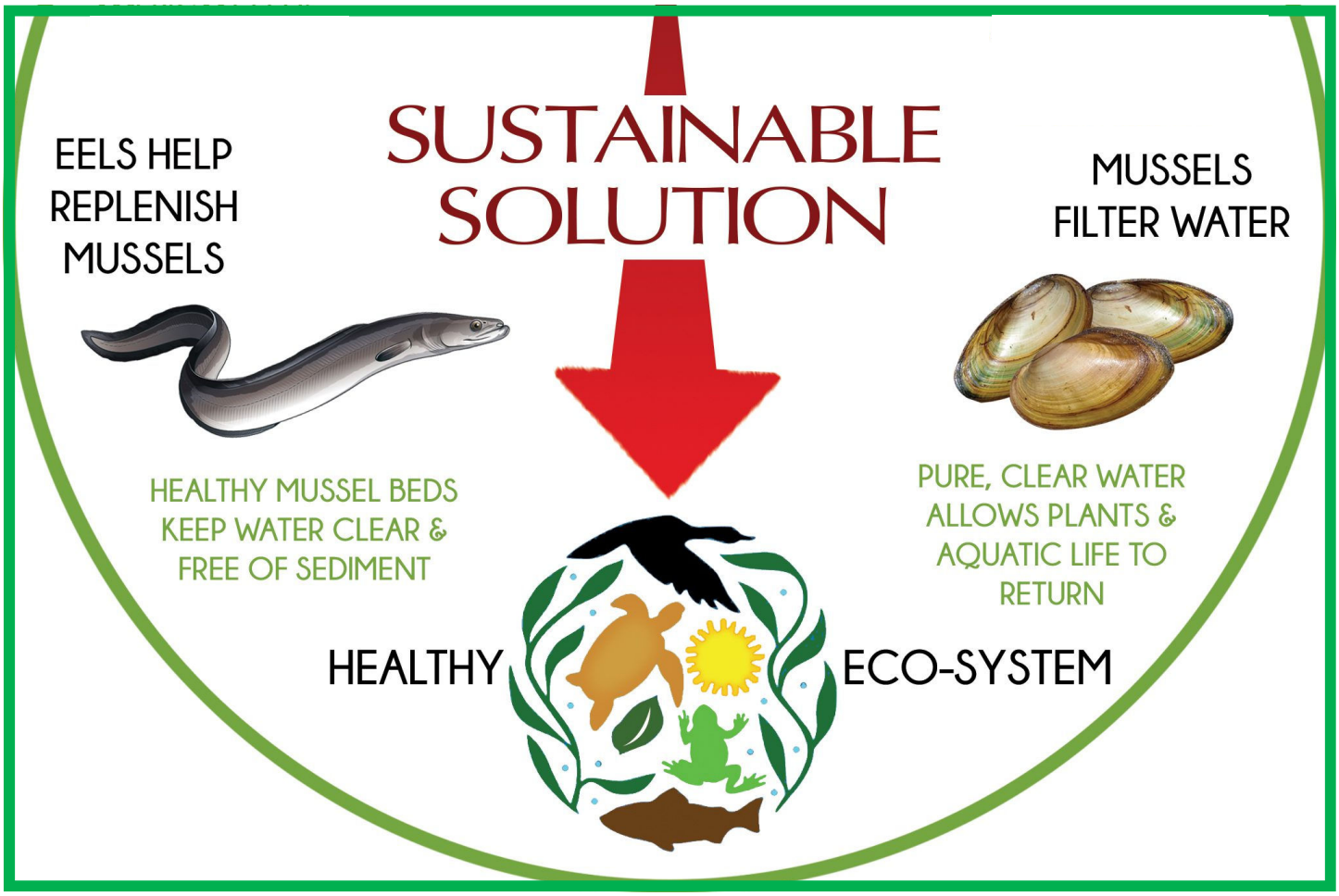
MUSSELS & EELS—The Odd Couple!

Did you know?

- ⇒ Freshwater mussels are **one of the most endangered groups of animals** in PA because of water pollution, invasive species and habitat destruction.
- ⇒ **Mussels help to keep our water clean** by filtering the water.
- ⇒ **Eel populations have been declining** because their migrations are blocked by man-made dams found in certain parts of the Susquehanna River.
- ⇒ **Mussels need eels!**
- ⇒ **Eels (and other fish) carry mussel larvae to new parts of a river** to live. This helps to build up the mussel population.
- ⇒ The **mussel larvae travel inside the gills of eels** (and other kinds of fish too).
- ⇒ **If we help eels migrate** upriver, then **we can help mussels** too.
- ⇒ If we help eels and mussels, **we help ourselves** by creating cleaner water.

What an odd but important couple the mussel & eel make!

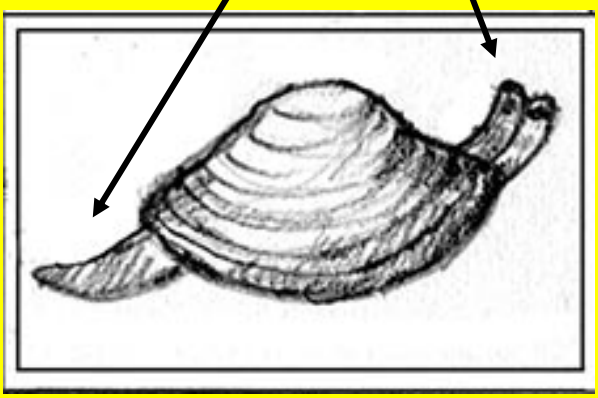


Mussels, along with snails and clams, are members of the mollusk family. This family is the world's second largest group of animals. A mollusk can be as small as a snail or as large as a 20-foot-long giant squid.

Freshwater mussels in Pennsylvania are called ***bivalves***. Bivalves have two shells, or valves. They are filter-feeders.

Water is pulled in by a ***siphon***. Their gills filter the water for oxygen, and ***plankton*** for food.

Mussel foot and siphon



When mussels filter oxygen and food from the water with their gills, **they also filter bacteria and chemicals.** This is how they help clean our river and stream waters.

A **Malacologist** is someone who studies mussels. They try to see what kind of chemicals mussels have absorbed in their bodies. This can help them decide what pollutants are in the water and how to clean them up.

Mussel eggs grow in the shell of the female's shell. Baby mussels are called **glochidia** and are as small as the period of a sentence!

As they grow, the **larvae** often sink to the bottom waiting for a fish like an eel to swim by. The mussel larvae can then attach itself to the fish's gills or fins.

The fish grows tissue over the mussel larvae protecting it in a **cyst.** After the larvae grows, the cyst on the fish breaks open and the young mussel sinks down through the water to live out its life on the bottom.

Mussels are very good at filtering freshwater and helping to remove pollution. One mussel can filter a gallon of water in one hour. The health of an entire watershed could depend on a large & healthy population of mussels.

Mussels need eels to help carry their larvae up-river. Unfortunately, we have dams on the lower Susquehanna River that prevent eels from migrating upstream. This means that not enough mussels are being carried upstream to keep their populations large & healthy.

So malacologists and other scientists are attempting to catch eels from below the dams and release them into creeks and streams above the dams.

Tens of thousands of small "glass eels" (most under six inches) have been released into Pine Creek and Buffalo Creek and they seem to be growing quickly in these food-rich waters. And most importantly—these eels have mussel larvae attached to their gills!

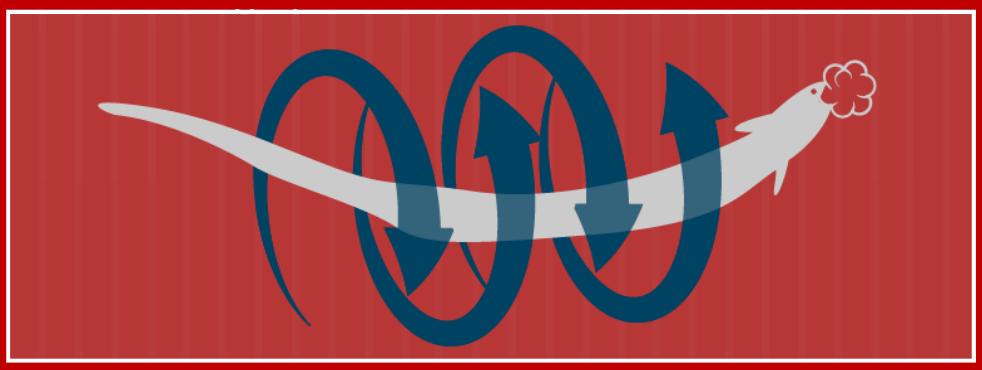
Hopefully new beds of young mussels will soon appear, helping to improve the waters of the Susquehanna River Watershed.

EELS FACTS:

Eels are nocturnal. They feed primarily at night. During the day they hide along the water's edge under rocks, logs and mud.

Eels can swim both backward & forward.

Eels are carnivores. They feed on insects, fish, crabs, worms, clams and frogs. They can twist and spin rapidly in order to tear apart large pieces of food.



LIFE CYCLE:

Unlike most fish, American eels are **catadromous.** This means they spend most of their adult lives in freshwater rivers & streams. Then they return to the salt-water oceans where they were born to breed and then die.

Yellow eels are like teenage eels. They live & feed in freshwater habitats along the Atlantic coast. The yellow eel phase is the longest phase of the American eel life cycle. They can stay in the yellow "teenagers" stage for decades.

5. Yellow Eels

Silver Eels

6. Toward the end of an eel's like they become **silver eels** as their body prepares to return to the salt-water ocean to breed. **They build up fat reserves** to give them the energy to migrate and **their eyes double in size** to help them see better on their journey.

SARGASSO SEA

Eggs

1. All American eels are born somewhere in the Sargasso Sea. Eel eggs are buoyant and float to the ocean surface to hatch.

Elvers

As juveniles approach the coast, they develop a gray or greenish-brown color. During this stage **they are called elvers**.

or

4.

Larvae

2. They are called **larvae** once they hatch. The young eels start to drift with the Gulf Stream and other currents toward the Atlantic coast. **It is a trip that can take up to a year to complete.**

Glass Eels

During their migration the **juvenile eels** go through a series of stages. They first develop into **transparent glass eels**.

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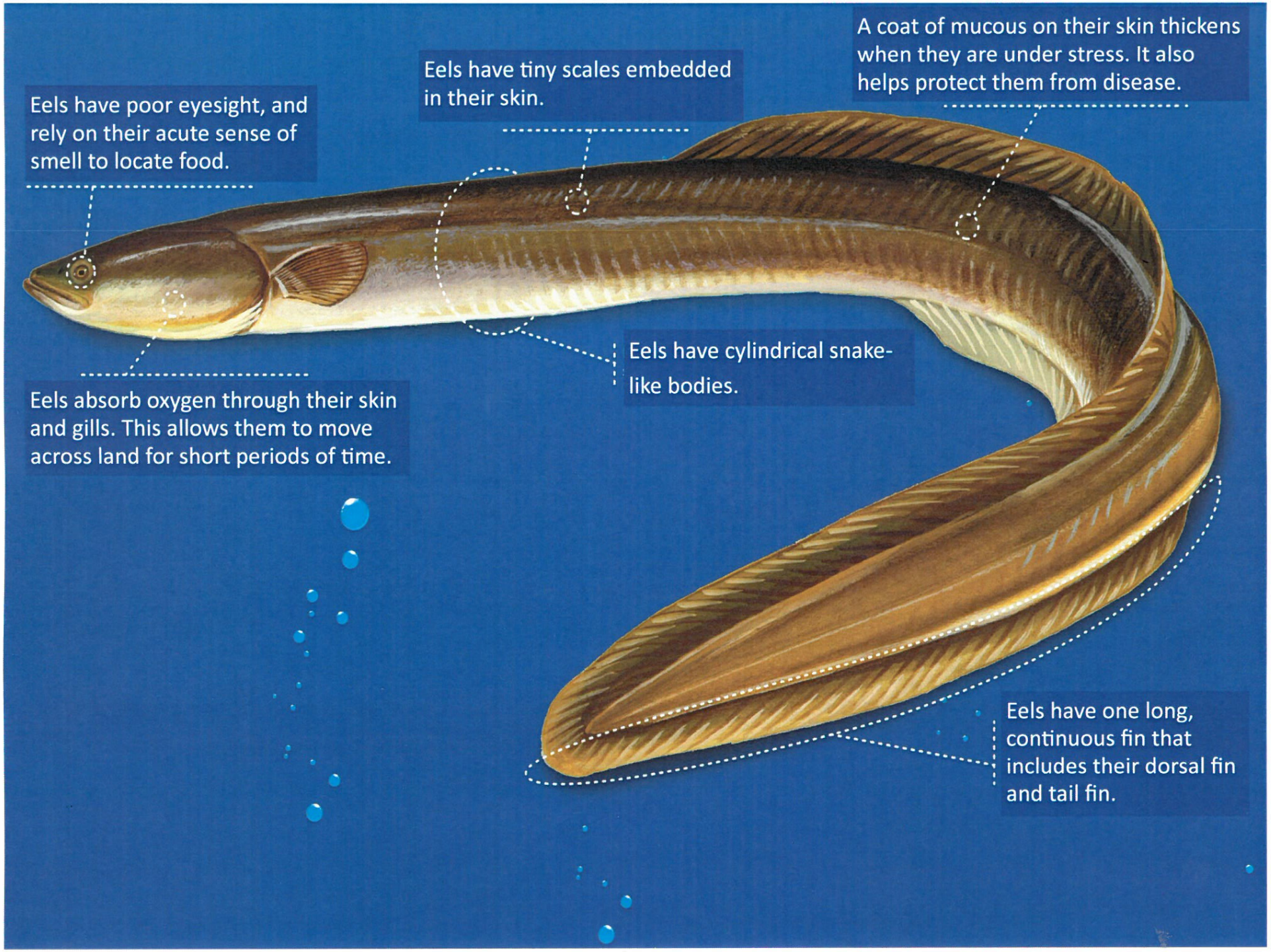
Eels have poor eyesight, and rely on their acute sense of smell to locate food.
Eels have tiny scales embedded in their skin.
A coat of mucous on their skin thickens when they are under stress. It also helps protect them from disease.
Eels have cylindrical snake-like bodies.
Eels absorb oxygen through their skin and gills. This allows them to move across land for short periods of time.
Eels have one long, continuous fin that includes their dorsal fin and tail fin.