

3. Post-Activity (review): Discuss with the students why it is considered a food web instead of a food chain and review with them the importance of categorizing the species according to what they eat. Explain that energy resources are especially important to the makeup of the pyramid and those species at the bottom of the pyramid are found in greater abundance for this reason. Species at the top of the pyramid must eat a lot more of the smaller species at the bottom in order to gain the proper amount of energy to function. Discuss with the students the importance of keeping the food web intact and ask them to describe different situations where people pollution could upset the balance of the pyramid.

Key Words:

Food chain

Food web

Producers

Primary consumers

Secondary consumers

Phytoplankton

Zooplankton

Predator

Prey

Pollution

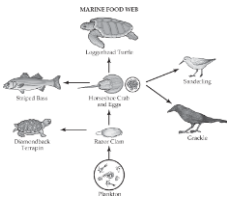
Background Information:

Adapted from New Wave of Learning

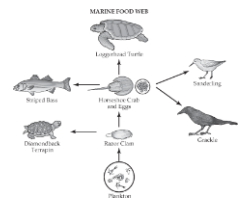
Food webs are found in every ecosystem on the planet and can be as simple as one producer and one consumer or as complex as multiple consumers, scavengers, and producers. The reason we used the concept of the food web instead of a simple food chain, is to show that one prey species can be consumed by multiple predators and how many different animals interact with each other through the entire ecosystem.

As a unique ecosystem, the estuary is a primary nursery for most of the species that inhabit it. There are several natural factors that are important to their growth and survival including temperature, salinity, tides, and seasonal changes. Some species have a very narrow range of temperature and salinity that they can survive in, which means any extreme changes could be detrimental to the species. Tides can be beneficial to smaller prey species avoiding larger predators and they also bring in valuable nutrients from the ocean.

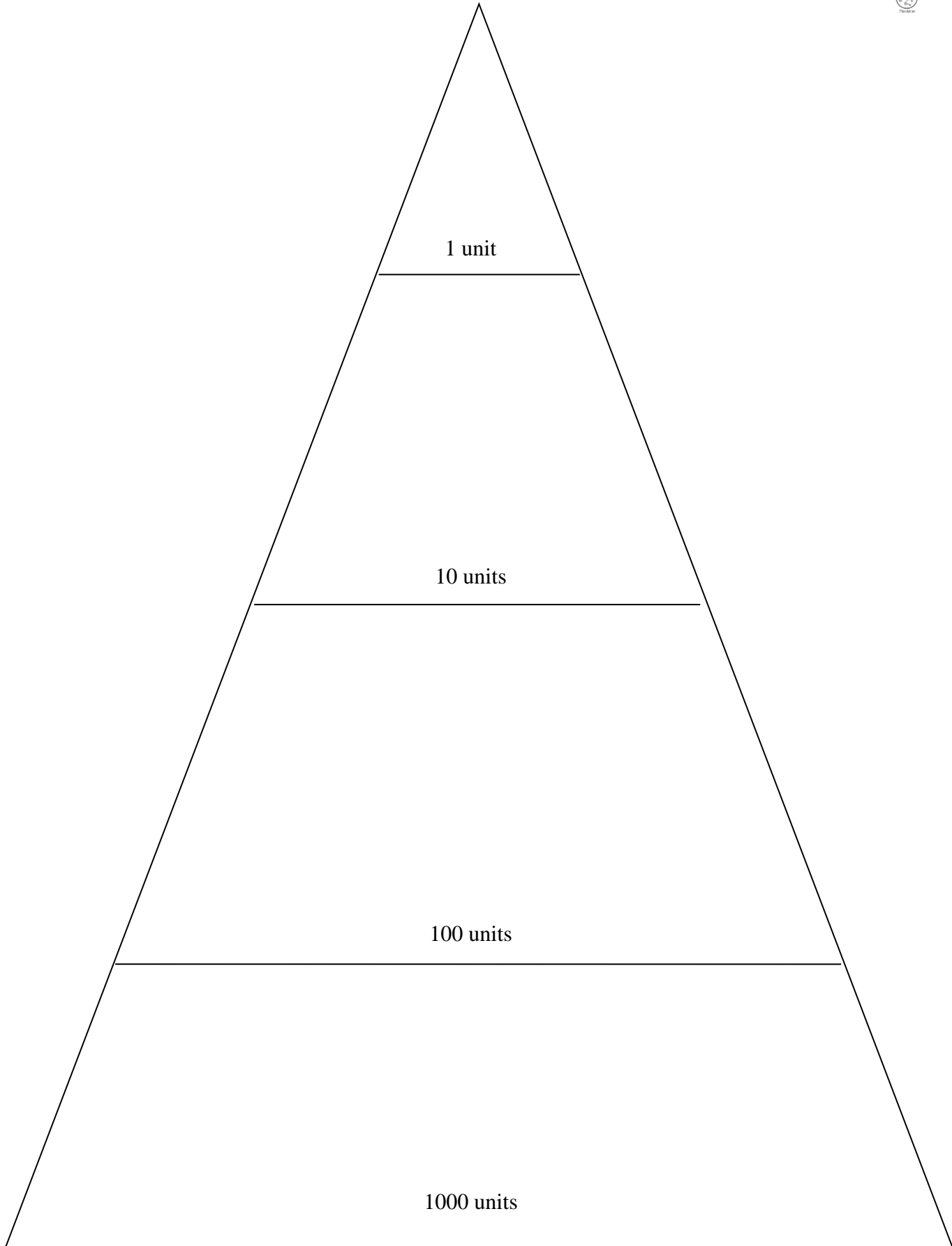
For the purpose of these lessons, the food web in the estuary begins with the sun, giving light and energy to plants such as eel grass, seaweed and phytoplankton. As you move through the food web, it becomes more complex as you add in multiple primary consumers, such as clams, mussels, shrimp and pipefish. Secondary consumers are going to be juveniles of fish like Atlantic silversides, mummichog, and striped bass. The top consumers, predators such as ospreys, herons, bluefish, and humans, control the food web from the top down.

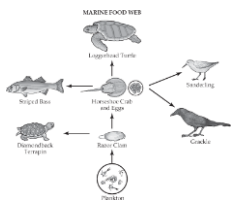


People pollution in the estuarine ecosystem can also affect this unique food web. An oil slick from a boat can block out the sun's energy. This would alter the web from the bottom or the producers. Marine debris can become detrimental to top predators when they ingest the particles or when their extremities such as feet, flippers, wings, or heads become entangled. If humans harvest out too many primary consumers from clamming, crabbing, or fishing, it upsets that natural order of prey-predator relationships within the web. In the Barnegat Bay, for example, eel grass has been compromised due to constant boat activity, affecting the web at its primary production site. All of these anthropogenic factors can be avoided, treated, or halted but it begins with an understanding of how the food web works.

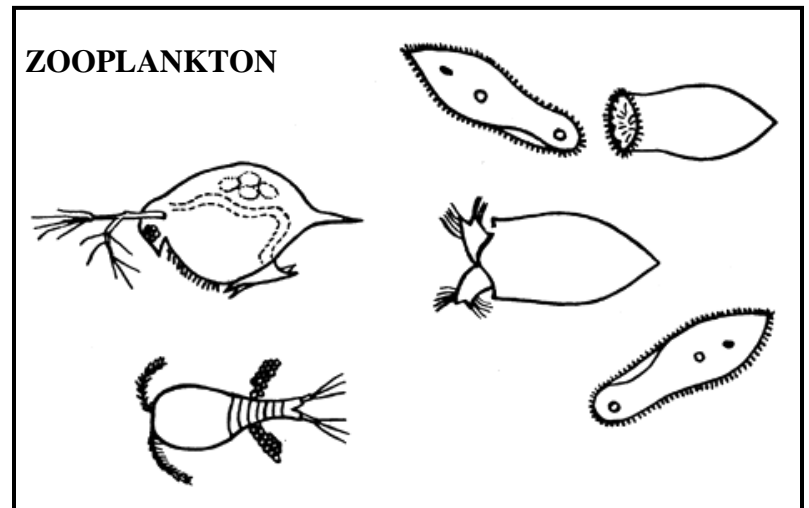
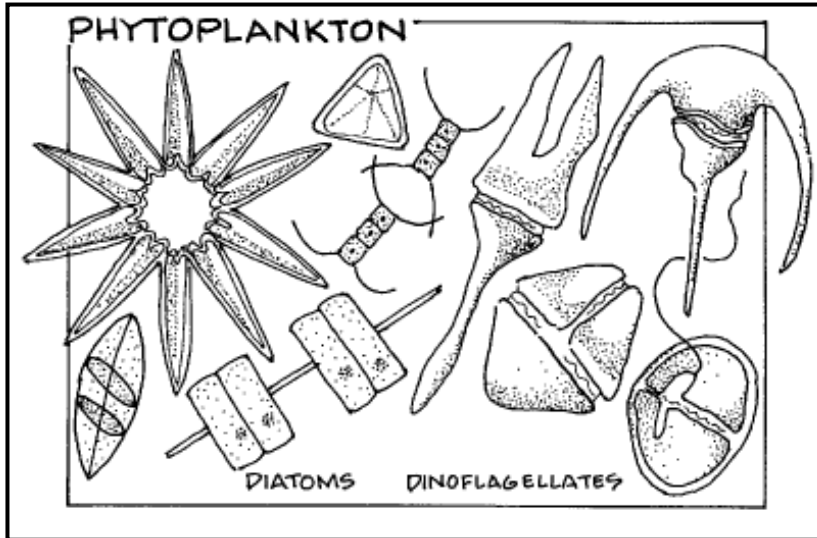


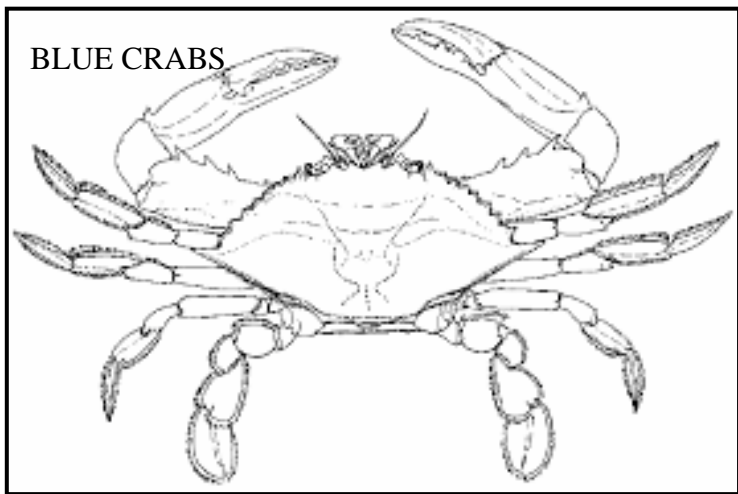
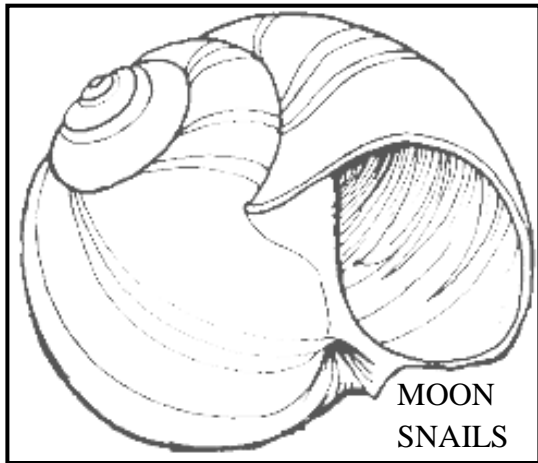
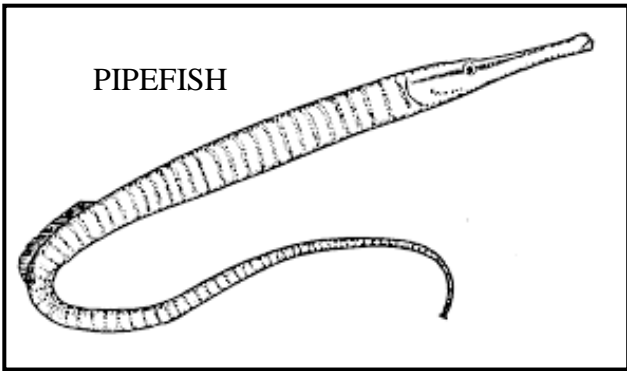
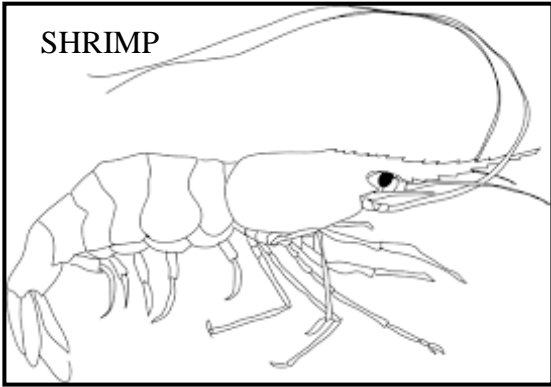
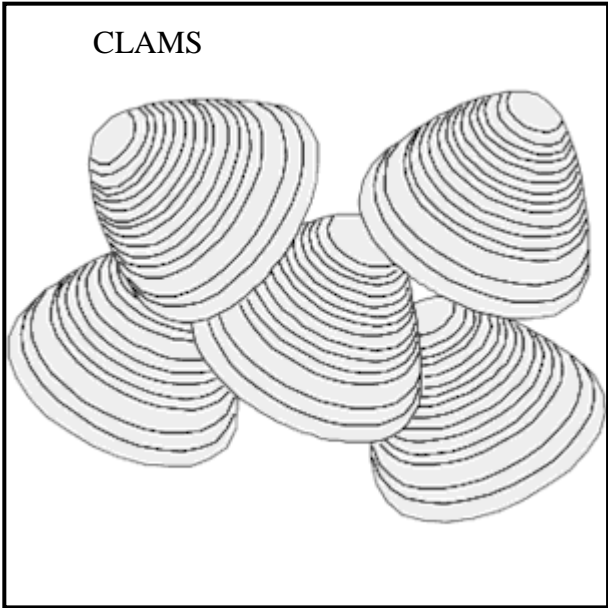
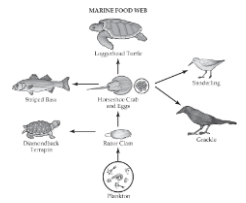
Marine Food Pyramid

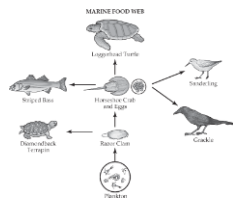




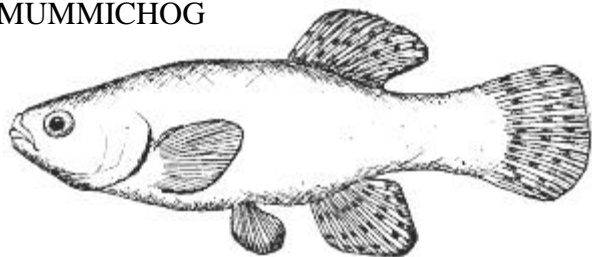
Common Estuarine Species



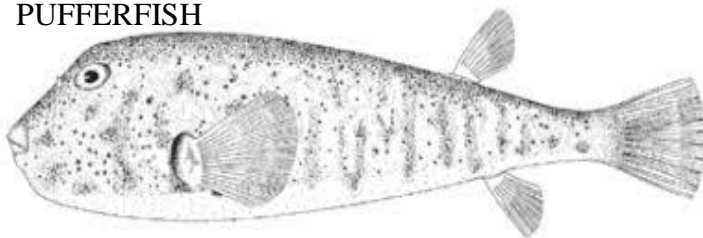




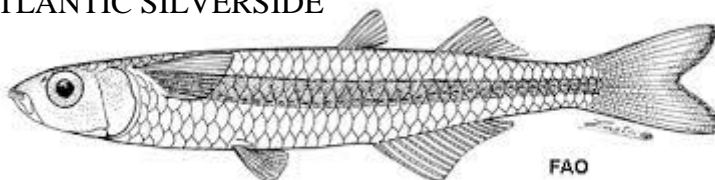
MUMMICHOG



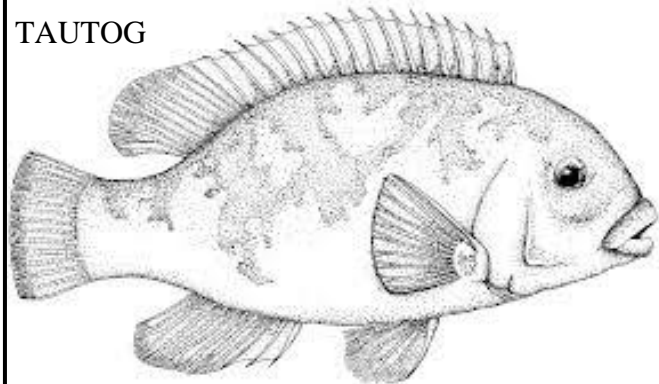
PUFFERFISH



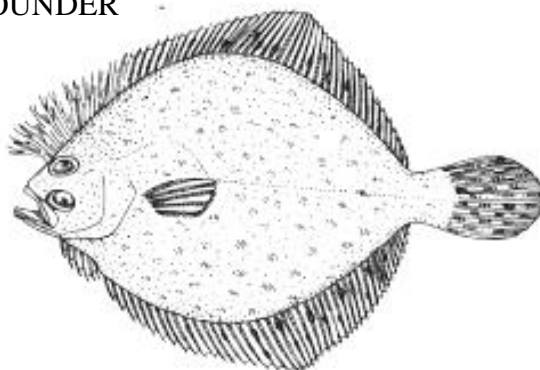
ATLANTIC SILVERSIDE



TAUTOG



FLOUNDER



HERRING GULL

