GOMECC-2 Cruise Update # 4

Aug. 12 – 8AM

GOMECC-II approaches the end, with clear changes in mood and energy and topics of discussion as we begin to think about the offload, and timing of final casts. While the steaming time from our last station to the Boston sea buoy is not particularly long, and we appear to be on time so far, there are also key considerations regarding the time needed to process all the samples we've collected since stating the New Hampshire line at 10PM last night, and allowing for equilibration time – which can be as long as 12 hours before some samples can be run.

We will be docking in MASSPORT (Black Falcon) during the slack tide on Tuesday afternoon (~3PM) according to the current plan and – so far – the timing looks good for our final 24 hours of sampling. This morning at dawn we had arrived at Station 85, which is conveniently located in the 'median' of the entrance to the traffic separation lane for the Boston entrance. We are currently transiting about 2 hours to Station 86 which is in the median of another traffic separation zone for the northern access to Boston.. From there we move into the middle of the Northern Right Whale sanctuary in the Gulf of Maine as we steam toward Station 87. These stations have given cause for further admiration and appreciation of the safety consciousness and excellent navigation by the command - and the dedication of Capt. Pickett and his crew to us getting our work done. In addition to ships, tugs with tows, and fishing boats, today promises some encounters with more wildlife – there was already a whale sighting at the dawn station (which was also a beauty with pink fish scale skies and a golden sunrise).

Picture courtesy of our Field Ops. Officer, LT. Paul Chamberlain

Weather for today is looking a bit like some misty New England rain at our next station, and noticeably cooler temperatures than the last few days. We have also had higher seas and more swells for the past 36 hours than any time before on this leg of the cruise. There were scattered white caps and repeated wind rows of S*argassum* all day yesterday as we came inshore from Station 82 at the end of Line W. However, overall, the weather has really facilitated GOMECC-II research. I once heard Dick Barber has described the Atlantic as a 'nervous little ocean' but, for us, it has been more pacific than the Pacific.

So far, we have been able to complete all planned stations, including the deepest casts on Line W, and we were also able to add a few shallow stations at the beginning of the Chesapeake and LEO lines. Assuming success at completing all the New Hampshire stations, we will have achieved 108% of planned stations and analyzed over 1300 samples. In addition, CDOM, pigment, DOC, and a few other types of samples are going off the ship for subsequent analysis in various labs. We have done optical measurements for the NPP/VIIRS cal/val at about 23 stations, mostly during the afternoon. Data reporting to the data managers continues to be excellent, both for underway and CTD casts. The one disappointment here at the end of the cruise is the fact that an instrument problem means that the UNH CO2 buoy will not be in place when we complete the New Hampshire Line so we will not be holding station there for intercalibration. We hear it will be out there soon, though, probably this week!

We have not had any onboard instrument problems since our last weekly report, except for an easy-fix issue with the profiling pH meter. We have had a few issues with the water budgets on the deep casts, where every bottle was tripped at a different depth and we could not trip any duplicates. Getting enough water for the big-draw bottles where oxygen, nutrients, salts, pigments, and all forms of carbon samples were collected was sometimes hard. This led to a variety of approaches to 'encouraging' water conservation – including red tape on the high-demand bottles to regular and frequent warnings by the "Bottle Cops", Leticia and Michelle.

One surprise on this cruise is the fact that not one Styrofoam cup went down with the CTD, even though we went to >4000m at least twice and >>2000m seven times on Line W. Discussions were held, and a suggestion made for the ship's store to stock the requisite cups and colored pens, but – in the end- we have no tiny little colored cuplets to take home for our friends. I have to say, though, as a newly re-trained CTD console person there is a definite rush associated with watching the altimeter approach 10m above bottom when you have >4000m of wire out. I found I was not actually brave enough to try for a 'Winch stop" at 5m, I'll leave that to the guys from PhOD.

Michelle Wood, Chief Scientist

Leticia Barbero, Co-Chief Scientist