AMT Filtering Logistics and Protocol

Toby Tyrell

CTD Casts (Station)

HPLC

Cyrovials are labelled pre-station and placed in the black holder (in numerical order). Labelling follows the following format:

A8 cXX 01A (01B) where A8 is AMT8, cXX is the station number (CTD cast number) and 01A represents the non-toxic sample. Station number can be found on the morning sheets.

At each station there are 9 samples in total (with replicates A and B, therefore 18), with the first being 01A/B. Filtering of the water from the CTD starts from the deepest sample first so that 02A/B holds the deepest filters, and so forth. The last cyrovial (09A/B) aways contains the 7m bottle sample (for cross-calibration with the non-toxic sample – 01A/B).

From all depths one bottle is filtered per replicate and the volume in the bottle is 2156ml (2.1L) and should be filled to the brim. This volume along with the leakage's are recorded in the HPLC station log-sheet, so that the volume filtered can be accurately calculated and problems with the equipment are obvious.

If it is necessary that the samples are kept unfiltered for long there are black bags to place over the jerry cans. So that it is not necessary to move between the liquid-N and the WetLab there is a cool box in the WetLab that should be filled with ice pre-station. A bucket placed in the –20C walk-in freezer overnight will produce enough ice per day.

Sets A and B should be separated when storing in liquid-N.

Chlorophyll

There is a station chlorophyll logsheet which should also be filled in on station. It is best to filter these samples at the same time as the HPLC so that the samples are in the same numerical and depth order. Again a sample is first taken from the non-toxic.

Chlorophyll sample number – this is a sequential numbering system to identify the chl sample during analysis and data entry. Upon arriving on station the number can be found by looking on the underway chl sheets and continuing the numbering. The scintillation vials are labelled 1-106 and are used in that order. Analysis takes place after 24hrs in the freezer compartment of the fridge and after the analysis the vials are washed and dryed and replaced in order. This was there is a constant supply of vials and no confusion (in theory). During station time the vials are stored in the cool box until after the station – at this point yesterdays samples are removed from the freezer to be analysed and to make room for today's samples.

Underway (and optics stops)

The underway sample vials are numbered sequentially, with the prefix A8 (AMT8) UW (underway) 01A/B. Optics stops will be numbered A8 OPS 02A/B – the optics stops will be a continuation of the underway lablling and

Preliminary Results.

Preserved net samples had not been counted at the time of writing. These preliminary results are based mainly upon numbers of colonies counted in the 15m CTD bottles, where available. These were scaled up to estimates of the number of colonies per square metre of water surface, from knowledge of the volume of the CTD rosette bottle, and from estimates of the depth to which phytoplankton were present in the water column, based on the depth profile of chlorophyll fluorescence. It was assumed that *Trichodesmium* colonies were found in reasonable density throughout the top half of the depth to which chlorophyll extended. This assumption may be incorrect given that colonies can migrate vertically. Where CTD bottle counts were not made, colony concentration was extrapolated from one of the other techniques. It is estimated that these colony abundances are accurate only to an order of magnitude.

Table 1: Numbers of *Trichodesmium* Colonies per Square Metre at each Station.

Station Number	? 3rd May	C10? 4th May	? 5th May	? 6th May	C14? 7th May	C15? 8th May	C16	C17
Colony Abundance	32	0	0	0	0	0	0	0

Station Number	C19	C21	C23	C25	C26	C27	C28	C29
Colony Abundance	0	0	0	0	0	0	230,000	550,000

Station Number	C30	C31	C32	C33	C34	C36	C37	C39
Colony Abundance	710,000	710,000	2,000	510,000	0	4,900	14,000	1,700

Station Number	C41	C43	C45	C47	C49	C51	C53	C54
Colony Abundance	0	0	2,300	0	0	8,600	22,000	4,800

Station Number	C56	C58	C59	C62				
Colony Abundance	1,700	0	0	0				