

## **Fast Facts**

### **Deep Sea Exploration and Hydrothermal Vents**

**Ninety percent** of all volcanic activity occurs in the oceans.

**The greatest mountain range** is the Mid-Ocean Ridge, extending 64,374 km (40,000 mi) from the Arctic Ocean to the Atlantic Ocean, around Africa, Asia, and Australia, and under the Pacific Ocean to the west coast of North America.

**The lowest known point on Earth**, called the Challenger Deep, is 11,034 m deep, in the Marianas Trench in the western Pacific. To get an idea of how deep that is, if you could take Mt. Everest and place it at the bottom of the trench there would still be over a mile of ocean above it.

**Alvin has performed over 4,000 dives**, the first of which was in 1964, and will probably be retired in 2009 when the new submersible is slated to come into use. For more statistics about Alvin, look here:  
<http://www.ocean.udel.edu/extreme2001/mission/alvin/#>

**The first hydrothermal vent** (long suspected to exist) was discovered in 1977 when scientists used Alvin to descend 2.5 km below sea level near the Galapagos Islands. The high abundance of life found at the vents was surprising to scientists.

**Photosynthesis is not the only way** that food is produced in the ocean. Bacteria living in the deep ocean near hydrothermal vents and oil and gas seeps along the continental margins can fix carbon from carbon dioxide into nutritious molecules using the chemical energy in hydrogen sulfide or methane.

**Over 300 species of animals** have been discovered at hydrothermal vents from various taxonomic groups. Many are exclusive to these ecosystems and would be unable to exist elsewhere.

**Some of the fastest growing animals in the ocean** have no mouth, and no gut. These tubeworms (vestimentiferans) can grow up to 95 cm a year. Inside their body is a large organ filled with bacteria which use the hydrogen sulfide from the vent fluid to synthesize nutritious organic molecules which are taken up directly in the blood of the worm.