultures and that aquaculture technology continues to evolve.
* Students will be able to list different species of organisms which are commercially grown in aquaculture.

**Background Information**

* AQ has been practiced for millennia, primarily for food (mostly protein), but now the majority is for other uses: fertilizer, animal (terrestrial + aquatic), feed, food additives, industrial chemicals, pharmaceuticals, cosmetics, fuels, and pets
	+ Humans commonly populated the world by choosing locations with fresh/saltwater access for aquatic food
* Global context of Aquaculture
	+ AQ provides about 1/6 of of the world’s consumed protein (mariculture provides about ½ of this ⅙); wild-capture fisheries another ⅙; the remaining ⅔ from agriculture
	+ Most world AQ is:
		- Land-based fresh water (mostly human-made inland ponds)
		- Fish (54m tons total in 2020: mostly carp, then tilapia)
			* …vs. 60m tons from wild-capture fisheries
			* …vs. 600m tons from agriculture
		- In Asia (China produces 60% of global AQ; also India, Indonesia, Vietnam, Bangladesh, Myanmar). Also Egypt, Chile, Norway, Scotland
* But the US (and Maine) are relatively late to diversely scaled AQ production
	+ US AQ is low volume (16 of top 20 global producers)
	+ US AQ is limited species (catfish, shrimp, other freshwater species; shellfish, seaweed; salmon)
	+ US AQ imports 85% of its seafood
	+ Maine has access to the biologically rich Gulf of Maine (nutrients and flushing from numerous rivers, Gulf Stream, and Bay Fundy) and a particular seafood/aquaculture brand: “cold, clear waters of the Gulf of Maine”

**Activity**

1. Lay out years in chronological order to create a physical timeline.
2. Have students work together to put events next to what they believe is the corresponding year.
	1. Throughout the process encourage discussion about what species can be cultured, why they are cultured, and aquaculture technology. What similarities do aquaculture and agriculture have?
3. Review the aquaculture timeline, starting from the earliest date. Pull out incorrect answers(many connections will be incorrect). Continue pulling out incorrect AQ events until you are half-way through the timeline, then allow the group to reassess and move around events to new connection points.
4. Review the timeline again, connecting all events to the corresponding point in time.
5. Closing discussion
	1. Which country has shown the greatest (landings and/or value) recent growth with aquaculture? Who has been doing it the longest? Any thoughts why that is?
	2. What is the role of aquaculture in meeting global seafood demand? Is it likely to keep up with a growing population? What might need to change?
	3. What event surprised you the most to learn when it occurred?
	4. How have general aquaculture practices changed over time due to pressures of market and environmental regulation?
	5. What environmental regulations would the students impose on the industry?

**Resources**

Maine Aquaculture Innovation Center: [Recent Timeline of Aquaculture in Maine](https://www.maineaquaculture.org/industry/)

Food and Agriculture Organization of the United Nations: [2018 State of the World’s Fisheries and Aquaculture](https://www.fao.org/3/i9540en/i9540en.pdf)