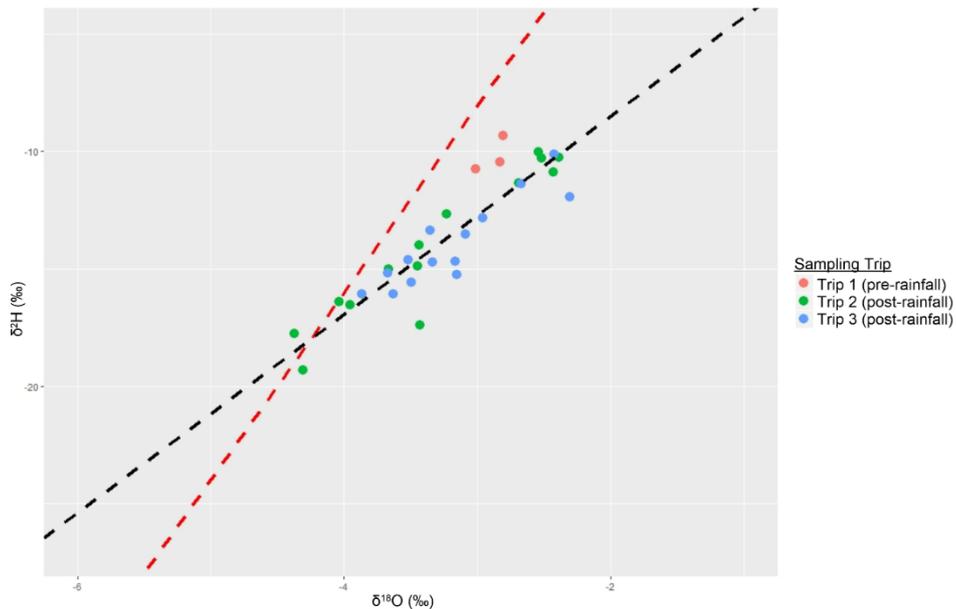


23

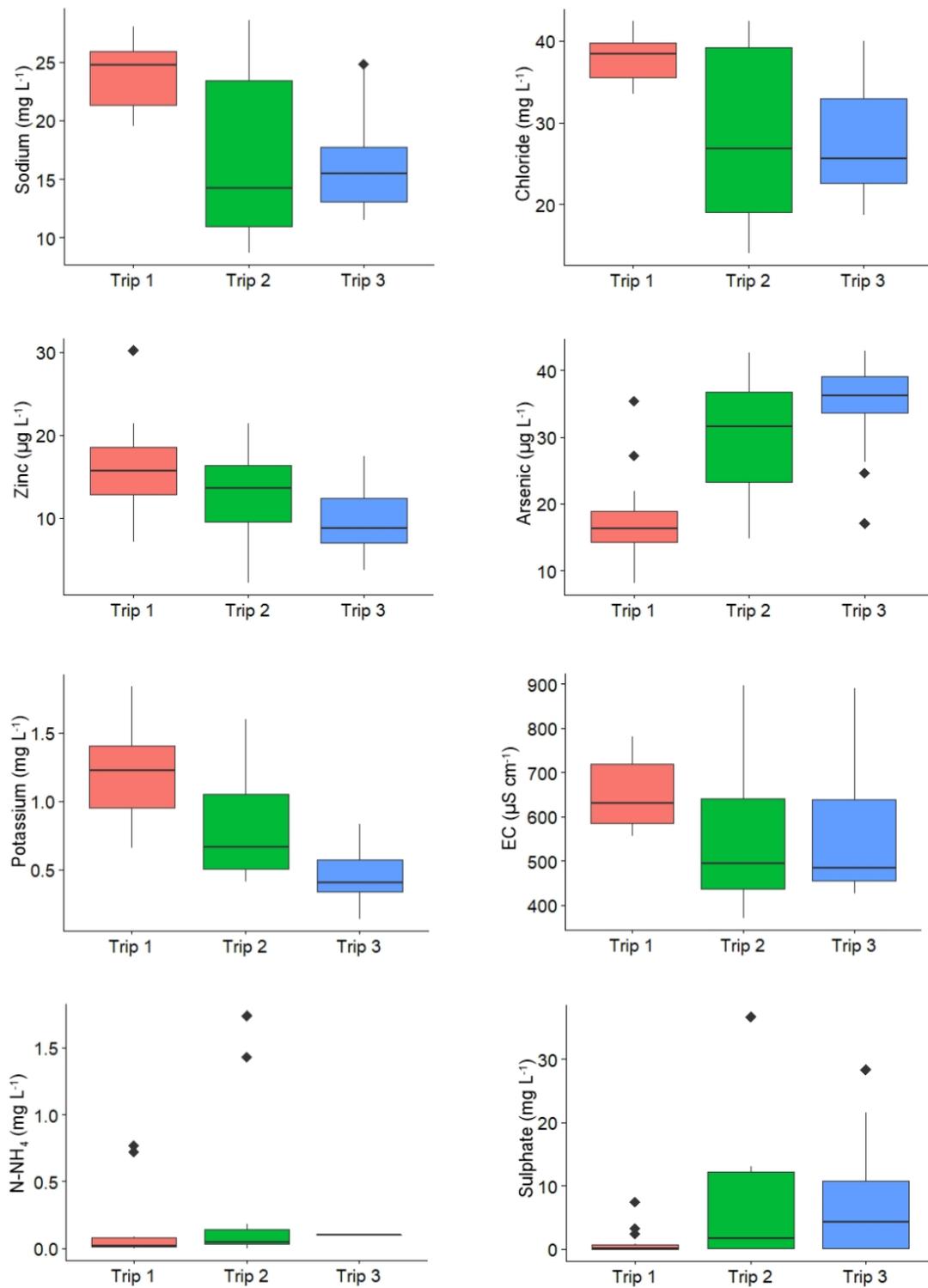
24 *Figure A.2. Hydraulic gradients calculated between S1 and S2 water level loggers (black*  
 25 *line) and gradient between the wetland and S1 water level loggers (red line). The sampling*  
 26 *dates are shown as red dots. A positive gradient indicates water flow towards the coast. A*  
 27 *negative gradient indicates water flow towards the wetland.*

28



29

30 *Figure A.3.  $\delta^2H$  versus  $\delta^{18}O$  values for the three sampling trips showing enriched values in*  
 31 *pre-rainfall samples compared to post-rainfall samples. Red dashed line indicates the local*  
 32 *meteoric water line of Sydney Basin ( $\delta^2H = 8\delta^{18}O + 16$  (Hughes & Crawford, 2013)). Black*  
 33 *dashed line represents the line of best fit for the samples ( $\delta^2H = 4.22\delta^{18}O - 0.018$ ,  $R^2 = 0.81$ ,*  
 34  *$p = 2.70 \times 10^{-12}$ ).*



35

36 *Figure A.4. Boxplots of concentrations of chemical variables with significant differences ( $p =$*   
 37  *$< 0.05$ ) pre-rainfall (Trip 1) and post-rainfall (Trip 2 and Trip 3). Black diamonds represent*  
 38 *outliers.*

39 Table A.1. Table of results for Anna Bay chemical and DOM analyses for all samples for all trips pre- and post-rainfall.

| Sample  | MLSA_0-10cm   | MLSA_10-20cm | MLSA_20-25cm | MLSG_0-10cm | MLSG_40-50cm | MLSG_90-100cm | MLSG_145-155cm | MLSG_195-205cm |       |           |       |       |       |       |
|---|---|--------------|--------------|-------------|--------------|---------------|----------------|----------------|-------|-----------|-------|-------|-------|-------|
| <b>Sampling Date</b>                                | <b>9<sup>th</sup> May, 2018 (during MLS installation)</b> |              |              |             |              |               |                |                |       |           |       |       |       |       |
| $\delta^{13}\text{C}_{\text{DOC}}$ (‰)              | -29.3   | -28.5        | -28.2        | -19.1       | -7.3         | -28.4         | -28.1          | -28.6          |       |           |       |       |       |       |
| C %   | 0.8   | 12.2         | 24.5         | 0.3         | 0.2          | 0.1           | 4.5            | 48.5           |       |           |       |       |       |       |
| Sample  | MLSB<br>4   | MLSD3        | MLSD5        | MLSD7       | MLSD9        | MLSE6         | MLSE<br>8      | MLSF8          | MLSI4 | MLSJ<br>3 | MLSG3 | MLSG5 | MLSH2 | MLSH4 |
| <b>Sampling Date</b>                                | <b>13<sup>th</sup> - 14<sup>th</sup> February, 2018</b>   |              |              |             |              |               |                |                |       |           |       |       |       |       |
| <b>Pre-rainfall / post-rainfall</b>                 | <b>Pre-rainfall</b>                                       |              |              |             |              |               |                |                |       |           |       |       |       |       |
| Peptide like (% RA)                                 | 0.09  | 0.05         | 0.09         | 0.18        | 0.0          | 0.02          | 0.07           | 0.11           | 0.01  | 0.10      | 0.02  | 0.27  | 0.0   | 0.15  |
| Sugars (% RA)                                       | 0.18  | 0.12         | 0.2          | 0.27        | 0.25         | 0.23          | 0.18           | 0.15           | 0.26  | 0.18      | 0.13  | 0.14  | 0.19  | 0.13  |
| Condensed Aromatics (% RA)                          | 2.11  | 2.63         | 2.52         | 1.65        | 3.26         | 2.61          | 2.22           | 1.68           | 2.81  | 2.46      | 3.9   | 0.93  | 4.37  | 1.49  |
| Polyphenolic (% RA)                                 | 12.19   | 12.86        | 13.62        | 11.65       | 15.47        | 13.27         | 12.53          | 10.41          | 14.28 | 13.13     | 18.12 | 8.74  | 17.13 | 10.92 |
| Highly Unsaturated and Phenolics (% RA)             | 82.09   | 80.93        | 80.34        | 82.54       | 77.88        | 80.46         | 81.16          | 83.41          | 78.99 | 80.85     | 75.96 | 85.23 | 75.78 | 83.29 |
| Aliphatic (% RA)                                    | 3.5   | 3.54         | 3.42         | 3.95        | 3.36         | 3.61          | 4.00           | 4.39           | 3.87  | 3.46      | 2.00  | 4.84  | 2.71  | 4.14  |
| NOSC (weighted average)                             | 0.06  | 0.05         | 0.09         | 0.06        | 0.09         | 0.07          | 0.05           | 0.02           | 0.08  | 0.05      | 0.17  | 0     | 0.09  | 0.04  |
| Almod (weighted average)                            | 0.34  | 0.34         | 0.35         | 0.33        | 0.36         | 0.35          | 0.34           | 0.33           | 0.35  | 0.35      | 0.38  | 0.31  | 0.38  | 0.33  |
| LMWN (% RA)   | 10.94   | 13.78        | 11.96        | 16.51       | 11.20        | 11.92         | 15.96          | 15.51          | 13.72 | 10.76     | 9.58  | 13.10 | 10.17 | 15.07 |
| HS (% RA)   | 52.33   | 52.23        | 55.53        | 53.40       | 56.04        | 54.07         | 62.23          | 59.95          | 57.52 | 54.94     | 49.00 | 58.58 | 51.09 | 50.66 |
| BB (% RA)   | 17.45   | 14.21        | 14.46        | 15.06       | 15.13        | 17.53         | 16.27          | 17.47          | 10.59 | 11.65     | 10.92 | 15.03 | 14.2  | 17.78 |
| BP (% RA)   | 0.01  | 0.37         | 0.04         | 0.26        | 0.00         | 0.00          | 0.17           | 0.25           | 2.16  | 1.02      | 0.26  | 0.07  | 1.42  | 0.05  |
| HOC (% RA)  | 19.25   | 19.41        | 18.01        | 14.75       | 17.62        | 16.47         | 5.36           | 6.82           | 16.01 | 21.63     | 30.23 | 13.23 | 23.1  | 16.43 |
| Number of total molecular formula                   | 7860  | 8255         | 8066         | 8301        | 7894         | 8806          | 8860           | 9371           | 8116  | 8025      | 7466  | 7419  | 7524  | 7969  |
| Number of sugar formulae                            | 38  | 34           | 45           | 57          | 52           | 55            | 46             | 41             | 54    | 39        | 28    | 31    | 41    | 32    |
| Number of highly unsaturated and phenolics formulae | 5872  | 6049         | 5899         | 6232        | 5610         | 6501          | 6585           | 7142           | 5852  | 5915      | 5305  | 5793  | 5207  | 6074  |
| Number of polyphenolic formulae                     | 1120  | 1240         | 1244         | 1121        | 1329         | 1282          | 1254           | 1166           | 1263  | 1196      | 1358  | 815   | 1366  | 1034  |
| Number of condensed aromatics formulae              | 318   | 406          | 363          | 267         | 433          | 406           | 363            | 314            | 401   | 354       | 453   | 152   | 516   | 236   |
| Number of peptide-like formulae                     | 27  | 17           | 28           | 58          | 0            | 6             | 23             | 40             | 2     | 30        | 6     | 68    | 1     | 41    |
| Number of aliphatic formulae                        | 485   | 509          | 487          | 566         | 470          | 556           | 589            | 668            | 544   | 491       | 316   | 560   | 393   | 552   |
| DOC conc. (mg / L)                                  | 7.37  | 5.51         | 7.55         | 9.11        | 9.61         | 6.07          | 7.05           | 5.09           | 10.55 | 4.84      | 6.42  | 6.88  | 4.79  | 7.7   |
| BP ( $\mu\text{g}$ / L)                             | 1   | 21           | 3            | 22          | 0            | 0             | 12             | 13             | 228   | 47        | 18    | 5     | 66    | 4     |
| HS ( $\mu\text{g}$ / L)                             | 3784  | 2933         | 4143         | 4573        | 4545         | 3402          | 4386           | 3147           | 6077  | 2542      | 3329  | 4276  | 2371  | 3867  |
| BB ( $\mu\text{g}$ / L)                             | 1262  | 798          | 1079         | 1290        | 1227         | 1103          | 1147           | 917            | 1119  | 539       | 742   | 1097  | 659   | 1357  |
| LMWN ( $\mu\text{g}$ / L)                           | 791   | 774          | 892          | 1414        | 908          | 750           | 1125           | 814            | 1449  | 498       | 651   | 956   | 472   | 1150  |
| HOC ( $\mu\text{g}$ / L)                            | 1392  | 1090         | 1344         | 1263        | 1429         | 1036          | 378            | 358            | 1691  | 1001      | 2054  | 966   | 1072  | 1254  |
| Dissolved Oxygen (mg / L)                           | 0.41  | 1.14         | 0.37         | 1.18        | 1.27         | 0.39          | 1.23           | 0.37           | 0.96  | 4.76      | 0.38  | 0.4   | 0.38  | 0.93  |
| Electrical Conductivity ( $\mu\text{S}$ / cm)       | 652   | 556          | 699          | 781         | 725          | 602           | 739            | 566            | 570   | 607       | 606   | 772   | 580   | 695   |
| pH  | 6.76  | 6.98         | 6.75         | 6.39        | 6.34         | 7.12          | 6.81           | 7.18           | 6.44  | 6.54      | 6.78  | 6.53  | 6.68  | 6.55  |
| Alkalinity (meq / L)                                | 4.96  | 4.22         | 5.62         | 6.28        | 5.91         | 4.92          | 6.3            | 4.7            | 4.17  | 4.82      | 4.91  | 7.08  | 4.64  | 5.86  |
| N-NH <sub>4</sub> (mg / L)                          | <0.05   | <0.05        | <0.05        | 0.77        | 0.72         | <0.05         | 0.08           | <0.05          | 0.07  | <0.05     | <0.05 | <0.05 | <0.05 | 0.09  |

|   |  |              |              |              |              |              |                   |              |              |                   |              |              |              |              |
|---|--|--------------|--------------|--------------|--------------|--------------|-------------------|--------------|--------------|-------------------|--------------|--------------|--------------|--------------|
| N-NO <sub>3</sub> (mg / L)              | <0.05  | <0.05        | <0.05        | <0.05        | 0.09         | <0.05        | <0.05             | <0.05        | <0.05        | <0.05             | <0.05        | <0.05        | <0.05        | <0.05        |
| Ca (mg / L)                             | 100.6  | 88.33        | 104          | 106.7        | 98.93        | 91.46        | 120.3             | 91.73        | 73.92        | 97.82             | 96.85        | 124.9        | 87.28        | 103          |
| Fe (mg / L)                             | 4.17   | 2.4          | 4.58         | 8.17         | 6.83         | 3.63         | 6.21              | 3.93         | 3.98         | 3.05              | 3.23         | 6.56         | 1.53         | 5.43         |
| K (mg / L)                              | 1.23   | 0.99         | 1.22         | 1.52         | 1.45         | 0.94         | 0.87              | 0.87         | 1.84         | 1.26              | 1.00         | 1.60         | 0.66         | 1.28         |
| Mg (mg / L)                             | 2.54   | 2.80         | 2.82         | 4.59         | 4.30         | 2.30         | 3.16              | 2.89         | 5.35         | 3.06              | 2.73         | 5.47         | 2.37         | 4.18         |
| Mn (mg / L)                             | 21.27  | 19.62        | 24.30        | 42.84        | 42.63        | 23.97        | 31.42             | 32.20        | 37.59        | 21.20             | 21.55        | 38.27        | 17.49        | 39.87        |
| Na (mg / L)                             | 24.83  | 19.53        | 25.1         | 26.17        | 26.67        | 23.69        | 24.62             | 22.08        | 28.04        | 20.00             | 21.09        | 25.00        | 20.8         | 26.33        |
| S (mg / L)                              | 0.45   | 1.53         | 0.57         | 0.58         | 0.55         | 0.39         | 0.46              | 0.32         | 0.8          | 3.11              | 0.65         | 0.5          | 1.12         | 0.57         |
| Si (mg / L)                             | 2.1  | 2.36         | 2.07         | 4.12         | 4.01         | 2.3          | 2.44              | 2.5          | 2.29         | 2.39              | 2.48         | 2.54         | 2.26         | 2.45         |
| Sr (mg / L)                             | 0.8  | 0.73         | 0.86         | 0.91         | 0.82         | 0.77         | 1.02              | 0.79         | 0.61         | 0.8               | 0.81         | 1.05         | 0.71         | 0.87         |
| As (µg / L)                             | 21.84  | 14.18        | 17.63        | 16.93        | 14.26        | 27.19        | 19.24             | 35.42        | 8.14         | 13.32             | 15.62        | 14.87        | 12.53        | 16.87        |
| Al (µg / L)                             | 10.87  | 10.22        | 18.49        | 12.68        | 5.24         | 10.17        | 22.99             | 13.8         | 26.96        | 15.37             | 16.39        | 10.06        | 10.77        | 7.18         |
| Ba (µg / L)                             | 8.2  | 9.24         | 16.1         | 10.09        | 11.29        | 9.42         | 9.64              | 8.41         | 274.9        | 10.5              | 7.22         | 15.01        | 6.56         | 13.76        |
| P (µg / L)                              | 475.48   | 107.23       | 355.71       | 343.47       | 342.68       | 360.98       | 487.05            | 337.92       | 111.8        | 454.21            | 184.31       | 205.7        | 197.07       | 367.63       |
| Cr (µg / L)                             | 0.54   | 0.4          | 0.84         | 0.3          | 0.26         | 0.26         | 0.67              | 0.2          | 0.35         | 0.49              | 0.31         | 0.42         | 0.2          | 0.3          |
| Co (µg / L)                             | 0.26   | <0.20        | <0.20        | <0.20        | <0.20        | <0.20        | <0.20             | <0.20        | 0.29         | <0.20             | <0.20        | 0.20         | <0.20        | <0.20        |
| Cu (µg / L)                             | 0.50   | 0.38         | 0.28         | 0.35         | <0.20        | 0.25         | 0.94              | 1.10         | 0.54         | 4.36              | 0.39         | 10.46        | 0.23         | 1.88         |
| Zn (µg / L)                             | 13.53  | 17.35        | 12.34        | 18.75        | 14.14        | 12.64        | 20.65             | 30.23        | 17.91        | 7.91              | 13.55        | 21.37        | 7.1          | 17.69        |
| Ni (µg / L)                             | 0.41   | 0.40         | 0.24         | <0.20        | <0.20        | <0.20        | 0.26              | 0.38         | 0.55         | 50.99             | 0.33         | 0.24         | <0.20        | 16.07        |
| U (µg / L)                              | 0.2  | <0.2         | <0.2         | <0.2         | <0.2         | <0.2         | <0.2              | <0.2         | <0.2         | <0.2              | <0.2         | <0.2         | <0.2         | <0.2         |
| Chloride (mg / L)                       | 39.01  | 35.5         | 39.73        | 40.98        | 41.52        | 35.59        | 37.77             | 34.35        | 42.45        | 35.05             | 37.62        | 39.74        | 33.52        | 39.31        |
| Phosphate (mg / L)                      | <0.3   | <0.3         | <0.3         | <0.3         | <0.3         | <0.3         | <0.3              | <0.3         | <0.3         | <0.3              | <0.3         | <0.3         | <0.3         | <0.3         |
| Sulphate (mg / L)                       | <0.3   | 3.29         | <0.3         | <0.3         | <0.3         | <0.3         | <0.3              | <0.3         | <0.3         | 7.42              | 0.77         | <0.3         | 2.39         | <0.3         |
| δ <sup>2</sup> H (‰)*                   | MLSA_40cm: -9.31, MLSB_100cm: -10.44 and MLSD115cm: -10.76 |              |              |              |              |              |                   |              |              |                   |              |              |              |              |
| δ <sup>18</sup> O (‰)*                  | MLSA_40cm: -2.81, MLSB_100cm: -2.83 and MLSD115cm: -3.01   |              |              |              |              |              |                   |              |              |                   |              |              |              |              |
| <b>Sampling Date</b>                    | <b>15<sup>th</sup> – 16<sup>th</sup> March, 2018</b>       |              |              |              |              |              |                   |              |              |                   |              |              |              |              |
| <b>Pre-rainfall / post-rainfall</b>     | <b>Post-rainfall</b>                                       |              |              |              |              |              |                   |              |              |                   |              |              |              |              |
| <b>Sample</b>                           | <b>MLSB<br/>4</b>  | <b>MLSD3</b> | <b>MLSD5</b> | <b>MLSD7</b> | <b>MLSD9</b> | <b>MLSE6</b> | <b>MLSE<br/>8</b> | <b>MLSF8</b> | <b>MLSI4</b> | <b>MLSJ<br/>3</b> | <b>MLSG3</b> | <b>MLSG5</b> | <b>MLSH2</b> | <b>MLSH4</b> |
| Peptide like (% RA)                     | 0.0  | 0.0          | 0.02         | 0.07         | 0.02         | 0.0          | 0.0               | 0.44         | 0.04         | 0.0               | 0.0          | 0.2          | 0            | 0.08         |
| Sugars (% RA)                           | 0.16   | 0.14         | 0.15         | 0.18         | 0.17         | 0.1          | 0.16              | 0.04         | 0.17         | 0.11              | 0.09         | 0.16         | 0.12         | 0.11         |
| Condensed Aromatics (% RA)              | 6.77   | 5.79         | 3.01         | 2.21         | 2.77         | 5.82         | 6.79              | 4.62         | 2.52         | 7.69              | 6.7          | 1.73         | 7.75         | 2.57         |
| Polyphenolic (% RA)                     | 24.72  | 19.84        | 14.35        | 13.56        | 14.8         | 22.21        | 24.48             | 19.11        | 13.99        | 23.97             | 23.56        | 11.73        | 24.57        | 14.42        |
| Highly Unsaturated and Phenolics (% RA) | 67.81  | 71.65        | 79.39        | 80.29        | 78.44        | 71.22        | 68.14             | 74.16        | 79.47        | 66.71             | 68.41        | 82.18        | 66.63        | 79.12        |
| Aliphatic (% RA)                        | 0.7  | 2.71         | 3.22         | 3.85         | 3.95         | 0.75         | 0.58              | 1.66         | 3.97         | 1.61              | 1.34         | 4.15         | 1.04         | 3.8          |
| NOSC (weighted average)                 | 0.27   | 0.15         | 0.08         | 0.08         | 0.09         | 0.22         | 0.27              | 0.16         | 0.07         | 0.21              | 0.21         | 0.05         | 0.24         | 0.07         |
| Almod (weighted average)                | 0.43   | 0.39         | 0.35         | 0.35         | 0.35         | 0.41         | 0.43              | 0.39         | 0.35         | 0.42              | 0.42         | 0.33         | 0.43         | 0.35         |
| LMWN (% RA)                             | 18.67  | 22.69        | 15.04        | 15.96        | 14.75        | 29.34        | 22.84             | 18.82        | 17.26        | 18.65             | 21.42        | 16.78        | 18.76        | 18.17        |
| HS (% RA)                               | 64.74  | 54.36        | 65.53        | 58.91        | 61.39        | 55.74        | 59.94             | 58.58        | 61.51        | 56.22             | 59.63        | 67.99        | 59.21        | 60.92        |
| BB (% RA)                               | 14.2   | 18.93        | 13.71        | 15.26        | 18.84        | 13.69        | 16.15             | 13.57        | 19.06        | 15.9              | 16.48        | 10.51        | 13.32        | 18.74        |
| BP (% RA)                               | 2.39   | 4.02         | 2.15         | 0.6          | 0            | 1.23         | 1.11              | 0.83         | 1.74         | 2.23              | 2.09         | 1.57         | 2.32         | 0.5          |
| HOC (% RA)                              | 0  | 0            | 3.57         | 9.26         | 5.02         | 0            | 0                 | 8.13         | 0.44         | 7.03              | 0.38         | 3.17         | 6.36         | 1.67         |
| Number of total molecular formula       | 6650   | 7321         | 7703         | 8876         | 8766         | 7201         | 6628              | 6605         | 8404         | 6644              | 6496         | 8473         | 6905         | 8890         |
| Number of sugar formulae                | 30   | 28           | 33           | 44           | 43           | 21           | 32                | 9            | 17           | 39                | 26           | 31           | 40           | 23           |

|   |  |        |        |        |        |        |        |        |        |        |        |        |        |        |
|---|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Number of highly unsaturated and phenolic formulae    | 4421   | 4894   | 5605   | 6595   | 6329   | 4945   | 4389   | 4513   | 4332   | 6372   | 4501   | 6529   | 6124   | 4321   |
| Number of polyphenolics formulae                      | 1479   | 1422   | 1223   | 1283   | 1368   | 1518   | 1480   | 1253   | 1385   | 1139   | 1516   | 1336   | 1279   | 1423   |
| Number of condensed aromatics formulae                | 591  | 593    | 389    | 349    | 413    | 575    | 613    | 467    | 554    | 281    | 683    | 382    | 376    | 632    |
| Number of peptide-like formulae                       | 0  | 1      | 6      | 24     | 6      | 0      | 0      | 90     | 0      | 61     | 0      | 27     | 12     | 0      |
| Number of aliphatic formulae                          | 129  | 383    | 447    | 581    | 607    | 142    | 114    | 273    | 208    | 581    | 179    | 585    | 573    | 245    |
| DOC conc. (mg / L)                                    | 4.19   | 2.91   | 5      | 7.85   | 8.19   | 2.38   | 3.01   | 1.71   | 9.79   | 4.3    | 3.87   | 5.67   | 3.86   | 5.41   |
| BP ( $\mu\text{g} / \text{L}$ )                       | 46   | 94     | 65     | 48     | 0      | 25     | 28     | 13     | 128    | 69     | 55     | 81     | 66     | 23     |
| HS ( $\mu\text{g} / \text{L}$ )                       | 1245   | 1272   | 1983   | 4714   | 4186   | 1136   | 1514   | 915    | 4514   | 1736   | 1570   | 3500   | 1685   | 2779   |
| BB ( $\mu\text{g} / \text{L}$ )                       | 273  | 443    | 415    | 1221   | 1285   | 279    | 408    | 212    | 1399   | 491    | 434    | 541    | 379    | 855    |
| LMWN ( $\mu\text{g} / \text{L}$ )                     | 359  | 531    | 455    | 1277   | 1006   | 598    | 577    | 294    | 1267   | 576    | 564    | 864    | 534    | 829    |
| HOC ( $\mu\text{g} / \text{L}$ )                      | 0  | 0      | 108    | 741    | 342    | 0      | 0      | 127    | 32     | 217    | 10     | 163    | 181    | 76     |
| Dissolved Oxygen (mg / L)                             | 0.39   | 0.69   | 0.47   | 1.22   | 2.08   | 0.36   | 0.71   | 0.44   | 0.91   | 0.57   | 0.37   | 0.62   | 0.43   | 0.81   |
| Electrical Conductivity ( $\mu\text{S} / \text{cm}$ ) | 416  | 497    | 460    | 897    | 855    | 371    | 493    | 399    | 650    | 498    | 490    | 690    | 430    | 610    |
| pH  | 6.63   | 7.06   | 6.67   | 6.5    | 6.42   | 7.24   | 6.87   | 7.32   | 6.61   | 6.72   | 6.85   | 6.55   | 6.82   | 6.56   |
| Alkalinity (meq / L)                                  | 3.48   | 3.16   | 3.9    | 8.03   | 7.35   | 3.97   | 4.03   | 3.27   | 5.64   | 7.12   | 3.8    | 6.94   | 3.52   | 5.69   |
| N-NH <sub>4</sub> (mg / L)                            | <0.05  | <0.05  | 0.05   | 1.74   | 1.43   | <0.05  | 0.18   | 0.06   | 0.15   | <0.05  | <0.05  | <0.05  | <0.05  | 0.12   |
| N-NO <sub>3</sub> (mg / L)                            | <0.05  | <0.05  | <0.05  | <0.05  | <0.05  | <0.05  | <0.05  | <0.05  | <0.05  | <0.05  | <0.05  | <0.05  | <0.05  | <0.05  |
| Ca (mg / L)   | 72.48  | 82.97  | 74.84  | 168.7  | 159    | 69.8   | 85.92  | 69.68  | 110.3  | 91.62  | 96.85  | 124.9  | 65.39  | 119.8  |
| Fe (mg / L)   | 3.44   | 2.36   | 3.6    | 10.72  | 9.19   | 2.46   | 4.08   | 2.43   | 5.08   | 1.57   | 3.23   | 6.56   | 1.6    | 5.36   |
| K (mg / L)  | 0.59   | 0.46   | 0.5    | 1.1    | 1.17   | 0.62   | 0.41   | 0.53   | 1.07   | 0.71   | 1      | 1.6    | 0.46   | 0.84   |
| Mg (mg / L)   | 2.15   | 3.95   | 2.13   | 5.37   | 5.5    | 2.8    | 2.25   | 3.11   | 5.55   | 3.84   | 2.73   | 5.47   | 2.43   | 4.21   |
| Mn (mg / L)   | 13.53  | 16.35  | 16.51  | 40.75  | 41.81  | 23.86  | 16.78  | 16.16  | 40.74  | 14.89  | 21.55  | 38.27  | 12.48  | 25.75  |
| Na (mg / L)   | 10.02  | 10.93  | 11     | 27.44  | 28.61  | 9.51   | 11.85  | 8.7    | 24.25  | 16.1   | 21.09  | 25     | 12.38  | 18.71  |
| S (mg / L)  | 0.21   | 12.62  | 0.24   | 0.49   | 0.49   | 0.85   | 0.21   | 4.54   | 0.44   | 4.85   | 0.65   | 0.5    | 2.13   | 0.34   |
| Si (mg / L)   | 2.14   | 2.02   | 1.9    | 5.07   | 4.91   | 2.33   | 1.95   | 2.01   | 2.8    | 2.12   | 2.48   | 2.54   | 2.11   | 2.93   |
| Sr (mg / L)   | 0.57   | 0.69   | 0.59   | 1.32   | 1.26   | 0.56   | 0.72   | 0.57   | 0.88   | 0.76   | 0.81   | 1.05   | 0.53   | 0.93   |
| As ( $\mu\text{g} / \text{L}$ )                       | 42.69  | 25.37  | 37.17  | 36.87  | 31.87  | 36.13  | 36.48  | 39.4   | 15.82  | 22.53  | 15.62  | 14.87  | 25.6   | 31.35  |
| Al ( $\mu\text{g} / \text{L}$ )                       | 13.33  | 8.67   | 24.85  | 7.13   | 4.3    | 9.29   | 17.41  | 6.37   | 17.27  | 12.49  | 16.39  | 10.06  | 18.05  | 7.12   |
| Ba ( $\mu\text{g} / \text{L}$ )                       | 3.98   | 6.26   | 16.87  | 11.47  | 12.74  | 5.15   | 8.61   | 3.76   | 185.07 | 5.3    | 7.22   | 15.01  | 4.25   | 10.78  |
| P ( $\mu\text{g} / \text{L}$ )                        | 439.45   | 102.95 | 402.84 | 487.93 | 453.95 | 268.47 | 411.5  | 207.97 | 205.6  | 252.21 | 184.31 | 205.7  | 244.22 | 385.95 |
| Cr ( $\mu\text{g} / \text{L}$ )                       | 0.35   | <0.20  | 0.57   | 0.26   | 0.90   | 0.25   | 0.65   | <0.20  | 0.38   | 0.27   | 0.31   | 0.42   | 0.29   | 0.31   |
| Co ( $\mu\text{g} / \text{L}$ )                       | <0.20  | <0.20  | 0.2    | <0.20  | <0.20  | <0.20  | <0.20  | <0.20  | 1.02   | <0.20  | <0.20  | 0.2    | <0.20  | <0.20  |
| Cu ( $\mu\text{g} / \text{L}$ )                       | <0.20  | 0.3    | <0.20  | <0.20  | <0.20  | 5.18   | <0.20  | <0.20  | 0.36   | <0.20  | 0.39   | 10.46  | 0.24   | 2.82   |
| Zn ( $\mu\text{g} / \text{L}$ )                       | 13.75  | 15.84  | 15.38  | 17.00  | 12.42  | 8.34   | 20.48  | 6.83   | 16.59  | 2.21   | 13.55  | 21.37  | 8.65   | 12.11  |
| Ni ( $\mu\text{g} / \text{L}$ )                       | 0.20   | 0.3    | 0.53   | 0.22   | 0.49   | 86.00  | 0.61   | <0.20  | 0.69   | 0.20   | 0.33   | 0.24   | <0.20  | 15.15  |
| U ( $\mu\text{g} / \text{L}$ )                        | <0.2   | <0.2   | <0.2   | <0.2   | <0.2   | <0.2   | <0.2   | <0.2   | <0.2   | <0.2   | <0.2   | <0.2   | <0.2   | <0.2   |
| Chloride (mg / L)                                     | 14.1   | 29.9   | 19.2   | 42.3   | 42.3   | 14.1   | 19.1   | 19.0   | 40.8   | 25.8   | 37.6   | 39.7   | 18.4   | 27.9   |
| Phosphate (mg / L)                                    | <0.3   | <0.3   | <0.3   | <0.3   | <0.3   | <0.3   | <0.3   | <0.3   | <0.3   | <0.3   | <0.3   | <0.3   | <0.3   | <0.3   |
| Sulphate (mg / L)                                     | <0.3   | 36.7   | <0.3   | <0.3   | <0.3   | 1.71   | <0.3   | 12.2   | <0.3   | 13.0   | 0.8    | <0.3   | 5.6    | <0.3   |
| $\delta^2\text{H}$ (‰)                                | -19.30   | -11.35 | -17.39 | -10.30 | -10.26 | -17.77 | -16.41 | -15.02 | -10.13 | -13.37 | -14.87 | -12.66 | -16.53 | -14.61 |
| $\delta^{18}\text{O}$ (‰)                             | -4.31  | -2.69  | -3.43  | -2.52  | -2.39  | -4.37  | -4.04  | -3.67  | -2.43  | -3.35  | -3.45  | -3.23  | -3.95  | -3.52  |
| <b>Sampling Date</b>                                  | <b>27<sup>th</sup> – 28<sup>th</sup> March, 2018</b> |        |        |        |        |        |        |        |        |        |        |        |        |        |
| <b>Pre-rainfall / post-rainfall</b>                   | <b>Post-rainfall</b>                                 |        |        |        |        |        |        |        |        |        |        |        |        |        |

| Sample  | MLSB<br>4 | MLSD3 | MLSD5 | MLSD7 | MLSD9 | MLSE6 | MLSE<br>8 | MLSF8 | MLSI4 | MLSJ<br>3 | MLSG3 | MLSG5 | MLSH2 | MLSH4 |
|---|-----------|-------|-------|-------|-------|-------|-----------|-------|-------|-----------|-------|-------|-------|-------|
| Peptide like (% RA)                                 | 0.01      | 0.02  | 0.01  | 0.13  | 0.17  | 0     | 0         | 0.03  | 0.14  | 0         | 0     | 0.06  | 0     | 0.23  |
| Sugars (% RA)                                       | 0.11      | 0.12  | 0.12  | 0.19  | 0.2   | 0.1   | 0.14      | 0.1   | 0.22  | 0.19      | 0.08  | 0.22  | 0.1   | 0.15  |
| Condensed Aromatics (% RA)                          | 4.35      | 4.37  | 4.4   | 1.95  | 1.83  | 4.5   | 5.7       | 4.07  | 2.39  | 7.65      | 7.75  | 3.04  | 8.46  | 2.53  |
| Polyphenolic (% RA)                                 | 20.22     | 17.99 | 18.99 | 12.77 | 12.49 | 18.34 | 21.71     | 17.1  | 13.31 | 24.31     | 23.01 | 15.43 | 25.78 | 14.51 |
| Highly Unsaturated and Phenolics (% RA)             | 74.15     | 75.83 | 74.44 | 80.89 | 81.12 | 76.16 | 71.19     | 77.37 | 80.1  | 67.04     | 67.78 | 77.93 | 64.83 | 79.06 |
| Aliphatic (% RA)                                    | 1.27      | 1.79  | 2.17  | 4.23  | 4.36  | 1.01  | 1.4       | 1.42  | 4.02  | 0.92      | 1.46  | 3.51  | 0.91  | 3.66  |
| NOSC (weighted average)                             | 0.18      | 0.14  | 0.16  | 0.07  | 0.04  | 0.16  | 0.21      | 0.15  | 0.06  | 0.25      | 0.19  | 0.1   | 0.25  | 0.08  |
| Almod (weighted average)                            | 0.4       | 0.38  | 0.39  | 0.34  | 0.34  | 0.39  | 0.41      | 0.38  | 0.35  | 0.43      | 0.42  | 0.36  | 0.44  | 0.35  |
| LMWN (% RA)   | 25.15     | 18.82 | 19.56 | 14.21 | 14.74 | 29.16 | 23.15     | 26.51 | 16.06 | 22.27     | 27.75 | 20.78 | 22.95 | 15.43 |
| HS (% RA)   | 57.89     | 60.82 | 70.77 | 55.95 | 53.67 | 53.02 | 59.6      | 58.93 | 60.38 | 59.48     | 57.29 | 56    | 59.92 | 58.21 |
| BB (% RA)   | 15.13     | 18.63 | 8.89  | 16.21 | 22.55 | 16.86 | 16.57     | 11.77 | 17.86 | 14.34     | 12.76 | 17.43 | 14.6  | 17.45 |
| BP (% RA)   | 1.87      | 1.78  | 0.75  | 0.39  | 0.07  | 0.95  | 0.69      | 2.79  | 1.6   | 1.77      | 2.2   | 0.4   | 2.03  | 0.23  |
| HOC (% RA)  | 0         | 0     | 0     | 13.25 | 8.96  | 0     | 0         | 0     | 4.13  | 2.06      | 0     | 5.38  | 0.46  | 8.65  |
| Number of total molecular formula                   | 5771      | 7092  | 7557  | 9344  | 8309  | 6437  | 7795      | 7117  | 8782  | 7067      | 6559  | 8691  | 7141  | 9306  |
| Number of sugar formulae                            | 17        | 27    | 28    | 54    | 46    | 21    | 32        | 22    | 16    | 48        | 24    | 42    | 52    | 43    |
| Number of highly unsaturated and phenolics formulae | 4095      | 4966  | 5267  | 6968  | 6165  | 4577  | 5310      | 5095  | 4295  | 6287      | 4596  | 6788  | 6440  | 4632  |
| Number of polyphenolic formulae                     | 1121      | 1329  | 1419  | 1290  | 1177  | 1233  | 1580      | 1286  | 1393  | 1362      | 1604  | 1426  | 1278  | 1532  |
| Number of condensed aromatics formulae              | 362       | 488   | 499   | 341   | 286   | 446   | 617       | 472   | 639   | 431       | 741   | 403   | 374   | 685   |
| Number of peptide-like formulae                     | 2         | 5     | 2     | 43    | 52    | 0     | 0         | 9     | 0     | 22        | 0     | 71    | 45    | 0     |
| Number of aliphatic formulae                        | 174       | 277   | 342   | 648   | 583   | 160   | 256       | 233   | 216   | 541       | 176   | 576   | 593   | 175   |
| DOC conc. (mg / L)                                  | 2.8       | 2.5   | 3.37  | 7.44  | 7.4   | 2.26  | 2.67      | 1.51  | 8.46  | 3.76      | 3.31  | 4.95  | 3.49  | 4.14  |
| BP (µg / L)   | 49        | 36    | 22    | 30    | 5     | 18    | 18        | 49    | 111   | 48        | 57    | 20    | 48    | 9     |
| HS (µg / L)   | 1519      | 1231  | 2070  | 4300  | 3786  | 1000  | 1565      | 1036  | 4181  | 1613      | 1482  | 2770  | 1420  | 2268  |
| BB (µg / L)   | 397       | 377   | 260   | 1246  | 1591  | 318   | 435       | 207   | 1237  | 389       | 330   | 862   | 346   | 680   |
| LMWN (µg / L)                                       | 660       | 381   | 572   | 1092  | 1040  | 550   | 608       | 466   | 1112  | 604       | 718   | 1028  | 544   | 601   |
| HOC (µg / L)  | 0         | 0     | 0     | 1018  | 632   | 0     | 0         | 0     | 286   | 56        | 0     | 266   | 11    | 337   |
| Dissolved Oxygen (mg / L)                           | 0.4       | 0.62  | 0.56  | 0.91  | 2.43  | 0.4   | 0.46      | 0.5   | 1.05  | 0.71      | 0.53  | 0.84  | 0.83  | 1.03  |
| Electrical Conductivity (µS / cm)                   | 428       | 501   | 477   | 889   | 878   | 427   | 472       | 452   | 644   | 461       | 491   | 721   | 427   | 619   |
| pH  | 6.68      | 7.14  | 6.76  | 6.47  | 6.46  | 7.24  | 6.91      | 7.31  | 6.59  | 6.85      | 6.98  | 6.61  | 6.86  | 6.61  |
| Alkalinity (meq / L)                                | 3.91      | 3.52  | 4.2   | 8.01  | 7.85  | 3.65  | 4.3       | 3.66  | 5.73  | 3.94      | 4     | 6.56  | 3.63  | 5.27  |
| N-NH <sub>4</sub> (mg / L)                          | 0.10      | 0.10  | 0.10  | 0.10  | 0.10  | 0.10  | 0.10      | 0.10  | 0.10  | 0.10      | 0.10  | 0.10  | 0.10  | 0.10  |
| N-NO <sub>3</sub> (mg / L)                          | <0.05     | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05     | <0.05 | <0.05 | <0.05     | <0.05 | <0.05 | <0.05 | <0.05 |
| Ca (mg / L)   | 79.1      | 71.9  | 75.98 | 154   | 155.8 | 77.05 | 87.66     | 76.77 | 115.7 | 77.01     | 86.04 | 125   | 71.86 | 115.8 |
| Fe (mg / L)   | 3.62      | 2.04  | 3.43  | 9.36  | 9.15  | 2.82  | 3.78      | 2.86  | 4.8   | 1.21      | 1.66  | 6.64  | 1.78  | 5.65  |
| K (mg / L)  | 0.39      | 0.36  | 0.26  | 0.75  | 0.83  | 0.45  | 0.14      | 0.41  | 0.83  | 0.33      | 0.4   | 0.59  | 0.23  | 0.51  |
| Mg (mg / L)   | 2.53      | 4.05  | 2.15  | 4.76  | 4.99  | 3.34  | 2.23      | 4.11  | 5.52  | 3.46      | 3.98  | 3.34  | 2.9   | 3.89  |
| Mn (mg / L)   | 15.10     | 16.47 | 17.59 | 41.70 | 41.96 | 16.71 | 16.61     | 18.49 | 39.32 | 13.81     | 15.54 | 29.85 | 15.24 | 25.93 |
| Na (mg / L)   | 12.57     | 16.55 | 12.91 | 23.72 | 24.83 | 11.99 | 13.64     | 15.36 | 24.63 | 13.86     | 15.56 | 18    | 11.48 | 16.97 |
| S (mg / L)  | 0.21      | 9.19  | 0.21  | 0.43  | 0.98  | 2.04  | 0.2       | 4.32  | 0.45  | 8.35      | 9.89  | 0.34  | 1.48  | 0.34  |
| Si (mg / L)   | 2.06      | 1.64  | 1.86  | 4.78  | 5.03  | 2.27  | 1.97      | 2.19  | 2.82  | 1.95      | 2.02  | 2.78  | 2.08  | 2.85  |

|                           |   |        |        |        |        |        |        |        |        |        |        |        |        |        |
|---------------------------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Sr (mg / L)               | 0.66  | 0.63   | 0.63   | 1.22   | 1.24   | 0.64   | 0.75   | 0.65   | 0.96   | 0.66   | 0.72   | 1.01   | 0.61   | 0.96   |
| As ( $\mu\text{g}$ / L)   | 38.67   | 33.6   | 35.7   | 39.18  | 40.79  | 42.96  | 38.05  | 42.99  | 17.08  | 24.67  | 26.26  | 33.98  | 36.75  | 33.7   |
| Al ( $\mu\text{g}$ / L)   | 11.73   | 8.77   | 17.56  | 6.97   | 6.15   | 6.77   | 19.59  | 14.47  | 13.09  | 15.47  | 18.33  | 10.02  | 10.43  | 5.77   |
| Ba ( $\mu\text{g}$ / L)   | 4.17  | 5.47   | 18.08  | 12.31  | 12.53  | 4.87   | 4.52   | 4.11   | 168.48 | 4.44   | 5.63   | 11.31  | 4.24   | 9.64   |
| P ( $\mu\text{g}$ / L)    | 503.39  | 136.95 | 386.06 | 627.1  | 561.34 | 294.66 | 458.81 | 229.11 | 278.5  | 246.27 | 187.41 | 470.06 | 285.83 | 467.66 |
| Cr ( $\mu\text{g}$ / L)   | 0.31  | 0.24   | 0.51   | 0.38   | 0.27   | 0.21   | 0.73   | 0.50   | 0.21   | 1.28   | 0.44   | 0.50   | 0.29   | 1.29   |
| Co ( $\mu\text{g}$ / L)   | <0.20   | 0.24   | <0.20  | <0.20  | <0.20  | <0.20  | <0.20  | <0.20  | <0.20  | <0.20  | 0.27   | <0.20  | <0.20  | <0.20  |
| Cu ( $\mu\text{g}$ / L)   | 3.14  | 0.53   | 0.93   | 2.28   | 0.26   | 1.14   | 1.97   | 1.45   | 0.47   | 1.23   | 4.08   | 5.48   | 0.87   | 1.05   |
| Zn ( $\mu\text{g}$ / L)   | 12.04   | 6.96   | 12.58  | 7.92   | 6.84   | 6.25   | 8.7    | 8.88   | 14.76  | 3.69   | 11.87  | 16.2   | 7.01   | 17.4   |
| Ni ( $\mu\text{g}$ / L)   | 0.52  | 0.27   | 0.30   | 0.25   | <0.20  | 0.26   | 0.47   | 0.62   | 0.47   | 0.32   | 0.60   | 0.46   | 0.27   | 1.18   |
| U ( $\mu\text{g}$ / L)    | <0.2  | <0.2   | <0.2   | <0.2   | <0.2   | <0.2   | <0.2   | <0.2   | <0.2   | <0.2   | <0.2   | <0.2   | <0.2   | <0.2   |
| Chloride (mg / L)         | 18.7  | 33.6   | 22.8   | 39.7   | 39.9   | 22.5   | 22.0   | 24.8   | 37.8   | 24.6   | 29.0   | 30.6   | 20.1   | 26.4   |
| Phosphate (mg / L)        | <0.3  | <0.3   | <0.3   | <0.3   | <0.3   | <0.3   | <0.3   | <0.3   | <0.3   | <0.3   | <0.3   | <0.3   | <0.3   | <0.3   |
| Sulphate (mg / L)         | <0.3  | 28.4   | <0.3   | <0.3   | <0.3   | 4.9    | <0.3   | 11.2   | <0.3   | 9.6    | 21.5   | <0.3   | 3.8    | <0.3   |
| $\delta^2\text{H}$ (‰)    | -16.06  | -15.57 | -14.71 | -11.36 | -16.00 | -16.07 | -14.67 | -13.53 | -16.00 | -15.50 | -15.20 | -16.00 | -15.20 | -16.00 |
| $\delta^{18}\text{O}$ (‰) | -3.63   | -3.50  | -3.34  | -2.67  | -2.20  | -3.87  | -3.16  | -3.09  | -3.40  | -3.40  | -3.40  | -3.40  | -3.40  | -3.40  |
| Notes                     | * These samples were taken 10 cm adjacent to the MLS at 40 cm, 100 cm and 115 cm depths respectively using a sampling spear |        |        |        |        |        |        |        |        |        |        |        |        |        |

Table A.2. Redundancy analysis results for Component 1 (RDA1) and Component 2 (RDA2) for pre- and post-rainfall samples.

|  | Pre-Rainfall (RDA) |              | Post-Rainfall (RDA) |              |
|--|--------------------|--------------|---------------------|--------------|
|  | RDA1               | RDA2         | RDA1                | RDA2         |
| LMWN                                   | 1.017              | 0.041        | -1.228              | -0.110       |
| HS                                     | 0.818              | -0.530       | 0.112               | -0.282       |
| BB                                     | 0.739              | 0.481        | 0.622               | -0.105       |
| BP                                     | -0.321             | -0.827       | -0.830              | 0.511        |
| HOC                                    | -1.119             | 0.205        | 1.038               | 0.372        |
| Sugars                                 | 0.030              | -0.394       | 0.627               | -0.036       |
| Polyphenolic                           | -0.835             | -0.201       | -0.740              | 0.168        |
| Highly Unsaturated and Phenolics       | 0.792              | 0.294        | 0.682               | -0.284       |
| Condensed Aromatics                    | -0.799             | -0.252       | -0.741              | 0.345        |
| Aliphatics                             | 0.920              | -0.119       | 0.878               | 0.010        |
| Peptide-like                           | 0.492              | 0.286        | 0.620               | 0.186        |
| <b>Eigenvalue</b>                      | <b>2.235</b>       | <b>0.769</b> | <b>1.580</b>        | <b>0.216</b> |
| <b>Proportion Explained</b>            | <b>0.706</b>       | <b>0.243</b> | <b>0.797</b>        | <b>0.109</b> |
| <b>Cumulative Proportion Explained</b> | <b>0.706</b>       | <b>0.950</b> | <b>0.797</b>        | <b>0.906</b> |