



DIGITAL EDUCATION

Cornell Cooperative Extension | Marine Program

Teacher/Student Resources

HARD CLAM

Mercenaria mercenaria

Topics and Keywords

(Define these words first, or refer to the **Glossary** on the last page)

Science and Technology

Bivalves

Filter feeders

Environmental Problems

Molluscs

Habitats

Life cycles

Food web/Food chain

Aquaculture

Population ecology

Spawning/Reproduction

WATCH

Ripple effect: Cornell helps restore Long Island's shellfish

<https://news.cornell.edu/preview-link/node/313296/b74acb56-4ab9-4f42-8fa0-998fea1f2a12>

Explore the ecology and importance of the Hard Clam. Find out how CCE is using aquaculture to help raise millions of clams and help the wild population bounce back.

RESPOND

Answer (can be completed by watching the video and reading included fact sheets)

What type of animal are clams?

- Molluscs
- Fish
- Vertebrates (have a backbone)
- They are plants, not animals

Where do hard clams live in the beach habitat?

- Resting on the sand, hiding in eel grass
- Swimming around in the water
- Clinging to rocks
- Burrowed under the sand or mud

Which describes how clams eat?

- Herbivores
- Scavengers
- Predators
- Filter feeders

The name "bivalve" characterizes clams as having...

- One shell
- Two shells
- An internal skeleton
- Two hearts

What caused the hard clam population to decline?

- Overharvesting
- Water pollution
- Food chain imbalance
- All of the above

What is the goal of the Long Island Shellfish Restoration Project?

How do filter feeders keep our local bay water clean?

What is aquaculture?



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Discuss (encourage collaboration, debate, and critical thinking based on video and fact sheets)

Brainstorm all the ways clams and oysters are important to you and to other animals in nature.

As explained in the video, Cornell Cooperative Extension is raising millions of clams and planting them in sanctuary sites, protected areas where people are not allowed to harvest them. How will this help the wild population grow and succeed? Think about clam reproduction, spawning. How will this help baymen (clambers) who rely on clamming for income?

If you were in charge of local government, what else would you do to make sure our clam population continues to grow and stay healthy?

What can you do as a citizen to help the clam population?

CCE is raising shellfish through a process called Aquaculture. If agriculture, is raising crops and animals on land, what do you think Aquaculture means? What might be similar or different between aquaculture and agriculture.

Explore and Create (encourage gathering of additional information beyond the video and fact sheets)

Learn more about the history of the hard clam and shellfish industry on Long Island by reading this essay.
http://www.longislandtraditions.org/southshore/sights_sounds/fishing/pdf/kassner_essay.pdf

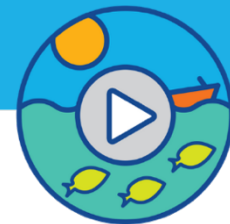
Research some of the predators of hard clams. Draw a food chain or food web that includes the Hard Clam, or other bivalves. Include at least one primary producer, primary consumer, secondary consumer, and top predator. (If you constructed the previous Osprey or Alewife food web, you can simply add the clam!)

Research and draw a diagram of the hard clam Life Cycle. Include the male and female spawning adults, eggs, veliger (swimming) larvae, and juvenile baby clams.

Research the life style and life cycles of oysters, scallops, and/or mussels, which are also bivalves. Are they also filter feeders, like their clam cousins? Compare how clams move and where they live to how other bivalves move and live.

Check back each week for a new topic! <http://ccesuffolk.org/marine/digitalEd>





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GLOSSARY

- A) Bivalve – a group of molluscs that have two shells and feed on algae and plankton by filter feeding. Includes clams, oysters, mussels, and scallops.
- B) Filter Feeder – an animal that gets food by taking in water and filtering out microscopic organisms like zooplankton and algae
- C) Food web – a complex network of predator-prey interactions in an ecosystem
- D) Life Cycle – the ordered stages of development of an organism, beginning with a fertilized egg, progressing through adult hood, and restarting with reproduction.
- E) Mollusc – a group (phylum) of animals characterized by their soft bodies, usually protected by a hard, limestone shell. Includes snails, bivalves, and cephalopods (octopus and squid)
- F) Population – the total number of a certain species, such as the hard clam, that live in a given area.
- G) Spawning – reproduction in aquatic animals in which millions of sperm and eggs are released into the water for fertilization

