



**THE SELECT COMMITTEE ON
ENERGY INDEPENDENCE AND GLOBAL WARMING**

**Opening Statement for Chairman Edward Markey
Rising Temperatures, Rising Tides: Global Warming Impacts on the Oceans
Select Committee on Energy Independence and Global Warming
April 29th, 2008**

Over the course of the past year, the Select Committee has investigated numerous impacts of global warming – from the melting of the Greenland ice cap, to the drying out of the Amazon rainforest, to the sliding of Alaskan villages into the sea. But the impacts on land are only the tip of the melting iceberg of a potential climate catastrophe. Oceans cover 70 percent of our planet, and they are also feeling the heat of global warming.

Throughout Earth's history, the ocean and the atmosphere have worked together to regulate the climate. The ocean serves as a sponge, soaking up excess carbon and heat from the air above it. Carbon dioxide dissolves in seawater where creatures of all shapes and sizes convert it into their own protective coverings. Although many of these creatures are too small to see with the naked eye, the result of their work can be monumental, as witnessed by the White Cliffs of Dover and the ancient reefs that are now the mountains of West Texas.

But the burning of fossil fuels has released increasing amounts of ancient carbon back into the atmosphere, and the oceans are overworked. During the past forty years, the ocean has absorbed 90 percent of the estimated increase in the Earth's heat content from human activities. Like sweeping dirt under the rug, the oceans have protected us from feeling the full heat of global warming pollution. While many of the ocean changes may be out of our sight, we must not put them out of our mind.

Global warming is causing an underwater heat wave, and the rise in ocean temperature impacts sea life at all depths. Many marine species thrive in only a narrow temperature range, and this heat stress forces them to move away from their traditional feeding and breeding areas in search of cooler waters. But not all marine life can simply shift with changing sea temperatures. Coral reefs have nowhere to go when the water around them heats up. Instead they expel their life-giving, colorful algae. Once reefs experience such a “bleaching” episode, they often never recover.

Warmer oceans pose another threat – rising sea level. As water heats up, it expands. During the last forty years, this expansion has contributed 25 percent of the observed sea level rise. Rising sea levels already cause harm in coastal communities around the world, increasing their vulnerability to storms and threatening their drinking water supplies. As global temperatures continue to rise so too will sea levels, reshaping the contours of the world’s coasts.

Impacts on the ocean go beyond warmer waters. The rising carbon dioxide concentration in the air alters the fundamental chemistry of the ocean. As seawater absorbs more and more CO₂, the water becomes relatively more acidic. This “ocean acidification” can prevent coral reefs from growing, stop shellfish from developing their protective outer layer, and inhibit the growth of tiny shell-forming animals that form the foundation of much of the ocean food chain.

The oceans have been taking on the burden of the planet’s fever. Recent evidence suggests that oceans are losing their efficiency as a sink for the carbon we emit. If we reduce the ocean’s ability to help us handle the global warming burden, we may face the impacts of global warming sooner than predicted.

Today we hear from some of the world's foremost ocean researchers. They have seen first hand many impacts from global warming that those of us above the surface will never see. Their testimonies will convey the consequences of our "out of sight, out of mind" strategy. Like an iceberg, most of the problem lies beneath the surface of the ocean. What lurks below holds serious consequences, and if we refuse to change course we will run into a problem far larger than it first appeared. As this hearing will demonstrate, we need a sea change in our energy and climate policy, if we want to avoid an actual catastrophic change in our seas.