

An Oceanic Mystery

by Suzanne Wilder

Timothy Wootton, PhD, professor of ecology and evolution, spends his summers on the West Coast. Half a mile away from the mainland of Washington state on Tatoosh Island, Wootton and a team of researchers are looking at the dynamics of ecosystems. What they found is that the level of acid in the ocean changes far more frequently and rapidly than was widely thought in the scientific world.

Ten years ago, Wootton and his team—including his wife and fellow researcher Cathy Pfister, PhD, associate professor of ecology and evolution—decided to measure ocean conditions and the effects on the ecosystem around Tatoosh Island. The biologically rich island is “one of the most intensively studied pieces of real estate,” Wootton said. The site has been used in the past for weather observation and military use, and scientists have studied the island for about 40 years. The surrounding rocky waters prevent people from visiting too often, which means the research equipment there is undisturbed.

Wootton and Pfister’s earlier research on the island showed what species were present from one year to the next, how different species interacted, which plants and animals were thriving, and how they responded to changes in their environment. In recent years, researchers set a pH meter into the Pacific Ocean. They measured substantial variations in the ocean’s level of acidity in small amounts of time. “The rate of change in pH is a lot faster than people have predicted,” Wootton said.

The ocean water is growing more acidic at a rate 10 times faster than expected, which could have far-reaching effects on oceanic ecosystems and the plants and animals within them.

“Now we’re trying to increase our understanding of why the pH is going down and what the implications of that might be,” Wootton said.

He and his team will be seeking answers about the causes and effects of the acid levels. Species with shells, such as mussels, snails and clams, fare poorly as acid levels increase. Algae and kelp do well in the same circumstances. The species seen at Tatoosh may evolve over time as the acid levels in the water change.



Photos by Timothy Wootton, PhD