



國立臺灣海洋大學一〇〇學年度研究所碩士班暨碩士在職專班入學考試試題

考試科目： 英文閱讀

系所名稱： 海洋環境化學與生態研究所碩士班不分組

可使用紙本英漢字典

1.答案以橫式由左至右書寫。2.請依題號順序作答。

請翻譯下列文章：

Ocean acidification—a result of too much carbon dioxide reacting with seawater to form carbonic acid—has been dubbed “the other CO<sub>2</sub> problem.” As the water becomes more acidic, corals and animals such as clams and mussels have trouble building their skeletons and shells. But even more sinister, the acidity can interfere with basic bodily functions for all marine animals, shelled or not. By disrupting processes as fundamental as growth and reproduction, ocean acidification threatens the animals’ health and even the survival of species.

If we continue to emit greenhouse gases at current rates, scientists estimate that atmospheric CO<sub>2</sub> will reach 500 ppm by 2050 and 800 ppm by 2100. The pH of the upper ocean could drop to 7.8 or 7.7—as much as a 150 percent increase in acidity compared with preindustrial times.

Acidification makes it harder for some phytoplankton species to absorb iron, a micronutrient critical for growth. Researchers at Princeton University indicate that a 0.3 pH decline could reduce phytoplankton iron uptake by 10 to 20 percent.

For some creatures, ocean acidification can simply mean the end. When a sample of copepod species common off the California coast (*Paraeuchaeta elongata*) was exposed to water that was 0.2 pH below normal, half of the organisms died within a week. The fish we prefer to eat, from tuna to salmon or striped bass, depend on an abundance of specific copepods to support the prey that supports them.

Only a dramatic reduction in fossil fuel use can prevent further CO<sub>2</sub> emissions from contaminating the seas. An explicit plan to shift from finite, dangerous energy sources to renewable, clean energy sources offers nations a more secure path forward. And it offers the planet, especially the oceans, a chance for a healthy future.

註：(*Paraeuchaeta elongata*) 真刺水蚤