

## Appendix 5

### Input variables, output results and storm plots for the FIO in-stream model at Lower Moor Head Farm and Dedra Banks Farm

#### 1. Introduction

This appendix contains supplementary information to the PEDAL2 final report. Input variables and output results from the faecal indicator organism (FIO) in-stream model are given for Lower Moor Head farm (LMH) (Tables A5.1 and A5.2) and for Dedra Banks (DB) (Tables A5.3 and A5.4). The model structure and results of the in-stream model are provided in Sections E and F of the PEDAL2 Final Report (PE0113).

Storm water sampling was undertaken as part of the PEDAL2 project in order to obtain water quality information under high flow conditions. Time series plots of each of the storms monitored are provided below for LMH (Figure A5.1) and DB (Figure A5.2) and relate to Section F of the PEDAL2 Final Report: the in-stream FIO model.

#### 2. Input variables and output results (See main report Section F, FIO in-stream model)

**Table A5.1 FIO in-stream model input variables for LMH**

Storm No	First sample date	Storm intensity (m <sup>3</sup> /hr)	Time lag (hrs)	Time from antecedent storm (hrs)	Log instream loads (CFU) <sup>10</sup>	Storm duration (hrs)
1	16/07/2010 10:00	44.95	4.17	35.52	7.94	23.85
2	19/07/2010 16:55	79.52	2.50	115.82	8.78	13.09
3	20/07/2010 12:55	309.92	2.00	138.42	8.86	8.40
4	17/08/2010 07:10	20.03	6.37	0.00	7.66	58.70
5	06/10/2010 04:40	342.17	1.17	109.99	8.84	20.43
6	13/01/2011 05:55	160.53	4.59	113.82	8.32	1.34
7	04/02/2011 06:30	90.68	2.72	0.00	8.40	3.26
8	18/05/2011 06:00	35.27	4.73	29.69	8.10	46.56
9	10/08/2011 17:15	1685.21	0.83	7.59	9.18	3.67
10	17/10/2011 17:20	40.03	0.42	154.60	7.85	51.28
11	18/01/2012 06:55	35.50	2.97	0.00	7.74	47.45
12	25/01/2012 16:35	92.32	1.21	125.83	8.19	14.43
13	07/03/2012 04:35	62.78	6.84	59.04	7.77	25.44
14	29/04/2012 14:40	42.22	3.14	0.00	6.31	27.77

**Time lag:** Time between the storm start time and the first sampling time during the storm.

**Table A5.2. FIO in-stream model output results for LMH**

Log <sub>10</sub> Estimated Loads (CFU)		
5% quantile	50% quantile	95% quantile
11.35	11.50	11.63
11.10	11.25	11.39
10.77	11.85	12.22
11.48	11.63	11.76
9.72	11.69	11.88
9.61	10.23	10.50
9.55	10.25	10.48
11.30	11.39	11.46
10.89	12.17	12.52
10.69	11.05	11.28
10.11	10.75	10.94
9.77	10.41	10.60
9.73	10.36	10.62
8.62	9.36	9.79

**Table A5.3. FIO in-stream model input variables for DB**

Storm No	First sample date	Storm intensity (m <sup>3</sup> /hr)	Time lag (hrs)	Time from antecedent storm (hrs)	Log <sub>10</sub> instream loads (CFU)	Storm duration (hrs)
1	16/06/2012 12:51	0.93	1.28	103.09	6.054525	36.36
2	21/06/2012 20:26	4.59	0.78	128.83	6.697773	10.01
3	28/06/2012 13:26	15.26	1.27	150.51	6.889495	7.59
4	04/07/2012 19:13	1.21	0.48	149.89	5.824478	15.59
5	06/07/2012 21:55	1.70	1.58	12.92	6.343311	27.68
6	10/07/2012 12:02	1.79	2.30	86.18	6.790914	62.29
7	24/09/2012 13:48	11.47	0.64	170.00	7.51353	10.92
8	31/10/2012 09:20	1.70	5.34	170.00	6.547293	30.60
9	18/11/2012 23:30	4.70	0.10	49.03	6.762974	10.09

Time lag: Time between the storm start time and the first sampling time during the storm.

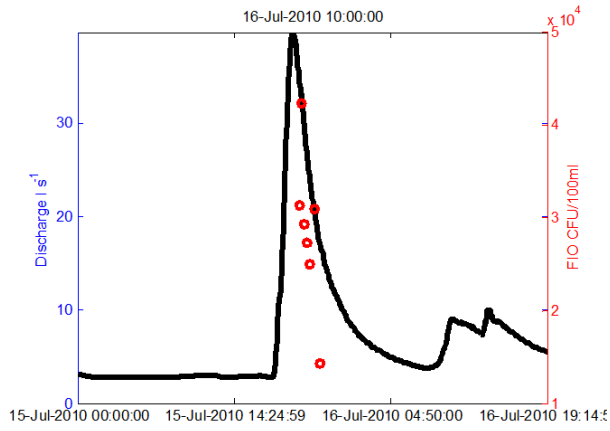
**Table A5.4 FIO In-stream model output results for DB**

Log <sub>10</sub> Estimated Loads (CFU)		
5% quantile	50% quantile	95% quantile
11.44	11.60	11.74
11.00	11.16	11.30
10.89	12.14	12.26
11.00	11.17	11.32
11.19	11.34	11.49
11.13	11.28	11.42
11.09	12.26	12.37
11.01	11.18	11.37
10.93	11.16	11.34

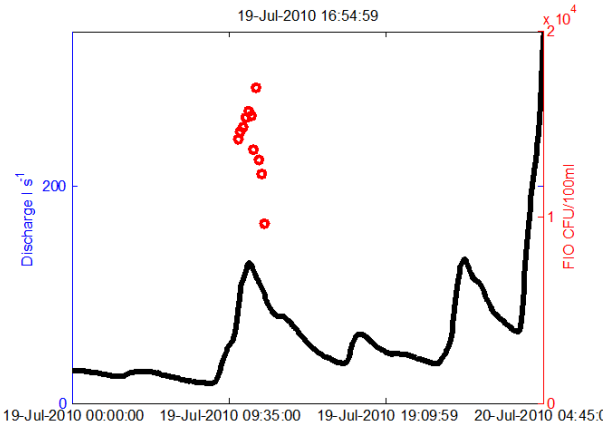
### 3. Storm plots (See main report Section F, FIO in-stream model)

#### 3.1. LMH Storm plots

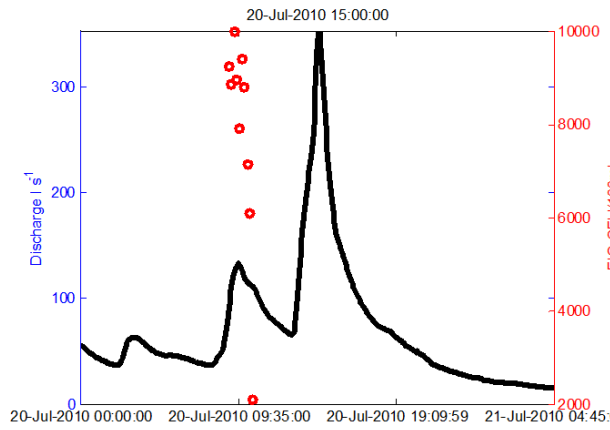
**Storm plot 1**



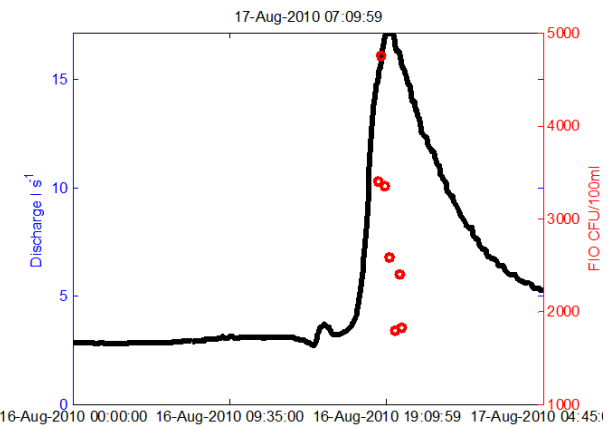
**Storm plot 2**



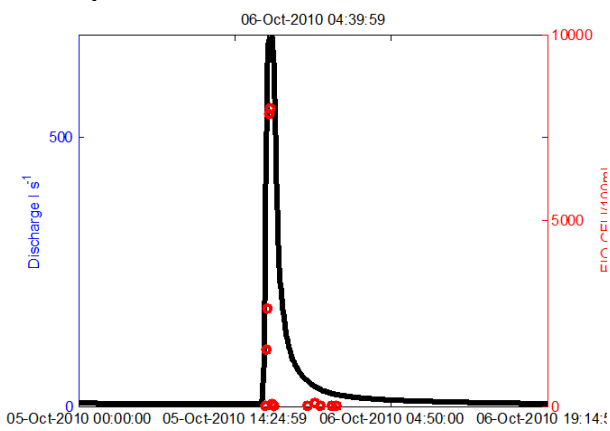
**Storm plot 3**



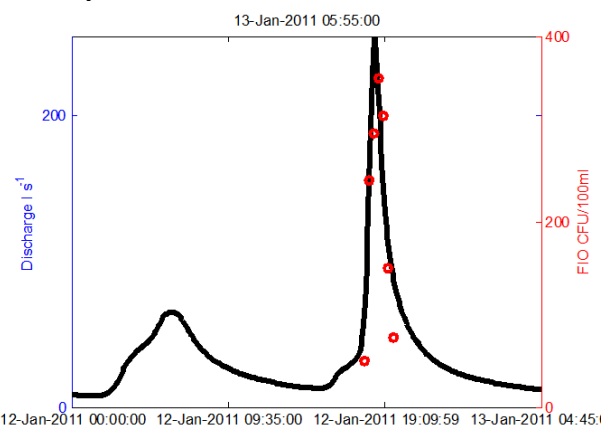
**Storm plot 4**



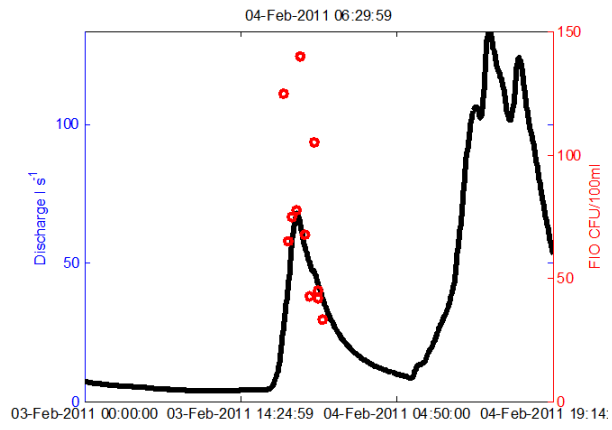
**Storm plot 5**



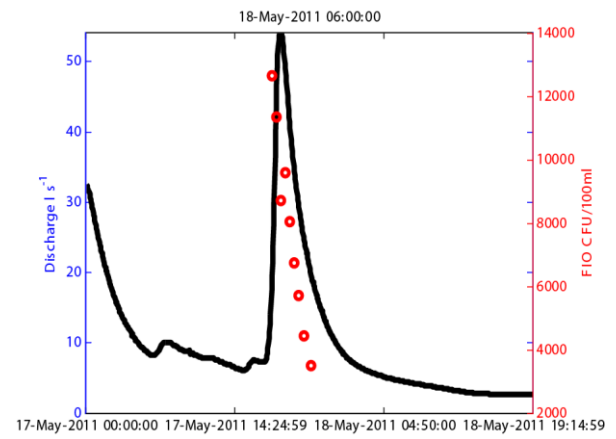
**Storm plot 6**



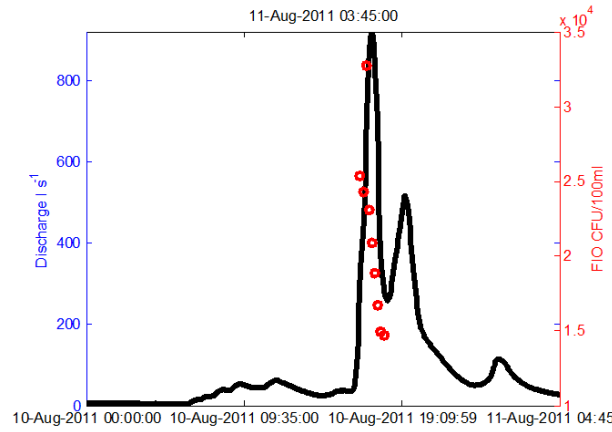
**Storm plot 7**



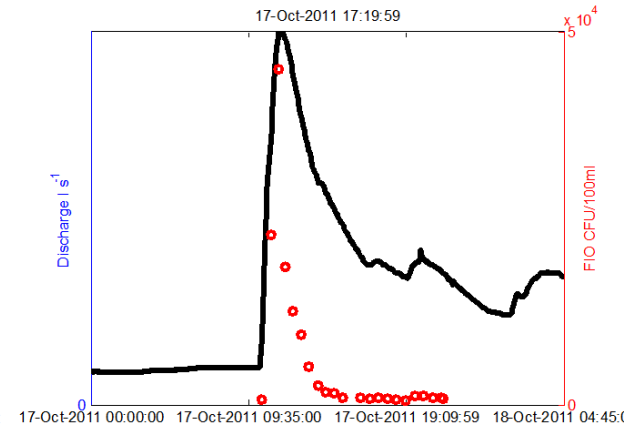
**Storm plot 8**



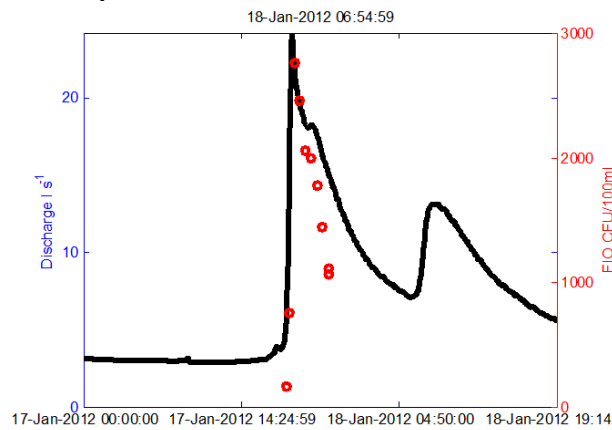
**Storm plot 9**



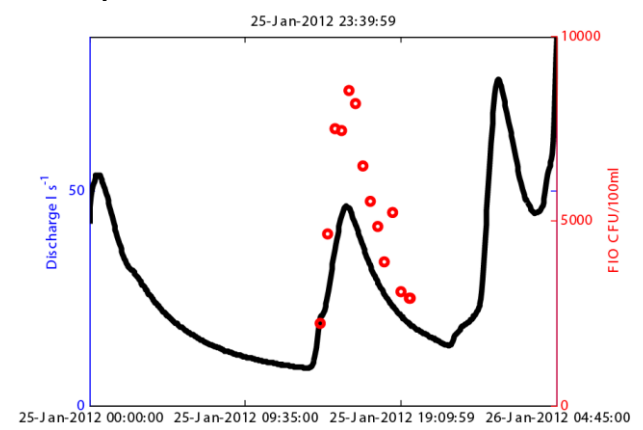
**Storm plot 10**



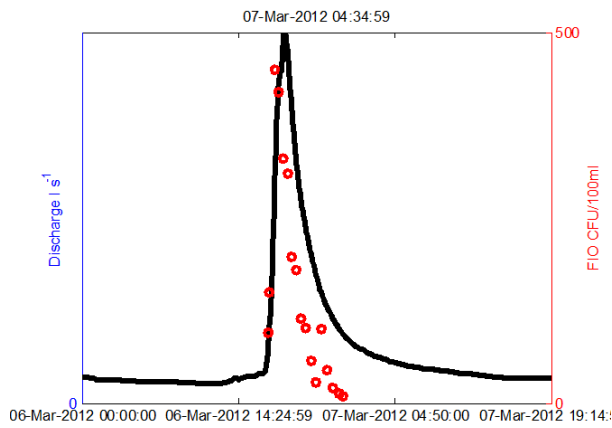
**Storm plot 11**



**Storm plot 12**



Storm plot 13



Storm plot 14

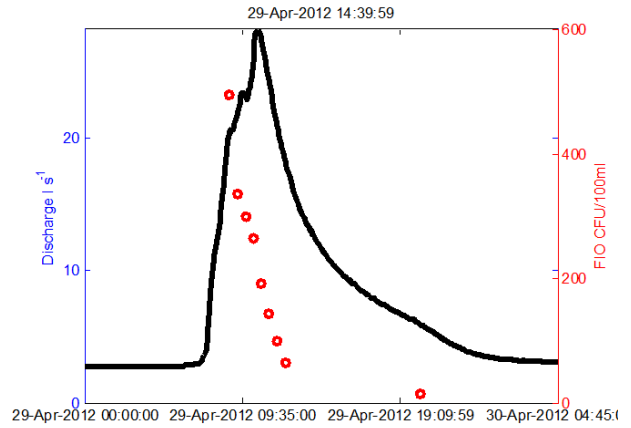
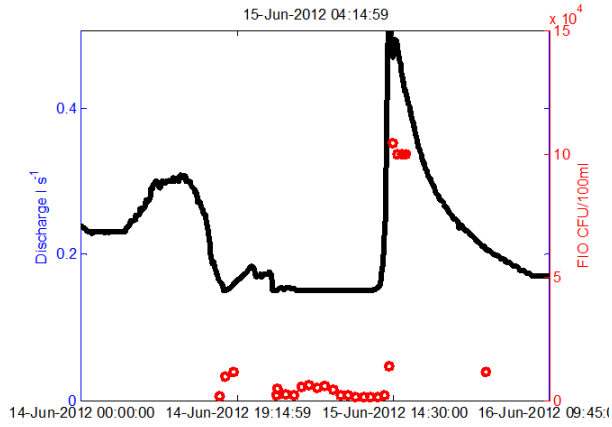


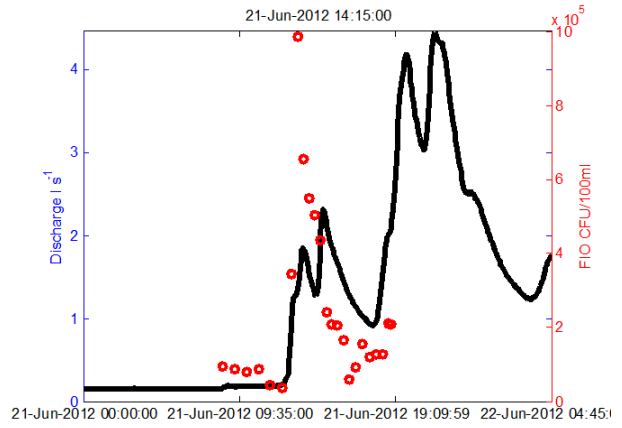
Figure A5.1 LMH storm plots. Red dots represent water samples collected and analysed for FIO concentrations, which are shown on the right vertical axis. Black line indicates storm discharge represented on the left vertical axis. The x axis indicates the date and time.

### 3.2 DB Storm plots

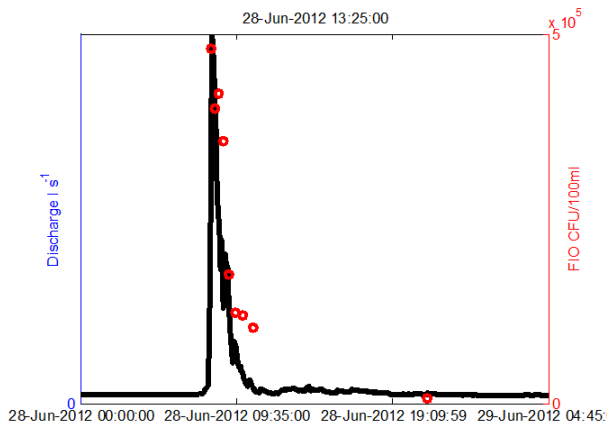
**Storm plot 1**



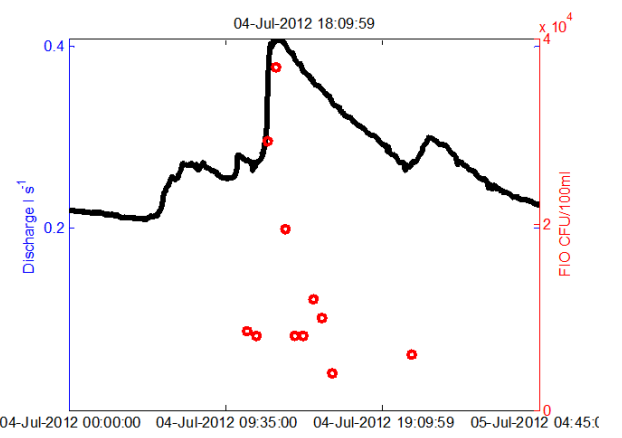
**Storm plot 2**



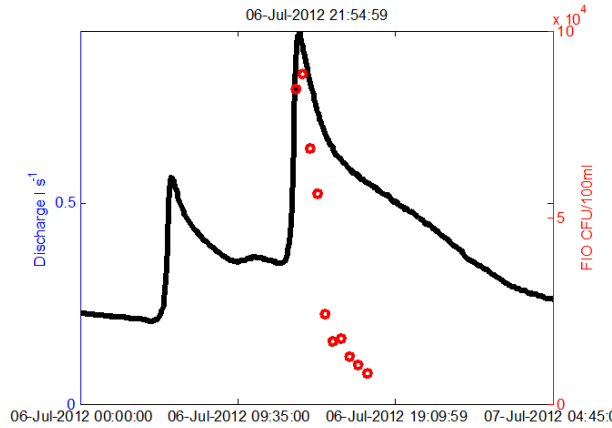
**Storm plot 3**



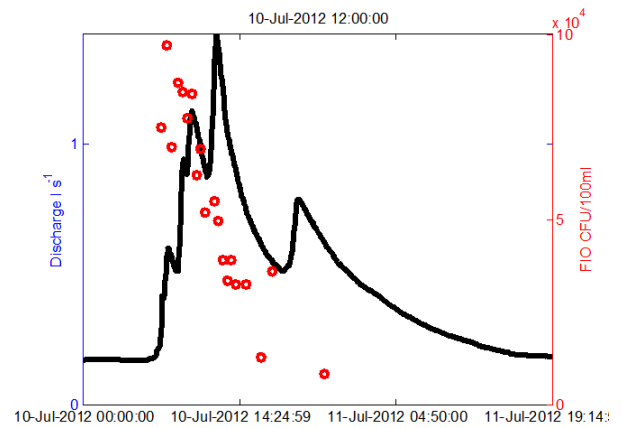
**Storm plot 4**



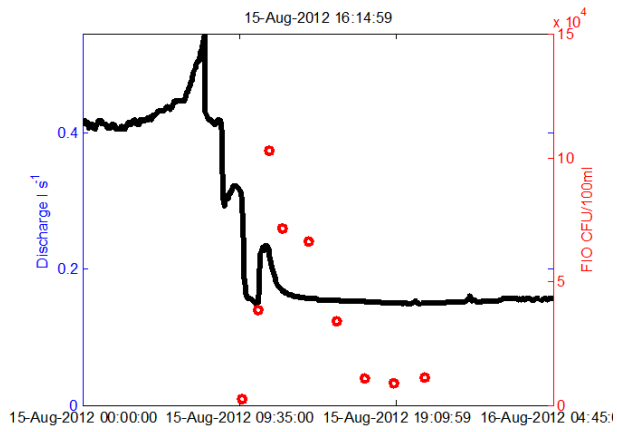
**Storm plot 5**



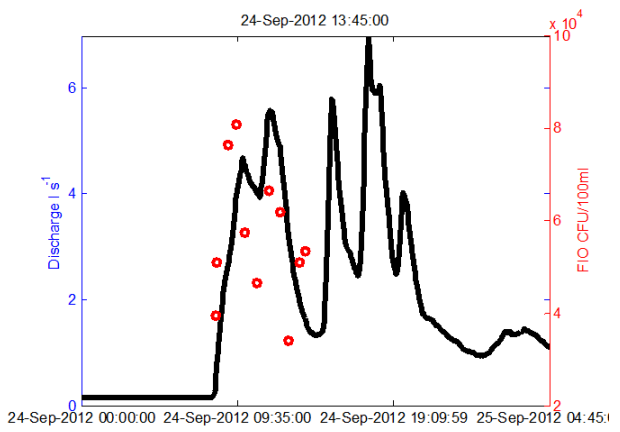
**Storm plot 6**



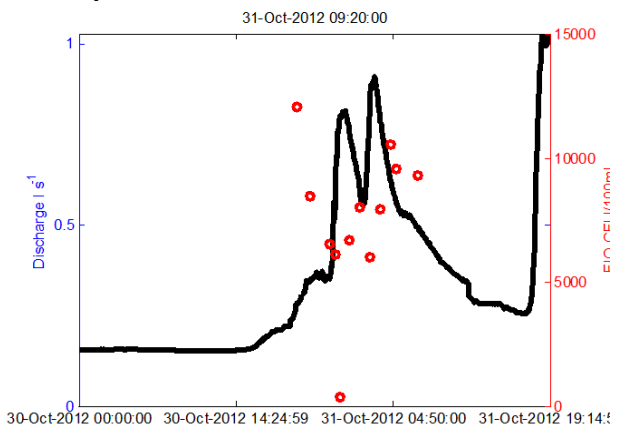
**Storm plot 7**



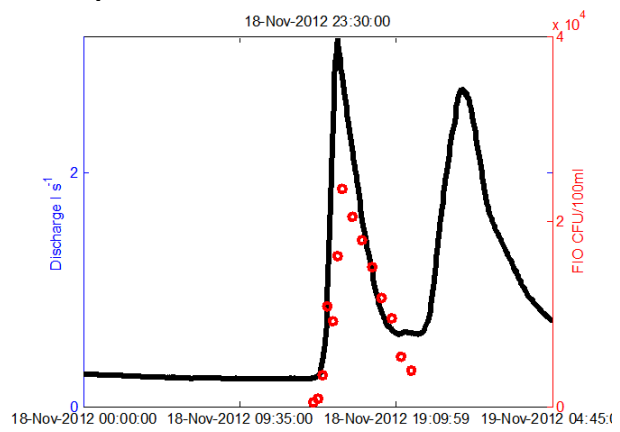
**Storm plot 8**



**Storm plot 9**



**Storm plot 10**



**Figure A5.2 DB Storm plots.** Red dots represent water samples collected and analysed for FIO concentrations, which are shown on the right vertical axis. Black line indicates storm discharge represented on the left vertical axis. The x axis indicates the date and time.