MERP minicruise PQ8/15 cruise report

Wednesday 23rd September 2015

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Plymouth Quest – Garry (skipper), Jim, Andy and Andy as crew (Andy Perkin on leave).

Unpredictable weather caused problems with scheduling the September MERP pelagic cruise, with a series of weather fronts passing across SW England during the week of the 21st September. On consultation with the crew it was agreed to try sampling on Wednesday evening despite a not-ideal forecast of SW 4-5, Slight to Moderate. The forecast held true and a choppy sea with 3 foot swell made for challenging working conditions.

As with August, the late September we undertook some microplastic sampling on the way out from Plymouth to L4. After a 15:15 departure from Sutton Harbour, arrival at L4 was around 17:00. On the autumn equinox sunset was meant to be 19:15 and last light 19:40, but the heavily overcast conditions meant that the light was going much sooner on and dull grey conditions were prevalent for most of the day sampling. Day sampling was finished at 19:17. The usual routine of two double-oblique jellyfish nets, two pairs of 63 and 200 µm vertical ring nets, followed by two more jelly nets and two more vertical net pairs were collected.

There were no jellyfish and few fish larvae to pick from the day samples with relatively low densities of plankton. Filtration was rapid and the three researchers were working efficiently, allowing the question to be posed as to whether a third researcher is really required. In these low-plankton low season surveys the third person could easily be replaced by an inexperienced assistant, but two people alone would probably have to be careful not to mix up samples and get overwhelmed. Monday L4 samples could usefully be used to estimate how intensive the day-night survey was likely to be and therefore the man-power required.

After a short break for dinner (and to warm up in damp, cool conditions) sampling resumed at 20:25. Given the ease of filtering samples all vertical ring nets were collected immediately after the break and no time issues were experienced in filtering the samples and preserving them. This was in stark contrast to earlier in the year when it was not possible to do more than two pairs of ring nets consecutively, without asking the crew to slow their work rate. To round off the evening three jelly nets were collected, each split in half with one half frozen and the other put into ethanol, formaldehyde or in the case of the last net frozen as well. This was against normal policy and provides a pseudo-replicate for the diversity sampling if one of the other samples gets lost or broken. This saved the time normally taken to do an additional jelly net which was welcome given the poor conditions, but is not an ideal replicate for the genetic diversity analysis. This should not be carried out in future. The last jelly net was aboard at 22:10.

Return to Sutton Harbour was around 23:30.

Additional notes:

We did not use the dry-shipper on this trip. By putting frozen samples into the large nitrogen dewar for a prolonged period they froze well but used up all the nitrogen early into the night session. The remaining samples were left in the dewar and continued to freeze in the cold atmosphere. This was also effective.

A depth logger was attached to the Jelly net for the duration of the sampling period. Results showed that the net occasionally went to 40m (with the bottom at 50m) but more typically to 30-35m with the standard amount of wire deployed by Plymouth Quest (100m?). Tows at a faster speed over the ground (with the current) were shallower in the water by approximately 5m compared to the opposite orientation. This means that any species inhabiting the bottom 1/3rd of the water column will not have been sampled and make it even more important to sample both day and night to compare against the WP2 nets. These depth recordings would ideally be continued and should be used to compare between jelly and WP2 nets at the two times of day.
Some variations were seen in the profile of the net due to the swelly conditions and snatch on the wire. The deployment speed appeared to give a fairly constant speed of sinking through the water and rising up again. Depth loggers on the top and bottom of the net frame showed a regular distance between these two loggers suggesting a nice upright frame throughout the water column.