

### CHEMOSYNTHETIC BACTERIA

These one-celled organisms live near hydrothermal vents in the bottom of the ocean. They are considered extremophiles because they can thrive in this incredibly harsh environment. They can survive scalding temperatures, noxious gases that are emitted from the vent, and exist with absolutely no sunlight. They literally eat the toxic sulfur-based chemicals that flow out of the vent. They build their living bodies from non-living particles, and do so without the energy of the sun.

### TUBE WORMS

Chemosynthetic bacteria live inside the tubeworms in a symbiotic relationship. The tubeworm gets sugars from the bacteria, and the bacteria get oxygen and hydrogen sulfide from the blood of the tubeworm. Since both parties are benefitting, this is an example of mutualism.

### ZOOPLANKTON

The microscopic plankton at the bottom of the ocean are only 1 type: zooplankton. There are no phytoplankton (plankton that are plant-like and do photosynthesis) because there is no light in the abyssal zone. Zooplankton are all consumers and their food source is the chemosynthetic bacteria. The zooplankton consist mainly of larval versions (babies) of the species that live near the vent.

### MUSSELS

Mussels are a shelled creature with a soft body inside. This species has chemosynthetic bacteria living inside of it in a symbiotic relationship. The bacteria give sugar (food) to the mussels, and the mussels provide a safe place to stay, so it is an example of mutualism. When this species of mussel wants to move, they shoot out a strand like a spider web, it sticks to something, and then they pull themselves along.

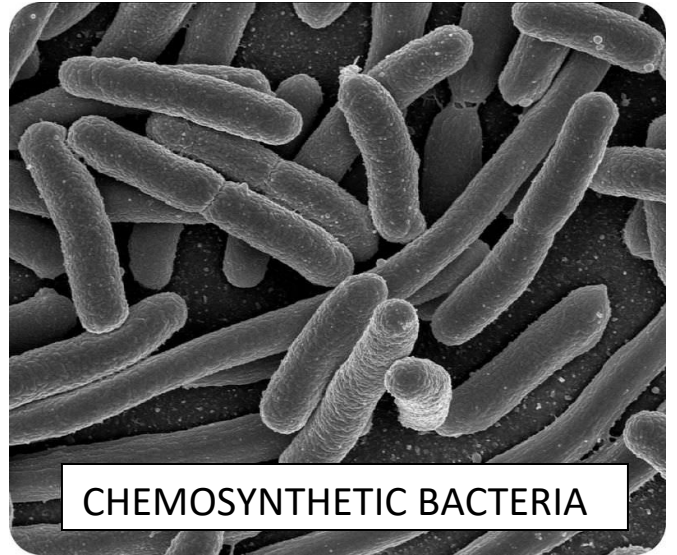
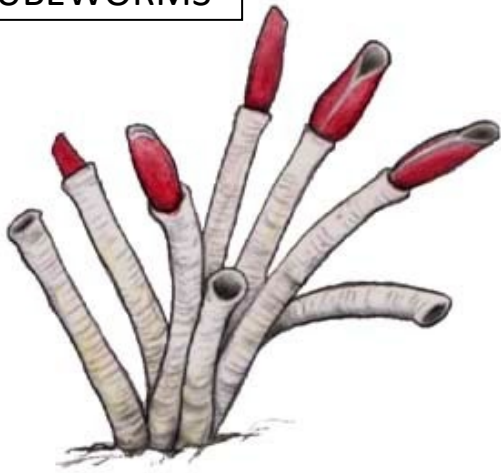
### BRACHYURIN CRAB

This species of crab gets its energy by ingesting mussels, microbes, tubeworms, and sometimes other crabs

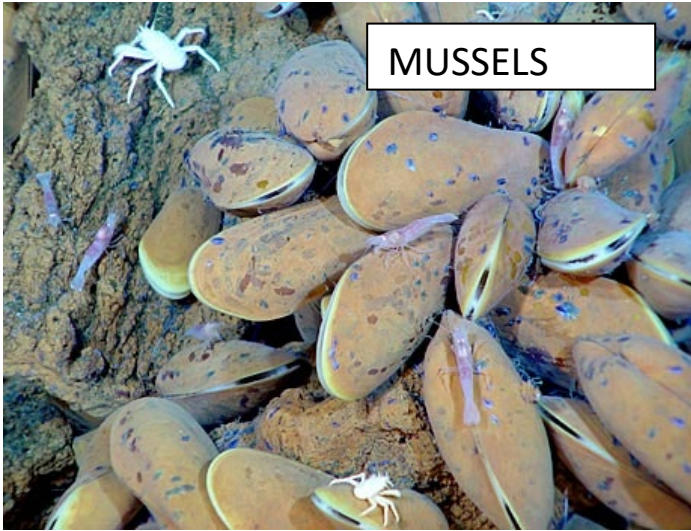
### GALATHEID CRAB

This species of crab eats chemosynthetic bacteria, zooplankton, and any species of animal smaller than itself

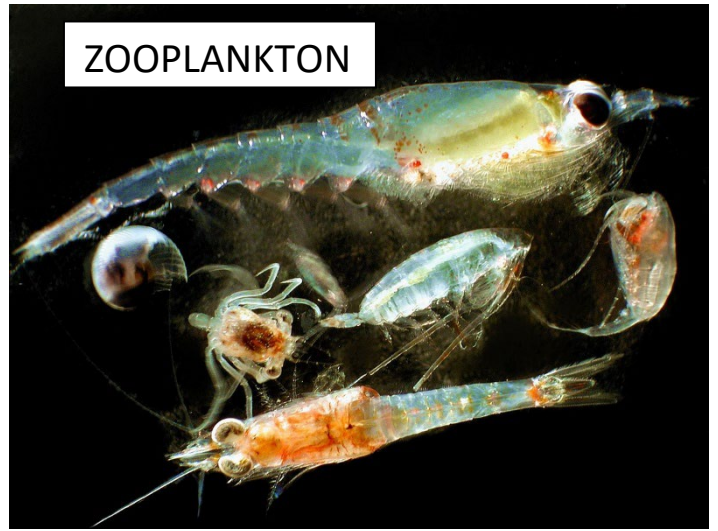
TUBEWORMS



CHEMOSYNTHETIC BACTERIA



MUSSELS



ZOOPLANKTON



GALATHEID CRAB



BRACHYURIN CRAB

<p style="text-align: center;"><b>VENT SHRIMP</b></p> <p>These organisms are also known as “blind shrimp” because they don’t even have eyes. They eat chemosynthetic bacteria right off their own bodies as well as any they can find on the vent. This would be a type of symbiosis, but since the bacteria are not benefitting, but are rather harmed, it would be considered parasitic.</p>	<p style="text-align: center;"><b>Pompeii worm</b></p> <p>This creature can withstand incredible heat, thus it is found near the vent opening. The tail can be found in water that is 77 F and the head can withstand temperatures of 177 F. It eats chemosynthetic bacteria. The bacteria are often found in the hairs on its back, so the worm eats them right off its own body. This is a symbiotic relationship, but since only 1 species benefits and the other is harmed, it is considered parasitic.</p>
<p style="text-align: center;"><b>VENT RATFISH</b></p> <p>When the female lays her eggs she leaves them to survive on their own. These tiny hatched fish are part of the zooplankton community when they are tiny. If they survive being eaten at this point, they may go on into adulthood. Ratfish get their energy by eating crabs, clams, shrimp, and worms.</p>	<p style="text-align: center;"><b>DANDELION SIPHONOPHORE</b></p> <p>This creature is not a single creature. It is actually a colony of animals working together as one. Some protect the colony, some catch food, and some reproduce. The organisms are not like individual ants in an ant colony, however. They all share a community stomach system, so what one animal eats, the others get to digest. The creature is known to use its tentacles to attach itself to the ocean floor. The dandelion siphonophore gets its energy by eating dead things (scavenger).</p>
<p style="text-align: center;"><b>ZOARCHID FISH</b></p> <p>This organism grows to be about 2 feet long. It is a very slow moving critter. It gets its energy by ingesting galatheid crabs, zooplankton, and anything else it can catch.</p>	<p style="text-align: center;"><b>TUBE DWELLING ANEMONE</b></p> <p>This creature eats vent shrimp and other small creatures it can capture and sting with its tentacles</p>



POMPEII WORM

↓ the head  
zoomed in



VENT SHRIMP



DANDELION SIPHONOPHORE



VENT RATFISH



TUBE DWELLING ANEMONE



ZOARCHID FISH



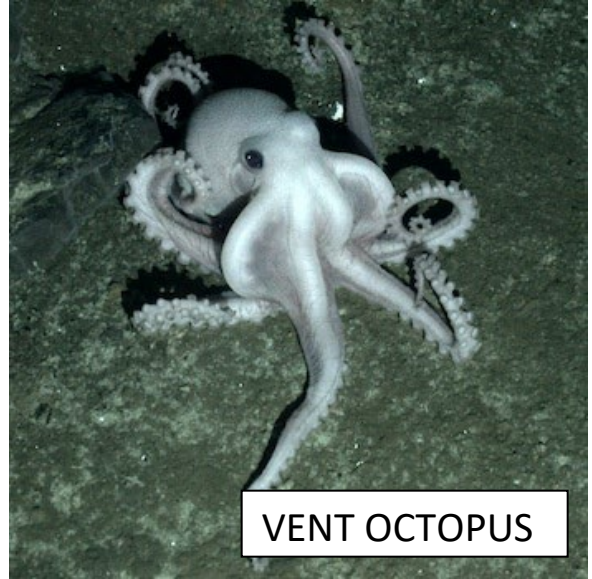
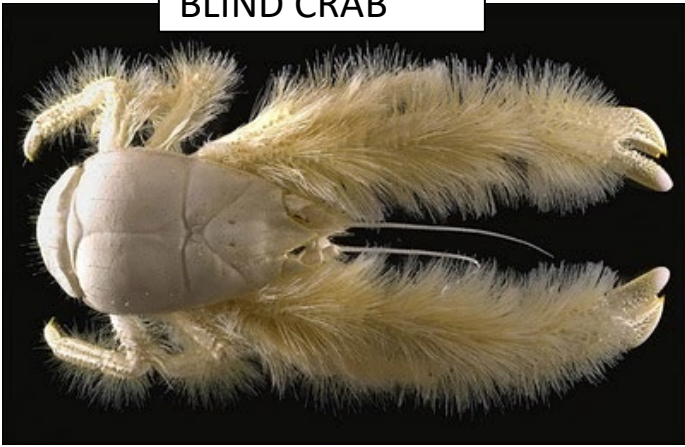
### VENT OCTOPUS

This species of octopus does not have an ink sac to use when threatened. Instead it hides if needed. It gets its energy by eating zoarcid fish, galatheid crab, mussels, clams, etc. It is a top predator in this ecosystem

### BLIND CRAB

When the females have their babies, they move away from the vent because the young cannot yet handle the harsh temperatures. Just after breeding the mothers die. This crab is a top predator because it can eat clams, bacteria, worms, dandelion shiphonophores, mussels, and anything it can catch.


BLIND CRAB



VENT OCTOPUS