MERP pelagic minicruise PQ4/16; Apr 11 2016.

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Crew – Andy Perkins, Gary, Jim and Andy.

Although a week-delayed due to the weather, the April MERP pelagic minicruise ran in April on the night of Monday 11th April 2016.

Plymouth Quest departed from Mayflower Marina, Plymouth at 15:40 because low water prevented a departure from Sutton Harbour, through the lock, at the desired time. After a stormy weekend the wind and waves had reduced considerably, leaving a 3-4' swell but otherwise good sampling conditions. The sea was still 9.9°C (according to the underway-CTD monitoring software) as it had been back on Feb 24th, and the spring bloom had yet to arrive at L4. It appears that a series of storms has continued to overturn the water column and stopped any warming taking place. Salinity was at 34.8 ppt and chlorophyll little higher than the 0.6 in February at 0.74. Little was seen in the way of wildlife, neither birds nor mammals.

Sampling at L4 got underway ahead of time at 16:35 using the 1 m^2 500 µm mesh Jelly Net. Unlike recent occasions the depth logger was represented by a dive computer cable-tied to the frame of the net to record the maximum depth. Previous sampling trips had failed to sample as close to the bottom as planned, but recent experiments had helped the skipper get the jelly-net closer to the bottom. No obvious jellyfish/hydromedusae were observed in the first jelly nets, with large fish eggs (thought to be Sardine) and some transparent fish larvae (Sprat?) ready to be picked out. As before half the sample was frozen for diversity analysis, while the other half was picked through. The second jelly net had half preserved in Formalin for morphological analysis. Vertical 63 µm and 200 µm WP2 nets were collected twice as usual with moderate abundances of plankton again. Plankton abundance appears to have increased a little since February, necessitating the use of two 50ml Falcon tubes for some jelly net samples, this has not been very large quantities and the diversity of species appears to have changed only slightly too. The Spring Bloom itself is still pending and may or may not be a strong peak this year.

The vertical nets were followed by another two jelly nets (1/2 frozen and half picked or preserved in Ethanol) with another 36 fish larvae selected for snap-freezing. These will have their DNA extracted for molecular gut contents analysis in the hope of discovering gelatinous prey in some of the species. Unfortunately the lack of gelatinous prey in the water column at the moment makes this a little more unlikely, but samples collected last year may be more fruitful. The remaining two vertical net pairs had half frozen as usual and the other half of the samples discarded. The last daytime samples came on deck by 18:45 with sunset at 20:07.

A relaxed break was taken between the two halves of the sampling, while both crew and scientists had their evening meal. Sampling resumed at 20:30 by starting with a jelly net and 100 µm ring net for Madie to try and capture some fish larvae for microplastics work. Night yielded considerably more and bigger fish larvae, with them also being obvious in some of the vertical ring nets too. The usual pattern for MERP of two jelly-nets, followed by two pairs of WP2 vertical nets, two more jelly

nets and two more vertical pairs was interrupted by jelly nets for Madie before the second set of jelly nets and after the end of the MERP samples. These were fruitful in terms of fish larvae for her own research and added only a slightly longer period to the cruise duration. Notable aspects of the night-work included several samples needing two Falcon tubes to hold the half-haul diversity samples and many more fish larvae to select. Most of these larvae turned out to be clupeid species, but there were some Gadidae and Scombridae too. A few siphonophores were present in some nets, and the ever-present large fish eggs, but overall the gelatinous diversity appeared to be poor (or very small). By April 30th last year (2015) there were large numbers of Pleurobrachia and some Leuckartiara present in the water column. Sampling finished at 23:35 and Plymouth Quest returned to Sutton harbour, docking at 00:30.

Overall the sampling went very smoothly and both scientists and crew worked well together. The absence of much wind meant that cold was not an issue, despite the clear skies and dropping temperatures.

Diversity samples were stored in the -80 °C freezer as PQ4/16 and fish larvae alongside. Many of the larvae were removed almost immediately and the DNA extraction process began.