

MASTS Small Grants Scheme short report
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In 2012 I attended the third international symposium on the ocean in a high-CO₂ world which took place from 24 – 27 September in Monterey, California. I chose to attend this conference because there are very few people in the jellyfish research community studying the effects of ocean acidification on jellyfish life histories. There currently exists only one scientific paper on the subject and the methods they used to achieve varying levels of pH were dubious. At the conference I met with people who introduced me to methods for designing an appropriate test apparatus that would allow me to test effects of elevated CO₂ levels on the development of jellyfish gravity receptors. A second reason I wanted to go to the OA conference was to assess the state of jellyfish research within the OA community. As I had suspected no papers were presented regarding jellyfish, and I did not see in attendance any of the well-known jellyfish researchers. Additionally, how jellyfish may respond to an ocean with increasing CO₂ levels was identified by modellers as a “huge hole” in their models.

Since returning to St. Andrews I have been able to implement the experimental protocols I learned about at the conference. Over the last year I have been working with an undergraduate honours student, Stephen McKelvie. For his honours project we looked at the effects of three different pH levels on development of gravity receptors (statoliths) of *Cyanea capillata* which is an apex jellyfish predator of other gelatinous zooplankton. If *C. capillata* medusae were to decline in response to decreasing pH their ability to regulate abundance of other jellyfish might be impacted. The results of the study showed a decrease in statolith size with a decrease in pH which may impact on the ability of jellyfish to distinguish between up and down, possibly having deleterious overall effects on fitness. In the future I plan to conduct studies to determine whether or not smaller statoliths affect growth, development and survivorship of medusae which will be new and useful information to managers, modellers and ecologists.

I used the funding from the MASTS small grant scheme to help cover the costs of travel, attendance and accommodation at the conference. The remainder of the costs were covered by the University of St. Andrews biology postgraduate class grant.