



# WATER QUALITY

## THE ROLE OF BIVALVES

Bivalves are marine mollusks that have 2 shells. They are all "filter feeders," which feed on microscopic algae in the water. Filter feeders play an important role in our local bays by helping to keep the water clean and clear. Let's learn about some of them!

### Clams



Local clams are diverse. They all burrow under mud or sand using a muscular foot. Clams filter feed by extending only their siphon to the surface. Hard clams (shown here) are most popular for eating. Soft-shell, jack-knife, and surf clams are also abundant in local habitats.

### Oysters



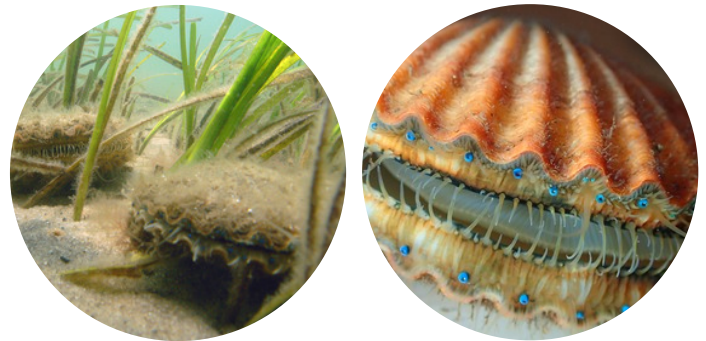
Young oysters called spat, glue themselves down on a solid surface and never move again. Once abundant, oysters would cement themselves together, forming large oyster reefs that protected against erosion. They are some of the fastest filter feeders around. A single oyster can filter up to 50 gallons of water per day.

### Mussels

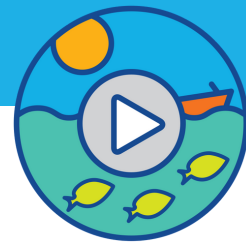


Mussels attach to rocks using byssal threads. There are 2 species of mussels on Long Island. The blue mussel (left) is delicious eating and prefers cleaner well circulated water. Ribbed mussels (right) are less appetizing. They live among the grass roots in salt marshes, helping to filter water running off of the land, before entering the bays.

### Scallops

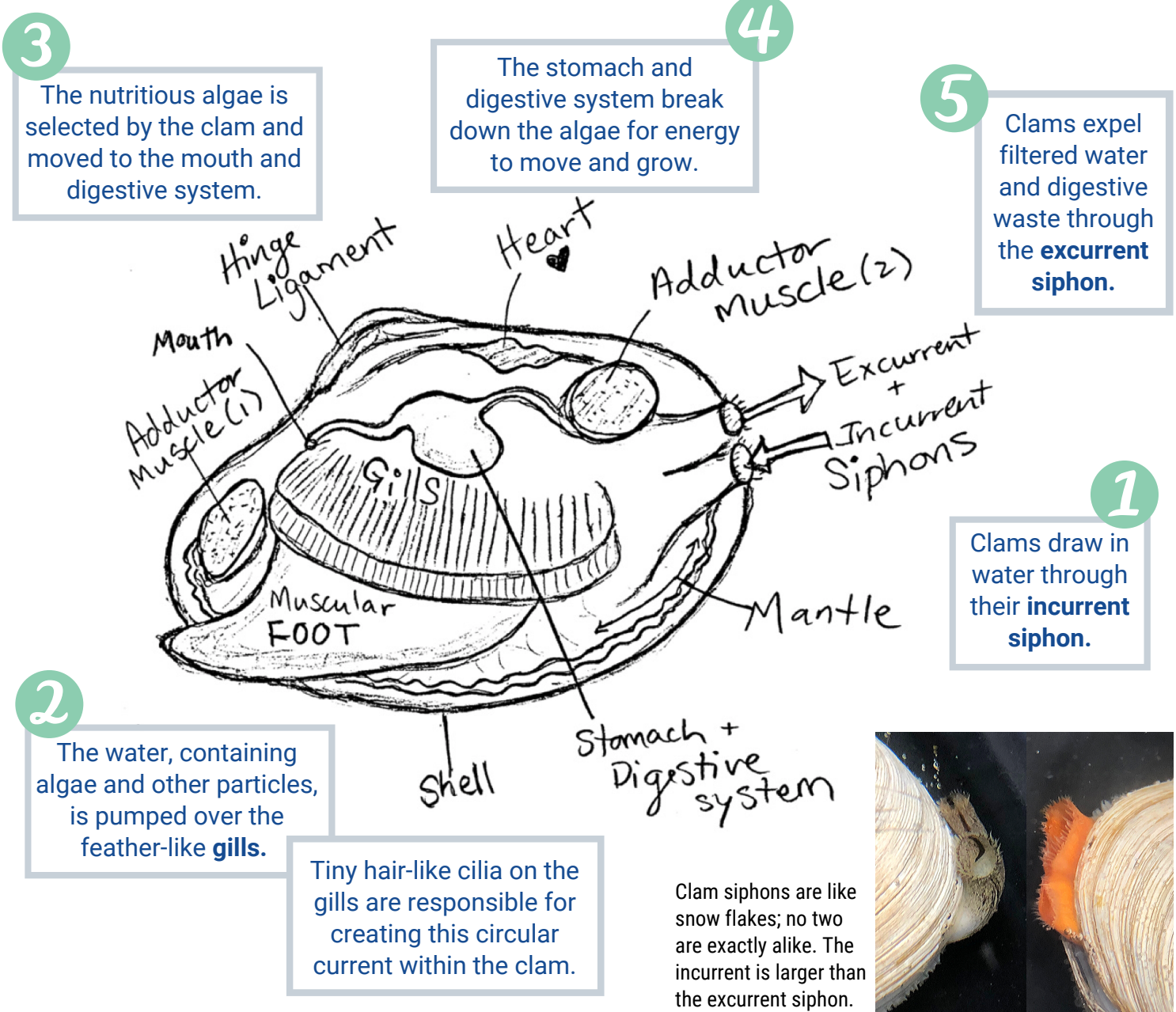


There are 2 types of scallops around Long Island. The larger sea scallop lives in deep offshore water. The smaller, ridged, bay scallop (shown here) is an essential filter feeder in our bays. They prefer to hide from predators in eelgrass meadows. Scallops have blue eyes to sense light, and can swim by clapping their shells together.



# FILTER FEEDING 101

Filter feeders, like bivalves, use a structure called a gill to filter nutritious algae from the water. This gill is different from the gills fish use to breathe. Take a look at the diagram below and read the steps. Use your finger or a marker to trace the path of water and algae through the filter feeding process in a clam.



**3**  
The nutritious algae is selected by the clam and moved to the mouth and digestive system.

**4**  
The stomach and digestive system break down the algae for energy to move and grow.

**5**  
Clams expel filtered water and digestive waste through the **excurrent siphon**.

**1**  
Clams draw in water through their **incurrent siphon**.

**2**  
The water, containing algae and other particles, is pumped over the feather-like **gills**.

Tiny hair-like cilia on the gills are responsible for creating this circular current within the clam.

Clam siphons are like snow flakes; no two are exactly alike. The incurrent is larger than the excurrent siphon.

