
Woods Hole Oceanographic Institution
Biology Department Seminar



Thursday, December 10, 2015
Redfield Auditorium – 12:00 Noon

**The effect of elevated carbon dioxide on the
shells, swimming, and sinking of a shelled
pteropod from the Gulf of Maine**

**Alexander Bergan, Ph.D. Candidate
MIT-WHOI Joint Program in Biological
Oceanography**

Pteropods are holoplanktonic mollusks that can be found throughout the world's oceans. Previous experiments with shelled pteropods have indicated that the processes of calcification and dissolution (of aragonite) are disrupted by the changes in carbonate chemistry and pH that will be brought about by ocean acidification. If building and maintaining shells is adversely affected by ocean acidification, then how will it affect their ability to move around in their environment? I used filming techniques and laboratory experiments to address the effects of elevated carbon dioxide on the swimming and sinking movements of a shelled pteropod, *Limacina retroversa*. These animals were caught on four cruises in the Gulf of Maine at different times of the year and raised at three different carbon dioxide concentrations (400 ppm, 800 ppm, and 1200 ppm). Over successive weeks the shell transparency, sinking rates, and swimming rates were measured. I will show how the shells changed in condition after exposure to enhanced carbon dioxide and how their sinking rates and swimming ability were affected. This work brings us closer to understanding how the fitness of shelled pteropods might be changed by ocean acidification.