The Gulf of Maine

We live on a planet that is 71 percent covered by water. Many world maps depict our world's lands as colorful and diverse while depicting the world's oceans as a huge, unremarkable, uniform blue mass. The truth, on the other hand, is that the ocean contains many different places, and these places are full of life.

The area of the ocean closest to Massachusetts is called the Gulf of Maine. The Gulf of Maine is a unique marine environment located off

the shores of southeastern Canada and New England. Many people have visited beaches and harbors that border the Gulf of Maine or have traveled through its waters aboard boats heading off to sea. For hundreds of years, people have found fish to eat above its underwater landforms such as Jeffrey's Ledge, Stellwagen Bank, and George's Bank. Although we have been drawn to its bays and its banks for hundreds of years, we still

know little about the underwater world of the Gulf of Maine itself.

The Gulf of Maine is often referred to as the “sea within a sea” as it is a semi-enclosed area. It encompasses over 93,000 square kilometers (36,000 square miles) of ocean. Its waters are relatively shallow at an average depth of only 150 meters (492 feet). The average depth of the world's oceans is 3.7 kilometers (2.3 miles)- 25 times as deep as the Gulf of Maine.

The shores of Maine, New Hampshire, and Massachusetts form the western boundary of George's Bank. Its southern and eastern boundaries, on the other hand, are formed by large underwater banks. These banks are part of the continental shelf, the relatively high area of ocean floor that surrounds the continents. George's Bank defines the most southeastern boundary of the Gulf of Maine.

George's Bank is approximately 240 kilometers (149 miles) in length and 120 kilometers (75 miles) in width, making it slightly larger than the state of Massachusetts. Despite its size, it is not visible from land, as it is entirely underwater,100 kilometers (63 miles) offshore.

Life in the Gulf of Maine would be very different were it not for George's Bank. As an ocean current called the Gulf Stream carries warm southern water north toward New England, George's Bank directs some of that water out of the Gulf of Maine. This allows the Gulf of Maine to receive more of the cool, nutrient-rich water that the Labrador current brings in from the North. This nutrient-rich water makes the Gulf of Maine a healthy environment for phytoplankton, the plant-like organisms at the base of ocean food webs. This abundant phytoplankton has helped sustain the Gulf of Maine as a dependable fishing grounds over the centuries.

The underwater banks that direct the flow of water in the Gulf of Maine were themselves shaped by water when they first formed. The water that shaped these banks was melting ice. Twenty-five thousand years ago, the world was colder, more of the world's water was ice, and the area that is now the Gulf of Maine was not yet covered by water. As the Earth warmed, enormous ice sheets called glaciers began to move south from the east coast of Canada. As they moved forward and retreated back with changing temperatures, they scratched up the land, tearing apart the bedrock. During periods of glacial melting, elevated areas were created as melting glaciers deposited massive amounts of rock at the base of the glaciers. These elevated areas would later become underwater banks as the ice sheets melted, causing a rise in sea level.

Few places in the world support more life than the Gulf of Maine, which includes the waters of the Stellwagen Bank National Marine Sanctuary. National Marine Sanctuaries are places in which some potentially harmful human activities are prohibited in order to protect marine ecosystems.

The Gulf of Maine houses a lively ecosystem which is home to a diverse array of marine microorganisms, plants and animals. Over 2,000 different species of plants and animals live in these waters. Some organisms, like phytoplankton, are microscopic in size, yet play a vital role as producers that can make their own food through the process of photosynthesis. Animals are not capable of making their own food, so these consumers must eat phytoplankton or other marine organisms to survive. Large or small, abundant or rare, all living organisms interact to maintain this intricate web of life. The loss or overabundance of a species or group can greatly impact the lives of the other organisms that are intertwined in this delicate fabric of life.