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SOUTH WEST REGION

RIVER AXE ABSTRACTION: IMPLICATIONS FOR ESTUARINE WATER QUALITY

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1. INTRODUCTION

Wimpey Environmental Limited have been commissioned by the National Rivers Authority South West Region (NRA) to undertake an analysis of existing water quality data pertaining to the Axe Estuary, South Devon. This analysis forms part of the NRA's assessment of the potential impact of abstraction of water from the River Axe further upstream, and is reported herewith.

South West Water Services Limited (SWWSL) have applied to the NRA for a licence to abstract water from the River Axe at Whitford Bridge. The application can be summarised as follows:

(a) Maximum daily abstraction of 22.5 Ml with an associated maximum permitted annual abstraction of 7300 Ml. Abstractions would cease when the river flow dropped below 0.9 cumecs and it is proposed that this abstraction should constitute no more than half of the flow in excess of 0.9 cumecs (50% Take Rule).

(b) An additional daily abstraction of 27.5 Ml and an additional annual abstraction of 5000 Ml. It is proposed that these abstractions should cease when the river flow is below 2.5 cumecs.

(c) A temporary reduction in prescribed flow conditions on the current licence, from 1.2 to 0.8 cumecs, until the reservoir is able to meet high summer demands

The purpose of this report is to assess the impact of the proposed abstractions on the water quality in the Axe Estuary.

2. STUDY OBJECTIVE

Using available data provided by the NRA, the objective of this part of the Axe Abstraction study was to establish (if possible) any relationship between flow and worst case conditions of critical parameters - Dissolved Oxygen (DO), ammonia, Biochemical Oxygen Demand (BOD), suspended solids and bacteria (total and faecal coliforms and faecal streptococci).

3. DATA ANALYSIS

Water quality data have been analysed for three sections of the River Axe system: the estuary (between the tidal limit and the mouth at Axmouth Bridge), the tidal limit itself (at Axe Bridge), and at the proposed abstraction point (at Whitford Bridge). In all cases, local water quality data have been compared with river flow at Whitford Bridge. River flow data were obtained from the gauging station records held by the NRA Hydrometric Section, and are presented as Appendix A for reference.

3.1 Axe Estuary

Water quality data were made available for the Axe Estuary for the period May 1990 to February 1991. Data were retrieved as part of the NRA's Drought Order survey, and are presented in original format as Appendix B. The four estuarine sampling stations are shown in Figure 1, although only a limited data set was available for site 4 in the upper estuary.

3.1.1 Low Water Conditions

For this part of the analysis, only samples taken at low water (regardless of depth) were considered for the following reasons:

(a) It was assumed that water quality would be worse at low water when there was no mixing with the saline waters.

(b) The number of variables is reduced by not considering mixing with tidal waters. It was assumed that this would improve the chances of obtaining some degree of correlation between the flow at Whitford Bridge and the water quality in the estuary.

The water quality data are summarised in Table 1. The sample results have been compared with corresponding flow data at Whitford Bridge. To allow for the time of travel from Whitford Bridge to the estuary, the flow figure quoted is the average of the two daily flows for the day of sampling and the previous day, eg,

30 May 1990 Daily mean flow = 1.63 cumecs
31 May 1990 Daily mean flow = 1.565 cumecs

Thus on the 31 May when sampling took place, the corresponding flow at Whitford Bridge was 1.598 cumecs. With the exception of the flow data for February 1991, the variation in daily mean flows at Whitford Bridge was not significant.

The results for individual determinands are presented in Figures 2.1 - 2.7. The results for 22 February 1991 have not been plotted because of the highly variable flows at that particular time and because of our particular interest in the low flow conditions. The results for site 4 have not been plotted because of the limited data set. Site 1 is located at the mouth of the estuary. Sites 2 and 3 are respectively downstream and upstream of Seaton STW. Musbury STW and Colyton STW discharge into the River Axe above Axe Bridge and below Whitford Bridge.

Examination of Figures 2.1 - 2.7 indicates there is no obvious correlation between the various determinands and the flow at Whitford Bridge. In terms of DO, ammonia, suspended solids, total coliforms and faecal streptococci the worst location was site 1. The highest values of BOD and faecal coliforms were recorded at site 2. This evidence supports the conclusion that the discharge from Seaton STW has a significant effect on the water quality of the estuary. Figures 2.5 - 2.7 suggest the higher bacterial concentrations were recorded at low flows. However, reference to Table 1 indicates that in most cases the highest bacterial concentrations were noted on 22 February during high storm flows.

3.1.2 Vertical Structure

In addition to the above analysis, the estuarine water quality data sets have been analysed for indications of vertical structure, particularly with respect to limiting water quality on the passage of migratory fish. For this purpose, depth, pH, salinity, temperature, DO and ammonia levels have been abstracted from the Drought Order data for each of sites 1 to 4.

In order to interpret the data more meaningfully, DO values have been converted from percentage saturation to mg/l, and ammonia concentrations have been converted from dissolved values to un-ionised ammonia values. These determinands are therefore directly comparable with the EC Environmental Quality Standards (EQS's) for the passage of migratory fish, which for DO and un-ionised ammonia are 5 mgO/l and 21 μgN/l respectively. The data have been converted according to the following formulae:

$$DO\ (mg/l) = DO\ (\%\ sat) \times [-173.072 + 249.634/T + 143.348\log(T) - 21.849T + S(-0.033 + 0.014T - 0.002T^2)] / 100$$

where $T = 0.01 \times (Temperature + 273.15)$

S = salinity

$$\text{Un-ionised } NH_3 = A_d \times [100 / (1 + 10^{(L+M+N)})] / 100$$

where A_d = Dissolved ammonia

$L = 9.245 + (0.116 \times (19.927S / 1000 - (1.005S))$

$M = 0.032 \times (298 - T)$

$N = (0.042 / T) - pH$

T = temperature (^oK)

S = salinity

The profile data are presented in Tables 4 to 7. A general overview reveals that some stratification exists at most sites within the estuary, though this breaks down from time to time. The surface layer (of up to one metre) tends to remain reasonably fresh, even at high water, representing the river outflow over the saline tidal intrusion.

Interestingly, DO values show a slight worsening of conditions with depth throughout the data set. However, DO data imply generally reasonable water quality for most of the time (typical values ranging from 8 to 10 mg/l), although values were particularly low on 14 August 1990 at low water at all sites where data were available. At sites 1 and 2 in the lower estuary, values dropped to below 5 mg/l on this occasion. The corresponding river flow at Whitford Bridge was of the order of 1 cumec, typical of the summer months but not representative of lowest flow conditions experienced. Overall, the lowest DO values occurred at low water, as indicated in 3.1.1 a) above.

Ammonia data through depth are particularly limited, as samples were generally only collected from a single depth at any time. However, un-ionised values (typically below 5 μg/l) were generally well below the EC limit for the passage of migratory fish. One exception (where a value of 35 μg/l was returned from site 1 at low water on 25 July 1990) may represent a unique localised occurrence of pollutant, or perhaps an erroneous data entry.

In conclusion, it is considered that the estuarine data are too variable to derive a significant correlation between the water quality in the estuary and the flow at Whitford Bridge. Although the flow at Whitford must affect the water quality in the estuary, it is considered that the effects of the STW discharges are far more significant. In general there is no historical evidence to indicate that the worst water quality conditions are associated with the lowest flows.

3.2 Axe Bridge

Axe Bridge is at the tidal limits of the River Axe and downstream of the discharges from Musbury and Colyton STW. The water quality data for the period January 1990 to February 1991 are summarised in Table 2 and presented in full as Appendix C. The value of flow presented in column 2 is the average daily flow at Whitford Bridge for the day of sampling. The results for the different determinands are presented graphically in Figures 3.1 - 3.4.

It is considered that the data sets are too variable to derive any significant correlations between water quality at Axe Bridge and flow at Whitford Bridge and there is no evidence to indicate that the worst recordings of water quality occurred at the lowest flows. Figure 3.4 indicates a trend of increasing values of suspended solids with increasing flows. This is obviously a result of increasing sediment loads as a result of the high catchment run-off.

3.3 Whitford Bridge

As a final comparison, the water quality data at Whitford Bridge (presented in full in Appendix D) have been summarised in Table 3. The various determinands have been plotted against flow in Figures 4.1 - 4.7. Even at Whitford Bridge, which is above the Colyton and Musbury STW inputs, there is no obvious correlation between the water quality and the flow at Whitford Bridge. Furthermore, there is no evidence to indicate that the worst water quality coincided with the lowest flows. On the contrary, in most cases there was a trend of declining water quality with increasing flow.

4. CONCLUSIONS

Historical water quality data have been provided by the NRA for the period January 1990 to February 1991 and have been summarised in both tabular and graphical format (Tables 1 -7, Figures 2 - 4). The following comparisons were made:

(a) Water quality in the Axe Estuary vs flow at Whitford Bridge.

(b) Water quality at Axe Bridge vs flow at Whitford Bridge.

(c) Water quality at Whitford Bridge vs flow at Whitford Bridge.

(d) Water Quality in the Axe Estuary through depth.

Reference to Figures 2 - 4 indicates there are no significant correlations between the water quality downstream of Whitford Bridge and the flow at Whitford Bridge. Furthermore there is no evidence to suggest that the worst water quality coincides with the lowest flows. Water quality in the estuary tends to decrease slightly with depth, and worst case conditions tend to prevail at, or around, low water.

Whilst the above observations hold, it can be assumed that a reduction in flow at Whitford Bridge will reduce the dilution of contaminants from Seaton, Colyton and Musbury STW and therefore have a detrimental effect on the water quality in the estuary. Without further extensive data collection, this could best be quantified by means of a simple volumetric model, an exercise that was undertaken by the consulting engineers, MRM in Sub-Appendix B.1 of the Environmental Assessment Report (MRM, 1991).

5. REFERENCES

MRM Partnership *Axe Valley Water Resources Scheme: Environmental Assessment of River Abstraction.* (Nov. 1991)

TABLES

RIVER AXE ABSTRACTION STUDY

TABLE 1: WATER QUALITY IN THE ESTUARY vs FLOW AT WHITFORD BRIDGE

Date	Flow * (m^3/s)	DO (%)	Ammonia (ug/l)	BOD (mg/l)	SS (mg/l)	T. Coli (/100ml)	E. Coli (/100ml)	F. Strep (/100ml)
SITE 1								
31/5/90	1.598	68	87	1.4	18			
31/5/90	1.598	139	54	1.1	18	7400	2100	85
25/6/90	1.645	101	73	1.8	24	10000	1800	500
18/7/90	1.09	75	88	1.1	26	4800	1700	220
25/7/90	0.983	116	479	2.5	12	40000	7600	660
14/8/90	1.033	52	108	1.5	6	30000	14000	800
21/8/90	1.31	103	76	1.0	8	8000	3100	230
28/8/90	1.103	117	140	2.4	10	30000	5900	3100
29/8/90	1.379	57	193	1.2	5	12000	2600	12000
21/9/90	1.047		103	1.0	10	1000	1800	400
27/9/90	1.001	156	49	1.9	25	6000	2400	500
15/2/91	3.166	104	250	0.9	42	4700	2300	230
22/2/91	15.584	92	360	3.0	92	210000	46000	8000
MEAN		99	142	1	17	13991	4118	1702
SITE2								
31/5/90	1.598	63	97	3.3	18	5000	3100	950
31/5/90	1.598	143	39	0.8	14	2700	270	32
25/6/90	1.645	104	365	1.4	20	3300	400	140
18/7/90	1.09	79	61	1.7	14	2200	1800	140
25/7/90	0.983	130	90	2.3	14	22000	6400	420
14/8/90	1.033	49	50	1.5	9	30000	17000	800
21/8/90	1.31	106	118	1.3	7	13000	3400	1600
28/8/90	1.103	117	133	2.7	7	30000	4400	400
29/8/90	1.379	58	91	1.6	5	8200	2600	290
21/9/90	1.047		74	1.2	9	24000	5400	110
27/9/90	1.001	156	50	1.6	15	5800	2800	1100
15/2/91	3.166	100	200	1.0	24	4800	3400	240
22/2/91	15.584	92	250	3.6	135	33000	1000	1200
MEAN		100	114	1.7	13	12583	4248	519
SITE3								
31/5/90	1.598	50	51	1.0	8	350	20	65
31/5/90	1.598	144	41	1.1	12	1200	340	78
25/6/90	1.645	110	68	1.5	25	4500	1200	40
18/7/90	1.09	89	62	1.8	12	2400	1200	110
25/7/90	0.983	149	30	2.3	12	20000	1700	150
14/8/90	1.033	59	107	1.9	5	30000	21000	800
21/8/90	1.31	113	38	1.3	12	3000	1900	380
28/8/90	1.103	114	58	2.0	17	9000	1500	190
29/8/90	1.379	62	92	1.3	9	7000	3200	200
21/9/90	1.047		56	1.3	18	13000	2100	900
27/9/90	1.001	162	33	1.6	26	2800	1800	740
15/2/91	3.166	100	260	1.3	29	5700	2300	140
22/2/91	15.584	92	370	2.2	135	28000	8000	1200
MEAN		105	75	1.5	15	8246	3188	316
SITE 4								
31/5/90	1.598	70	33	0.8	7	980	390	85
25/6/90	1.645	109	54	1.6	13	7500	2200	50
15/2/91	3.166	97	230	1.0	15	4200	2400	240
22/2/91	15.584	95	350	3.2	82	27000	3000	1500
MEAN		92	106	1.1	12	4227	1663	125

* Flow at Whitford Bridge Gauging Station
Mean values ignore results on 22/2/91

TABLE 2: WATER QUALITY AT AXE BRIDGE vs FLOW AT WHITFORD BRIDGE

DATE	FLOW * (m^3/s)	DO (%)	AMMONIA (mg/l)	BOD (mg/l)	SS (mg/l)
3/1/90	9.607	84	0.18	1.7	13
29/1/90			0.14	1.4	17
21/2/90	8.158	89	0.14	1.3	9
26/2/90	8.9	91	0.17	4.6	27
8/3/90			0.05	1.7	25
22/3/90	3.705	99	0.02	2.2	4
14/5/90	1.947	96	0.07	2.1	3
31/5/90	1.565	109	0.09	1.5	5
13/6/90	1.469	99	0.08	1.8	6
14/6/90	1.463	87	0.08	1.1	5
15/6/90	1.442	111	0.01	2.5	2
21/6/90	2.602	88	0.27	2.7	7
26/6/90	1.599	99	0.22	2	4
28/6/90	1.448	117	0.06	2.1	8
30/7/90	2.783	68	0.09	1.8	3
14/8/90	1.057	89	0.15	1.4	1
28/8/90	1.113	73	0.06	1.1	2
13/9/90	0.996	94	0.05	2.3	1
17/9/90	1.009	87	0.05	1.7	4
11/10/90	1.265	88	0.02	2.1	5
6/11/90	1.428	83	0.04	1.6	2
6/12/90	1.738	100	0.07	2.2	9
3/1/91	12.57	86	0.17	2.2	26
20/2/91	2.561	96	0.08	2.3	5

* Flow at Whitford Bridge Gauging Station

TABLE 3: WATER QUALITY AT WHITFORD BRIDGE vs FLOW AT WHITFORD BRIDGE

DATE	FLOW (m^3/s)	DO (%)	AMMONIA (mg/l)	BOD (mg/l)	SS (mg/l)	T. COLI (/100ml)	E. COLI (/100ml)	F. STREP. (/100ml)
3/1/90	9.607	85	0.2	1.6	15	6800	4900	1200
11/1/90	5.929	93	0.09	1.3	9	2400	800	100
23/1/90	11.999	90	0.11	4.2	61	83000	35000	4700
21/2/90	8.158	93	0.17	1.9	20			
26/2/90	8.796	90	0.15	3.2	30	35000	12000	550
16/3/90	3.616	119	0.01	1.6	3	12000	9700	190
22/3/90	3.705	113	0.01	1.7	4	9000	1100	40
28/3/90	3.073	112	0.01	2.4	4	7100	2100	120
19/4/90	2.641	126	0.01	3.1	6	2100	300	40
14/5/90	1.876	89	0.02	1.8	3	1300	400	10
31/5/90	1.607	102	0.07	1.3	4			
8/6/90	1.629	98	0.06	1.4	7	1400	500	40
13/6/90	1.458	99	0.06	1.8	8			
14/6/90	1.468	99	0.06	1.2	6	2300	900	40
15/6/90	1.468	131	0.02	2.2	4			
21/6/90	2.136	90	0.05	2.4	15			
26/6/90	1.596	104	0.05	1.5	14			
27/6/90	1.553	101	0.05	1.5	7	1500	1200	40
28/6/90	1.458	103	0.05	1.5	11			
6/7/90	1.706	105	0.08	2.3	8	11000	1600	130
20/7/90	1.042	108	0.1	1.8	2			
24/7/90	0.999	127	0.03	1.8	7			
25/7/90	0.975	81	0.03	1.6	5			
30/7/90	2.8	87	0.09	2.1	6			
14/8/90	1.033	90	0.02	1.3	2			
17/8/90	1.08	103	0.02	1.1	2	500	100	40
22/8/90	1.137	84	0.03	0.8	2	1100	600	40
28/8/90	1.108	87	0.02	1.1	4	600	500	110
31/8/90	1.185	98	0.01	1.2	4	2400	1200	100
13/9/90	0.988	112	0.02	2.3	2			
22/9/90	0.96	88	0.01	1.3	3	800	200	60
3/10/90	1.521	77	0.05	2.1	3	5500	900	240
11/10/90	1.324	93	0.03	1.5	3	1700	700	70
26/10/90	7.359	74	0.09	5.8	86	46000	33000	1600
6/11/90	1.416	89	0.02	1.6	9	3500	1300	90
13/11/90	3.156	84	0.07	1.7	11	11000	5800	740
6/12/90	1.718	99	0.07	1.9	3	3100	1200	180
3/1/91	14.703	95	0.17	1.7	28	18000	6600	1100
18/1/91	5.606	91	0.22	0.8	8	4200	1400	400
4/2/91	2.498	99	0.07	2.1	3	6900	1900	440
12/2/91	2.112	99	0.19	1.9	5	13000	3800	560
20/2/91	2.371	99	0.05	2.1	5	3400	2000	40

TABLE 4: SITE 1 PROFILE DATA

Site	Date	Depth	Tidal State	Acidity (pH)	Salinity (ppt)	Temp. (deg.C)	D.O. (%sat.)	D.O. (mg/l)	Dis Amm (ug/l)	Uni Amm (ug/l)
1	31.05.90	0.0	LW	7.77	6.19	15.4	68	6.54	87	1.36
1	31.05.90	0.0	HW-3	7.77	3.15	15.5	74	7.23	323	5.15
1	31.05.90	0.0	HW	8.05	32.9	14.4	102	8.50	59	1.39
1	31.05.90	2.0	HW	7.6	32.9	14.4	103	8.58	17	0.14
1	31.05.90	0.0	HW+3	8.09	-	16.7	110	-	-	-
1	31.05.90	0.8	HW+3	8.04	-	16.3	109	-	57	-
1	31.05.90	1.5	HW+3	8	7.89	16.2	107	10.02	-	-
1	31.05.90	0.0	LW	8.4	3.33	18	142	13.16	-	-
1	31.05.90	1.0	LW	8.39	3.33	17.9	139	12.91	54	4.03
1	25.07.90	0.0	LW	8.3	13.4	21	116	9.54	479	34.79
1	25.07.90	0.5	LW	-	14.2	21.1	111	9.07	-	-
1	14.08.90	0.0	LW	-	10.8	17.9	52	4.62	-	-
1	14.08.90	0.5	LW	7.9	11.5	17.9	52	4.60	108	2.63
1	14.08.90	0.8	LW	-	11.9	17.9	49	4.32	-	-
1	21.08.90	0.0	LW	-	11.1	19.3	103	8.88	-	-
1	21.08.90	0.5	LW	8.2	11.5	19.3	103	8.86	76	3.99
1	21.08.90	0.8	LW	-	11.6	19.3	99	8.51	-	-
1	28.08.90	0.0	LW	-	6.1	19.6	117	10.32	-	-
1	28.08.90	0.5	LW	8.2	6.2	19.6	117	10.32	140	7.71
1	21.09.90	0.0	LW	-	13.2	16.2	-	-	-	-
1	21.09.90	0.5	LW	8.1	14	16.2	-	-	103	3.43
1	21.09.90	0.8	LW	-	14.6	16.3	-	-	-	-
1	27.09.90	0.0	LW	8.45	8.3	14.7	154	14.84	-	-
1	27.09.90	0.5	LW	8.41	9.2	14.8	156	14.91	49	2.99
1	27.09.90	0.8	LW	8.41	11	14.8	159	15.03	-	-
1	15.02.91	0.0	HW	-	3.2	4.1	103	13.17	-	-
1	15.02.91	0.5	HW	-	33.9	5.4	105	10.61	-	-
1	15.02.91	1.0	HW	7.9	35.4	5.4	105	10.51	30	-
1	15.02.91	1.5	HW	-	35.5	5.4	104	10.40	-	-
1	15.02.91	2.0	HW	-	35.5	5.4	104	10.40	-	-
1	15.02.91	2.5	HW	-	35.5	5.4	103	10.30	-	-

TABLE 4: SITE 1 PROFILE DATA

Site	Date	Depth	Tidal State	Acidity (pH)	Salinity (ppt)	Temp. (deg.C)	D.O. (%sat.)	D.O. (mg/l)	Dis Amm (ug/l)	Uni Amm (ug/l)
1	15.02.91	0.0	HW+3	-	10.1	4.4	104	12.60	-	-
1	15.02.91	0.5	HW+3	-	14.6	4.5	104	12.20	-	-
1	15.02.91	1.0	HW+3	-	33.6	5.2	105	10.68	-	-
1	15.02.91	1.5	HW+3	-	35	5.4	104	10.43	-	-
1	15.02.91	2.0	HW+3	-	35.2	5.4	104	10.42	-	-
1	15.02.91	2.5	HW+3	-	35.3	5.4	105	10.51	-	-
1	15.02.91	0.0	LW	7.9	5.7	4.5	104	12.94	250	2.35
1	15.02.91	0.5	LW	-	5.8	4.5	103	12.81	-	-
1	15.02.91	0.0	HW-3	-	35.7	5.7	103	10.21	-	-
1	15.02.91	0.5	HW-3	-	35.6	5.7	104	10.32	-	-
1	15.02.91	1.0	HW-3	-	35.5	5.6	104	10.35	-	-
1	15.02.91	1.5	HW-3	-	35.7	5.7	104	10.31	-	-
1	15.02.91	2.0	HW-3	-	35.6	5.7	103	10.22	-	-
1	15.02.91	2.5	HW-3	-	35.5	5.7	103	10.23	-	-
1	22.02.91	0.0	HW+3	-	0.3	5.4	94	11.85	-	-
1	22.02.91	0.5	HW+3	-	0.3	5.4	94	11.85	-	-
1	22.02.91	1.0	HW+3	-	0.3	5.4	92	11.59	-	-
1	22.02.91	1.5	HW+3	-	0.4	5.4	92	11.59	-	-
1	22.02.91	0.0	LW	7.7	0.2	5.9	92	11.45	360	2.45
1	22.02.91	0.0	HW-3	-	0.2	4.5	90	11.62	-	-
1	22.02.91	0.5	HW-3	-	0.2	4.5	91	11.74	-	-
1	22.02.91	1.0	HW-3	-	0.2	4.5	90	11.62	-	-
1	22.02.91	0.0	HW	-	0.4	4.9	90	11.48	-	-
1	22.02.91	0.5	HW	7.6	0.4	4.9	89	11.35	640	3.21
1	22.02.91	1.0	HW	-	0.4	4.9	89	11.35	-	-
1	22.02.91	1.5	HW	-	15	5.1	89	10.26	-	-
1	22.02.91	2.0	HW	-	18.5	5.5	92	10.26	-	-

TABLE 5: SITE 2 PROFILE DATA

Site	Date	Depth (m)	Tidal State	Acidity (pH)	Salinity (ppt)	Temp. (deg.C)	D.O. (%sat.)	D.O. (mg/l)	Dis Amm (ug/l)	Uni Amm (ug/l)
2	31.05.90	0.0	LW	7.4	2.73	15.5	63	6.17	97	0.67
2	31.05.90	0.0	HW-3	7.75	1.97	15.9	74	7.22	50	0.79
2	31.05.90	0.0	HW	7.94	4.58	16.5	86	8.16	65	1.62
2	31.05.90	1.0	HW	7.95	30.8	14.7	81	6.80	91	1.77
2	31.05.90	0.0	HW+3	8.08	-	17.2	116	-	-	-
2	31.05.90	0.5	HW+3	8.14	6.82	16.9	116	10.77	138	5.48
2	31.05.90	1.0	HW+3	7.7	-	16.2	111	-	-	-
2	31.05.90	0.0	LW	8.53	2.21	17.7	143	13.42	39	3.88
2	18.07.90	0.5	LW	8.1	6.17	18.6	79	7.11	61	2.51
2	18.07.90	0.0	HW	-	31.7	18	120	9.38	-	-
2	18.07.90	1.0	HW	8.1	31.7	17.9	118	9.24	68	2.33
2	18.07.90	2.0	HW	-	31.6	17.9	120	9.40	-	-
2	25.07.90	0.0	HW	-	34.9	17.6	87	6.72	-	-
2	25.07.90	0.5	HW	-	34.9	17.5	92	7.12	-	-
2	25.07.90	1.5	HW	8.1	35	17.4	88	6.82	31	1.00
2	25.07.90	2.5	HW	-	35	17.4	85	6.59	-	-
2	25.07.90	0.0	LW	8.4	11.7	21	130	10.80	90	8.15
2	25.07.90	0.5	LW	-	11.7	21	128	10.63	-	-
2	14.08.90	0.0	LW	-	9	17.9	49	4.40	-	-
2	14.08.90	0.5	LW	7.8	9.1	17.9	49	4.39	50	0.99
2	14.08.90	0.0	HW-3	-	11.8	18	54	4.76	-	-
2	14.08.90	0.5	HW-3	-	12.8	18	52	4.55	-	-
2	14.08.90	1.0	HW-3	-	13.6	18	54	4.70	-	-
2	14.08.90	0.0	HW	-	34.8	17.8	93	7.16	-	-
2	14.08.90	0.5	HW	-	34.8	17.8	91	7.01	-	-
2	14.08.90	1.0	HW	8.1	34.8	17.8	91	7.01	15	0.50
2	14.08.90	1.5	HW	-	34.8	17.8	92	7.09	-	-
2	14.08.90	1.8	HW	-	34.8	17.8	92	7.09	-	-

TABLE 5: SITE 2 PROFILE DATA

Site	Date	Depth (m)	Tidal State	Acidity (pH)	Salinity (ppt)	Temp. (deg.C)	D.O. (%sat.)	D.O. (mg/l)	Dis Amm (ug/l)	Uni Amm (ug/l)
2	21.08.90	0.0	HW	-	35	17.2	87	6.77	-	-
2	21.08.90	0.5	HW	-	35	17.2	88	6.85	-	-
2	21.08.90	1.0	HW	-	35	17.2	88	6.85	-	-
2	21.08.90	1.5	HW	8.1	35	17.2	86	6.69	10	0.32
2	21.08.90	2.0	HW	-	35	17.2	86	6.69	-	-
2	21.08.90	2.5	HW	-	35	17.2	86	6.69	-	-
2	21.08.90	2.8	HW	-	35	17.2	87	6.77	-	-
2	21.08.90	0.0	HW+3	-	15.2	17.5	71	6.19	-	-
2	21.08.90	0.5	HW+3	-	19.5	17.4	73	6.21	-	-
2	21.08.90	1.0	HW+3	-	31.9	17.3	80	6.33	-	-
2	21.08.90	1.5	HW+3	-	32.3	17.3	80	6.32	-	-
2	21.08.90	0.0	LW	-	7.7	19	108	9.55	-	-
2	21.08.90	0.5	LW	8.2	7.8	19	106	9.37	118	6.18
2	28.08.90	0.0	HW	-	34.5	18.2	100	7.66	-	-
2	28.08.90	0.5	HW	-	34.5	18.2	99	7.58	-	-
2	28.08.90	1.0	HW	8.1	34.6	18.2	99	7.58	129	4.44
2	28.08.90	1.5	HW	-	34.6	18.2	97	7.42	-	-
2	28.08.90	1.8	HW	-	34.6	18.2	96	7.35	-	-
2	28.08.90	0.0	HW+3	-	7.4	19.5	99	8.69	-	-
2	28.08.90	0.5	HW+3	8.2	15.9	19	115	9.69	153	7.68
2	28.08.90	0.8	HW+3	-	18.7	18.8	114	9.48	-	-
2	28.08.90	0.0	LW	-	3.9	19.6	116	10.37	-	-
2	28.08.90	0.5	LW	8.2	3.7	19.6	117	10.47	133	7.42
2	28.08.90	0.0	HW-3	-	6.3	19.1	91	8.10	-	-
2	28.08.90	0.5	HW-3	8.1	9.9	19	93	8.12	126	5.24
2	28.08.90	1.0	HW-3	-	13.8	18.7	92	7.90	-	-
2	29.08.90	0.0	HW	-	12	18.1	-	-	-	-
2	29.08.90	0.5	HW	-	33.8	18	-	-	-	-
2	29.08.90	1.0	HW	8.1	34.2	18	-	-	90	3.06
2	29.08.90	1.3	HW	-	34.2	18	-	-	-	-
2	29.08.90	0.0	HW+3	-	7.5	18.7	72	6.42	-	-
2	29.08.90	0.5	HW+3	8	11	18.8	70	6.10	119	3.89
2	29.08.90	0.9	HW+3	-	32	18.3	58	4.50	-	-
2	29.08.90	0.0	LW	-	3.7	18.6	60	5.48	-	-
2	29.08.90	0.5	LW	7.9	3.9	18.6	58	5.29	91	2.43

TABLE 5: SITE 2 PROFILE DATA

Site	Date	Depth (m)	Tidal State	Acidity (pH)	Salinity (ppt)	Temp. (deg.C)	D.O. (%sat.)	D.O. (mg/l)	Dis Amm (ug/l)	Uni Amm (ug/l)
2	21.09.90	0.0	HW	-	35.1	16.2	-	-	-	-
2	21.09.90	0.5	HW	-	35.1	16.2	-	-	-	-
2	21.09.90	1.0	HW	-	35.1	16.2	-	-	-	-
2	21.09.90	1.5	HW	8	35.1	16.2	-	-	32	0.76
2	21.09.90	2.0	HW	-	35.1	16.2	-	-	-	-
2	21.09.90	2.3	HW	-	35.1	16.2	-	-	-	-
2	21.09.90	0.0	HW+3	-	19.1	14.9	-	-	-	-
2	21.09.90	0.5	HW+3	-	24.3	15.3	-	-	-	-
2	21.09.90	1.0	HW+3	-	30.7	15.9	-	-	-	-
2	21.09.90	1.5	HW+3	-	32.1	16	-	-	-	-
2	21.09.90	0.0	LW	-	10.2	16	-	-	-	-
2	21.09.90	0.5	LW	8.1	10.2	16	-	-	74	2.48
2	27.09.90	0.0	HW-3	8.5	8.4	10.1	82	8.75	-	-
2	27.09.90	0.5	HW-3	8.43	25.2	13.5	89	7.93	-	-
2	27.09.90	1.0	HW-3	8.51	32.3	14.6	90	7.50	-	-
2	27.09.90	0.0	HW	8.14	4.3	12.4	106	11.01	-	-
2	27.09.90	0.5	HW	8.15	33.6	15.1	114	9.33	-	-
2	27.09.90	1.0	HW	8.16	34.5	15.6	115	9.26	27	0.88
2	27.09.90	1.3	HW	8.16	34.5	15.7	114	9.17	-	-
2	27.09.90	0.0	HW+3	8.34	11.4	14.2	125	11.94	-	-
2	27.09.90	0.5	HW+3	8.19	25.6	15	119	10.25	-	-
2	27.09.90	0.8	HW+3	8.19	31.9	15.6	115	9.41	-	-
2	27.09.90	0.0	LW	8.53	5.2	14	156	15.55	50	3.81
2	27.09.90	0.5	LW	8.5	5.7	14.2	156	15.44	-	-
2	15.02.91	0.0	HW	-	4.8	3.8	100	12.75	-	-
2	15.02.91	0.5	HW	-	35.1	5.4	102	10.23	-	-
2	15.02.91	1.0	HW	8	35.5	5.4	102	10.20	20	0.21
2	15.02.91	1.5	HW	-	35.4	5.4	101	10.11	-	-
2	15.02.91	2.0	HW	-	35.4	5.4	100	10.01	-	-
2	15.02.91	2.5	HW	-	35.5	5.4	100	10.00	-	-
2	15.02.91	0.0	HW+3	-	9.4	4.4	98	11.93	-	-
2	15.02.91	0.5	HW+3	-	30.8	5	100	10.41	-	-
2	15.02.91	1.0	HW+3	-	35.4	5.4	100	10.01	-	-
2	15.02.91	1.5	HW+3	-	35.4	5.4	100	10.01	-	-
2	15.02.91	2.0	HW+3	-	35.4	5.4	100	10.01	-	-
2	15.02.91	2.5	HW+3	-	35.4	5.4	98	9.81	-	-

TABLE 5: SITE 2 PROFILE DATA

Site	Date	Depth (m)	Tidal State	Acidity (pH)	Salinity (ppt)	Temp. (deg.C)	D.O. (%sat.)	D.O. (mg/l)	Dis Amm (ug/l)	Uni Amm (ug/l)
2	15.02.91	0.8	LW	7.9	5.7	4.5	100	12.45	200	1.88
2	15.02.91	0.0	HW-3	-	23.8	5.4	102	11.03	-	-
2	15.02.91	0.5	HW-3	-	29	5.5	102	10.62	-	-
2	15.02.91	1.0	HW-3	-	31	5.5	102	10.48	-	-
2	15.02.91	1.5	HW-3	-	32	5.5	101	10.31	-	-
2	22.02.91	0.0	HW+3	-	0.4	5.4	93	11.71	-	-
2	22.02.91	0.5	HW+3	-	0.4	5.4	93	11.71	-	-
2	22.02.91	1.0	HW+3	-	0.4	5.4	93	11.71	-	-
2	22.02.91	0.0	LW	7.7	0.3	5.9	92	11.45	250	1.70
2	22.02.91	0.0	HW-3	-	0.1	4.5	92	11.88	-	-
2	22.02.91	0.5	HW-3	-	0.1	4.5	92	11.88	-	-
2	22.02.91	1.0	HW-3	-	0.1	4.5	92	11.88	-	-
2	22.02.91	0.0	HW	-	0.2	5	89	11.34	-	-
2	22.02.91	0.5	HW	7.6	0.2	4.9	88	11.24	650	3.26
2	22.02.91	1.0	HW	-	5.6	4.9	87	10.72	-	-
2	22.02.91	1.5	HW	-	5.8	4.9	87	10.71	-	-

TABLE 6: SITE 3 PROFILE DATA

Site	Date	Depth (m)	Tidal State	Acidity (pH)	Salinity (ppt)	Temp. (deg.C)	D.O. (%sat.)	D.O. (mg/l)	Dis Amm (ug/l)	Uni Amm (ug/l)
3	31.05.90	0.00	LW	7.71	2.24	15.7	50	4.89	51	0.72
3	31.05.90	0.00	HW-3	7.97	2.01	16	83	8.08	32	0.84
3	31.05.90	0.00	HW	8.04	1.74	16.8	93	8.92	52	1.69
3	31.05.90	1.00	HW	7.96	30.4	14.8	91	7.64	42	0.84
3	31.05.90	0.00	HW+3	8.29	-	17.3	130	-	-	-
3	31.05.90	1.00	HW+3	8.24	3.56	17.2	129	12.13	50	2.57
3	31.05.90	0.00	LW	8.53	1.84	17.5	144	13.62	41	4.04
3	18.07.90	0.30	LW	8.1	5.17	19	89	7.99	62	2.64
3	18.07.90	0.00	HW	-	31.9	18.6	121	9.34	-	-
3	18.07.90	1.00	HW	8.1	32.1	18.4	125	9.67	53	1.87
3	18.07.90	2.00	HW	-	32	18.4	125	9.68	-	-
3	25.07.90	0.00	HW	-	31.8	17.8	85	6.67	-	-
3	25.07.90	0.50	HW	-	34.7	17.6	87	6.73	-	-
3	25.07.90	1.00	HW	8.1	34.8	17.6	88	6.80	30	0.99
3	25.07.90	2.00	HW	-	35	17.6	89	6.87	-	-
3	25.07.90	0.00	LW	8.6	9.1	21.2	149	12.52	30	4.19
3	25.07.90	0.50	LW	-	9.2	21.2	143	12.01	-	-
3	14.08.90	0.00	LW	-	5.6	17.8	57	5.23	-	-
3	14.08.90	0.25	LW	7.9	6	17.8	59	5.40	107	2.67
3	14.08.90	0.00	HW-3	-	4.2	18	68	6.27	-	-
3	14.08.90	0.50	HW-3	-	4.1	18	67	6.18	-	-
3	14.08.90	0.00	HW	-	8.7	18.4	91	8.10	-	-
3	14.08.90	0.50	HW	-	31.5	18.1	91	7.11	-	-
3	14.08.90	1.00	HW	8.1	34.4	17.9	90	6.94	21	0.71
3	14.08.90	1.50	HW	-	34.4	17.9	89	6.86	-	-
3	14.08.90	1.75	HW	-	34.4	17.9	76	5.86	-	-
3	21.08.90	0.00	HW	-	33.4	17.2	81	6.37	-	-
3	21.08.90	0.50	HW	-	34.9	16.9	85	6.66	-	-
3	21.08.90	1.00	HW	-	35	17.1	81	6.32	-	-
3	21.08.90	1.50	HW	8.1	35	17.2	81	6.30	14	0.45
3	21.08.90	2.00	HW	-	35	17.2	81	6.30	-	-
3	21.08.90	2.50	HW	-	35	17.2	77	5.99	-	-
3	21.08.90	0.00	HW+3	-	17.4	17.4	76	6.55	-	-
3	21.08.90	0.50	HW+3	-	30.5	17.4	80	6.37	-	-
3	21.08.90	1.00	HW+3	-	30.5	17.3	83	6.62	-	-

TABLE 6: SITE 3 PROFILE DATA

Site	Date	Depth (m)	Tidal State	Acidity (pH)	Salinity (ppt)	Temp. (deg.C)	D.O. (%sat.)	D.O. (mg/l)	Dis Amm (ug/l)	Uni Amm (ug/l)
3	21.08.90	0.00	LW	-	4.3	19	113	10.20	-	-
3	21.08.90	0.50	LW	8.3	4.4	19	113	10.19	38	2.51
3	28.08.90	0.00	HW	-	4.3	19	82	7.40	-	-
3	28.08.90	0.50	HW	-	32.5	18.3	87	6.73	-	-
3	28.08.90	1.00	HW	8.1	33.5	18.2	86	6.63	98	3.39
3	28.08.90	1.50	HW	-	33.7	18.2	84	6.46	-	-
3	28.08.90	0.00	HW+3	-	6.2	19.4	114	10.09	-	-
3	28.08.90	0.50	HW+3	8.2	6.2	19.4	108	9.56	71	3.85
3	28.08.90	0.00	LW	-	2.2	19.7	115	10.36	-	-
3	28.08.90	0.50	LW	8.3	2.2	19.7	114	10.27	58	4.07
3	28.08.90	0.00	HW-3	-	2.7	19.4	98	8.86	-	-
3	28.08.90	0.50	HW-3	8.2	3	19.3	97	8.77	158	8.66
3	28.08.90	1.00	HW-3	-	3.1	19.3	94	8.49	-	-
3	29.08.90	0.00	HW	-	2.3	19	-	-	-	-
3	29.08.90	0.50	HW	8.2	8	18.6	-	-	154	7.83
3	29.08.90	1.00	HW	-	33	18.2	-	-	-	-
3	29.08.90	0.00	HW+3	-	4	19	69	6.24	-	-
3	29.08.90	0.50	HW+3	8	4	19	68	6.15	96	3.30
3	29.08.90	0.15	LW	7.9	3.5	18.7	62	5.66	92	2.48
3	21.09.90	0.00	HW	-	17.9	13.7	-	-	-	-
3	21.09.90	0.50	HW	-	34.8	16	-	-	-	-
3	21.09.90	1.00	HW	8	35.2	16.3	-	-	45	1.07
3	21.09.90	1.50	HW	-	35.1	16.3	-	-	-	-
3	21.09.90	1.75	HW	-	35.1	16.2	-	-	-	-
3	21.09.90	0.00	HW+3	-	17.4	14.8	-	-	-	-
3	21.09.90	0.50	HW+3	-	25.3	15.5	-	-	-	-
3	21.09.90	1.00	HW+3	-	30.2	16	-	-	-	-
3	21.09.90	0.00	LW	-	6.2	15.5	-	-	-	-
3	21.09.90	0.50	LW	8.2	6.2	15.5	-	-	56	2.30
3	27.09.90	0.00	HW-3	8.35	5.8	10.1	78	8.46	-	-
3	27.09.90	0.50	HW-3	8.27	11.1	11.2	77	7.87	-	-
3	27.09.90	0.75	HW-3	8.25	14.2	11.6	76	7.55	-	-
3	27.09.90	0.00	HW	8.23	2.1	11.8	111	11.85	-	-
3	27.09.90	0.50	HW	8.11	33.3	15.2	122	9.98	29	0.83
3	27.09.90	1.00	HW	8.11	33.3	15.2	121	9.90	-	-

TABLE 6: SITE 3 PROFILE DATA

Site	Date	Depth (m)	Tidal State	Acidity (pH)	Salinity (ppt)	Temp. (deg.C)	D.O. (%sat.)	D.O. (mg/l)	Dis Amm (ug/l)	Uni Amm (ug/l)
3	27.09.90	0.00	HW+3	8.44	6.7	13.7	148	14.71	-	-
3	27.09.90	0.50	HW+3	8.51	6.7	13.7	146	14.52	-	-
3	27.09.90	0.00	LW	8.6	3	13.2	162	16.66	33	2.79
3	27.09.90	0.50	LW	-	3	13.2	158	16.25	-	-
3	15.02.91	0.00	HW	-	19.7	4.4	101	11.49	-	-
3	15.02.91	0.50	HW	8	35.3	5.4	101	10.11	20	0.21
3	15.02.91	1.00	HW	-	35.6	5.4	101	10.09	-	-
3	15.02.91	1.50	HW	-	35.6	5.5	98	9.77	-	-
3	15.02.91	0.00	HW+3	-	11.4	3.9	100	12.17	-	-
3	15.02.91	0.50	HW+3	-	22.9	4.4	101	11.25	-	-
3	15.02.91	1.00	HW+3	-	34.8	5.3	103	10.37	-	-
3	15.02.91	1.50	HW+3	-	35.1	5.4	104	10.43	-	-
3	15.02.91	0.50	LW	7.8	5	5	100	12.41	260	2.03
3	15.02.91	0.00	HW-3	-	1.5	4.6	101	12.89	-	-
3	15.02.91	0.50	HW-3	-	1.5	4.6	100	12.76	-	-
3	15.02.91	1.00	HW-3	-	1.5	4.6	100	12.76	-	-
3	22.02.91	0.00	HW+3	-	0.2	5.1	92	11.69	-	-
3	22.02.91	0.50	HW+3	-	0.2	5.1	92	11.69	-	-
3	22.02.91	1.00	HW+3	-	0.2	5.1	92	11.69	-	-
3	22.02.91	0.00	LW	7.6	0.3	5.8	92	11.48	370	1.99
3	22.02.91	0.00	HW-3	-	0.1	4.5	95	12.27	-	-
3	22.02.91	0.50	HW-3	-	0.1	4.5	96	12.40	-	-
3	22.02.91	0.00	HW	-	0.1	4.7	89	11.43	-	-
3	22.02.91	0.50	HW	7.6	0.1	4.7	89	11.43	570	2.82
3	22.02.91	1.00	HW	-	0.1	4.7	89	11.43	-	-
3	22.02.91	1.50	HW	-	0.1	4.7	89	11.43	-	-

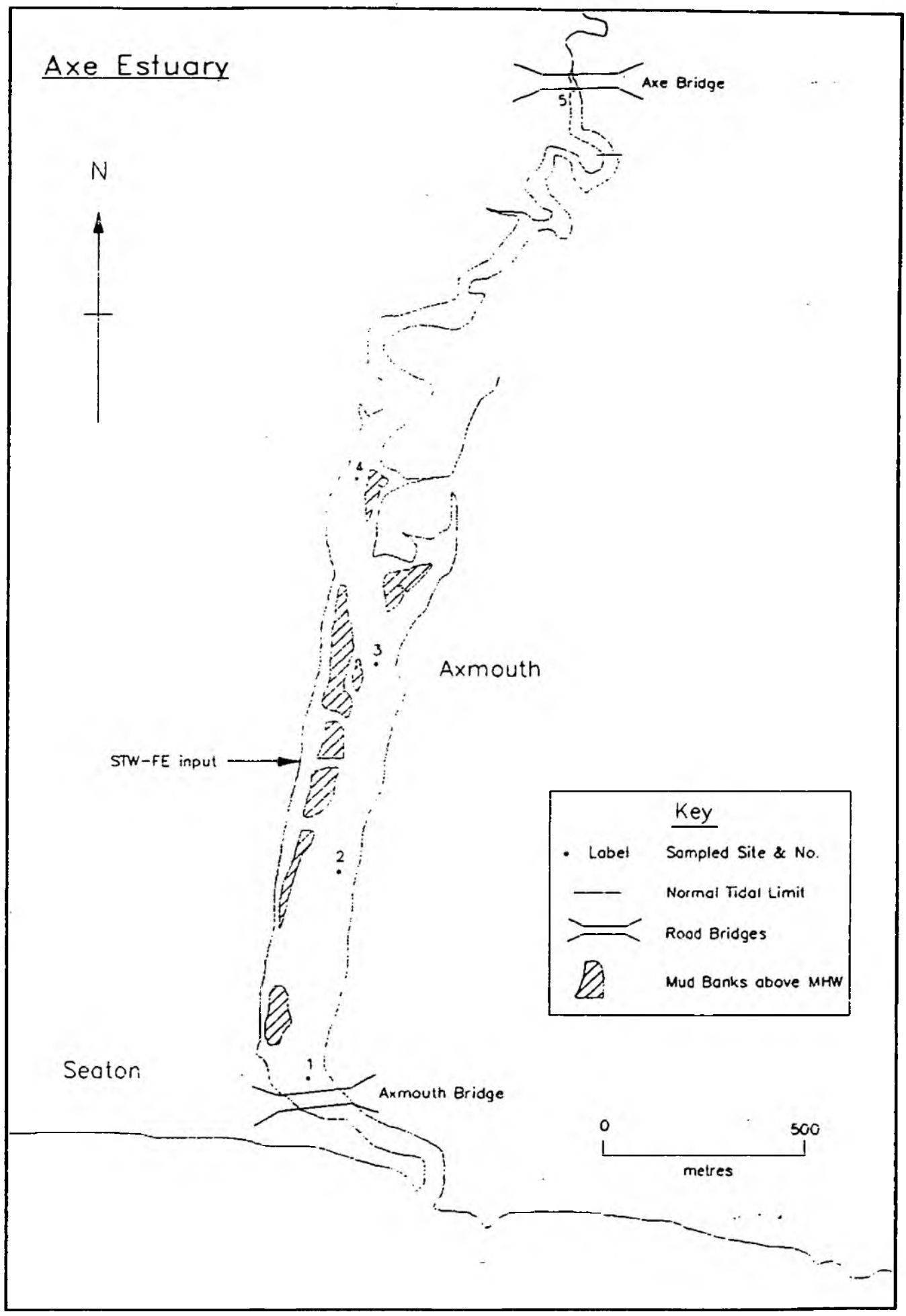
TABLE 7: SITE 4 PROFILE DATA

Site	Date	Depth (m)	Tidal State	Acidity (pH)	Salinity (ppt)	Temp. (deg.C)	D.O. (%sat.)	D.O. (mg/l)	Dis Amm (ug/l)	Uni Amm (ug/l)
4	31.05.90	0.00	LW	7.79	1.57	15.7	70	6.88	33	0.56
4	31.05.90	0.00	HW-3	7.88	1.23	15.9	81	7.94	40	0.85
4	31.05.90	0.00	HW	8.13	0.5	16.6	98	9.51	61	2.40
4	31.05.90	1.00	HW	7.96	10.1	15.2	114	10.75	46	1.06
4	31.05.90	0.00	HW+3	8.36	-	17.1	132	-	-	-
4	31.05.90	1.00	HW+3	8.3	2.8	17	132	12.53	46	2.67
4	31.05.90	0.00	LW	8.49	1.13	17	133	12.75	41	3.60
4	18.07.90	0.00	HW	-	3.9	23.6	174	14.40	-	-
4	18.07.90	0.50	HW	-	13.1	22.2	164	13.21	-	-
4	18.07.90	1.50	HW	8.3	24.2	21.2	161	12.38	60	4.18
4	18.07.90	2.50	HW	-	26.8	20.6	158	12.10	-	-
4	25.07.90	0.00	HW	-	10.2	18.3	77	6.81	-	-
4	25.07.90	0.50	HW	-	21.6	17.7	84	7.02	-	-
4	25.07.90	1.50	HW	8.1	34.8	17.6	88	6.80	38	1.25
4	25.07.90	2.50	HW	-	34.8	17.6	91	7.04	-	-
4	14.08.90	0.00	HW	-	2.8	18.4	98	9.04	-	-
4	14.08.90	0.50	HW	-	26.6	18.2	87	6.90	-	-
4	14.08.90	1.00	HW	8.1	33.8	18	90	6.95	30	1.02
4	14.08.90	1.50	HW	-	34	18	97	7.48	-	-
4	21.08.90	0.00	HW	-	7.9	17.1	65	5.97	-	-
4	21.08.90	0.50	HW	-	30.8	17.1	80	6.40	-	-
4	21.08.90	1.00	HW	-	34.9	17.2	79	6.15	-	-
4	21.08.90	1.50	HW	8.1	34.9	17.2	77	6.00	13	0.42
4	21.08.90	2.00	HW	-	34.9	17.2	77	6.00	-	-
4	21.08.90	2.50	HW	-	34.9	17.2	68	5.30	-	-
4	21.08.90	0.00	HW+3	-	7.7	17.5	68	6.20	-	-
4	21.08.90	0.50	HW+3	-	14.2	17.3	78	6.87	-	-
4	21.08.90	1.00	HW+3	-	34.7	17.4	85	6.60	-	-
4	28.08.90	0.00	HW	-	0.7	19.2	92	8.45	-	-
4	28.08.90	0.50	HW	-	0.9	19.2	90	8.26	-	-
4	28.08.90	1.00	HW	8	31.1	18.2	87	6.80	157	4.40
4	28.08.90	1.50	HW	-	31.3	18.2	87	6.79	-	-
4	28.08.90	0.00	LW	-	0.7	19.8	112	10.16	-	-
4	28.08.90	0.50	LW	-	2.2	19.7	115	10.36	-	-

TABLE 7: SITE 4 PROFILE DATA

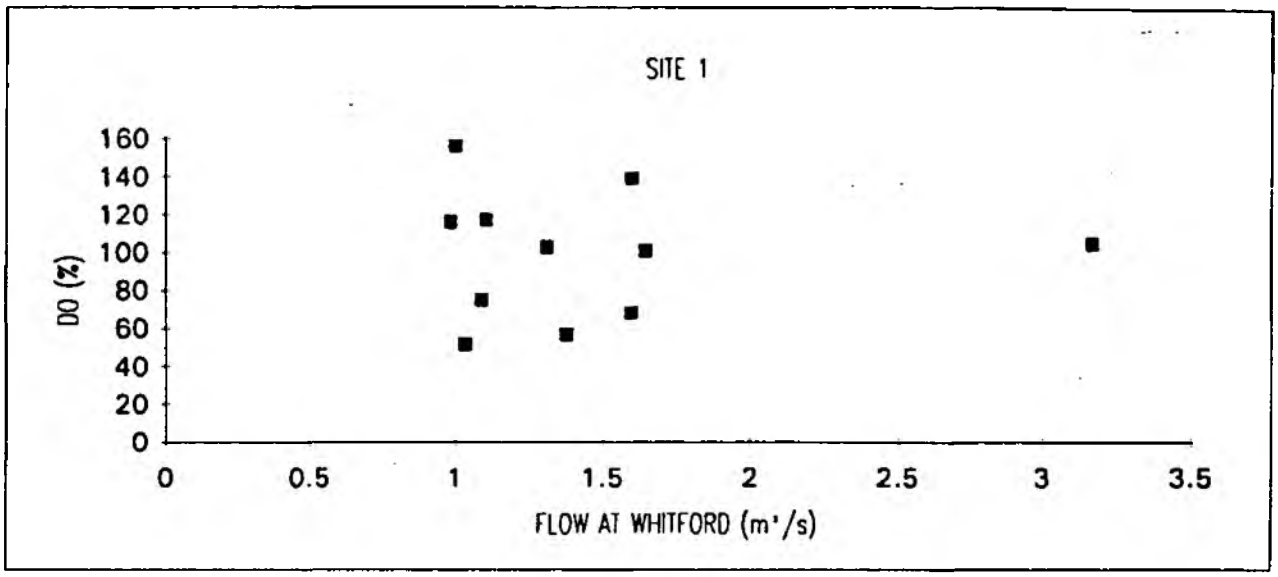
Site	Date	Depth	Tidal	Acidity	Salinity	Temp.	D.O.	D.O.	Dis Amm	Uni Amm
		(m)	State	(pH)	(ppt)	(deg.C)	(%sat.)	(mg/l)	(ug/l)	(ug/l)
4	29.08.90	0.00	HW	-	0.5	19.4	-	-	-	-
4	29.08.90	0.50	HW	8.2	1	19.4	-	-	52	2.90
4	29.08.90	1.00	HW	-	12.8	18.8	-	-	-	-
4	21.09.90	0.00	HW	-	9.7	13.3	-	-	-	-
4	21.09.90	0.50	HW	-	33.8	15.6	-	-	-	-
4	21.09.90	1.00	HW	8	35	16.2	-	-	41	0.97
4	21.09.90	1.50	HW	-	35	16.2	-	-	-	-
4	21.09.90	2.00	HW	-	35	16.1	-	-	-	-
4	27.09.90	0.00	HW	8.29	1.6	11.8	120	12.85	-	-
4	27.09.90	0.50	HW	8.23	2.9	11.8	116	12.32	31	1.06
4	27.09.90	0.75	HW	8.14	11.7	12.2	114	11.36	-	-
4	15.02.91	0.00	HW	-	18.7	4.2	102	11.74	-	-
4	15.02.91	0.50	HW	-	34.2	5.1	102	10.36	-	-
4	15.02.91	1.00	HW	8	34.9	5.3	102	10.27	30	0.25
4	15.02.91	1.50	HW	-	35.2	5.4	103	10.32	-	-
4	15.02.91	2.00	HW	-	35.3	5.4	99	9.91	-	-
4	15.02.91	2.50	HW	-	35.3	5.4	98	9.81	-	-
4	15.02.91	0.00	HW+3	-	4.8	3.5	100	12.85	-	-
4	15.02.91	0.50	HW+3	-	9.2	3.6	100	12.45	-	-
4	15.02.91	1.00	HW+3	-	34.5	5.2	102	10.32	-	-
4	15.02.91	1.50	HW+3	-	35.2	5.4	102	10.22	-	-
4	15.02.91	0.50	LW	7.8	3.6	4.2	97	12.34	230	1.70
4	15.02.91	0.00	HW-3	-	0.7	4.5	100	12.86	-	-
4	15.02.91	0.50	HW-3	-	0.7	4.5	99	12.74	-	-
4	15.02.91	1.00	HW-3	-	0.7	4.4	99	12.77	-	-
4	22.02.91	0.00	HW+3	-	0.1	5.1	93	11.83	-	-
4	22.02.91	0.50	HW+3	-	0.1	5.1	92	11.70	-	-
4	22.02.91	1.00	HW+3	-	0.1	5.1	93	11.83	-	-
4	22.02.91	0.00	LW	7.6	0.3	5.8	95	11.85	350	1.88
4	22.02.91	0.00	HW-3	-	0.1	4.5	94	12.14	-	-
4	22.02.91	0.50	HW-3	-	0.1	4.5	94	12.14	-	-
4	22.02.91	0.00	HW	-	0.1	4.7	87	11.18	-	-
4	22.02.91	0.50	HW	7.6	0.1	4.7	87	11.18	730	3.61
4	22.02.91	1.00	HW	-	0.1	4.7	87	11.18	-	-
4	22.02.91	1.50	HW	-	0.1	4.7	86	11.05	-	-

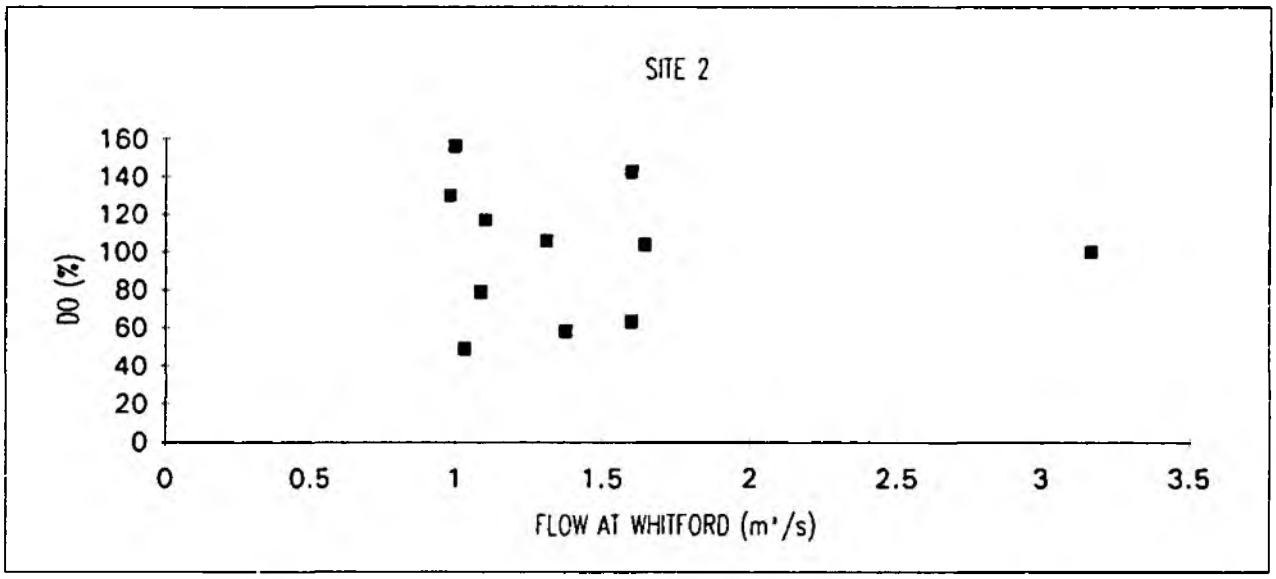
FIGURES



Drought Order Sampling Sites

Figure 1.





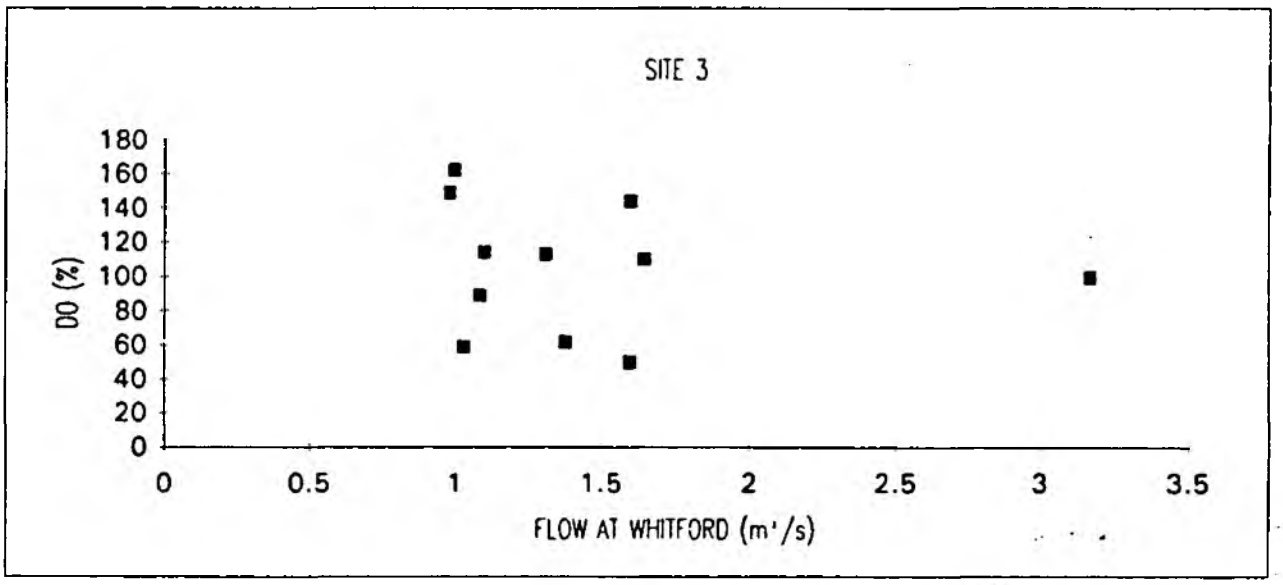
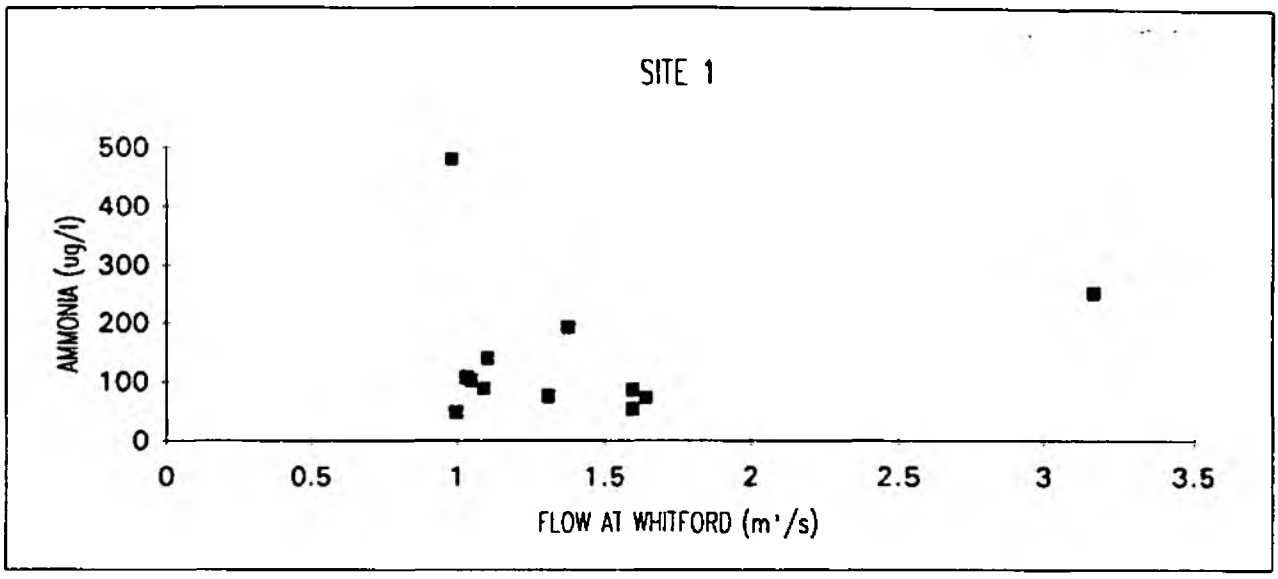
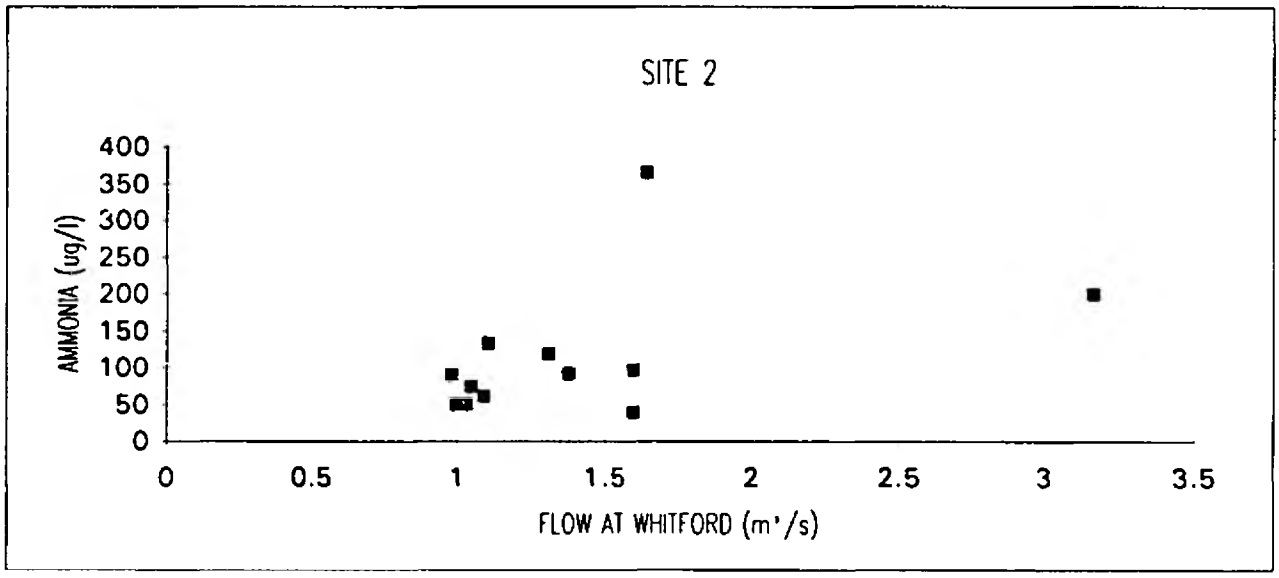


FIGURE 2.1: DISSOLVED OXYGEN IN THE ESTUARY vs FLOW AT WHITFORD BRIDGE





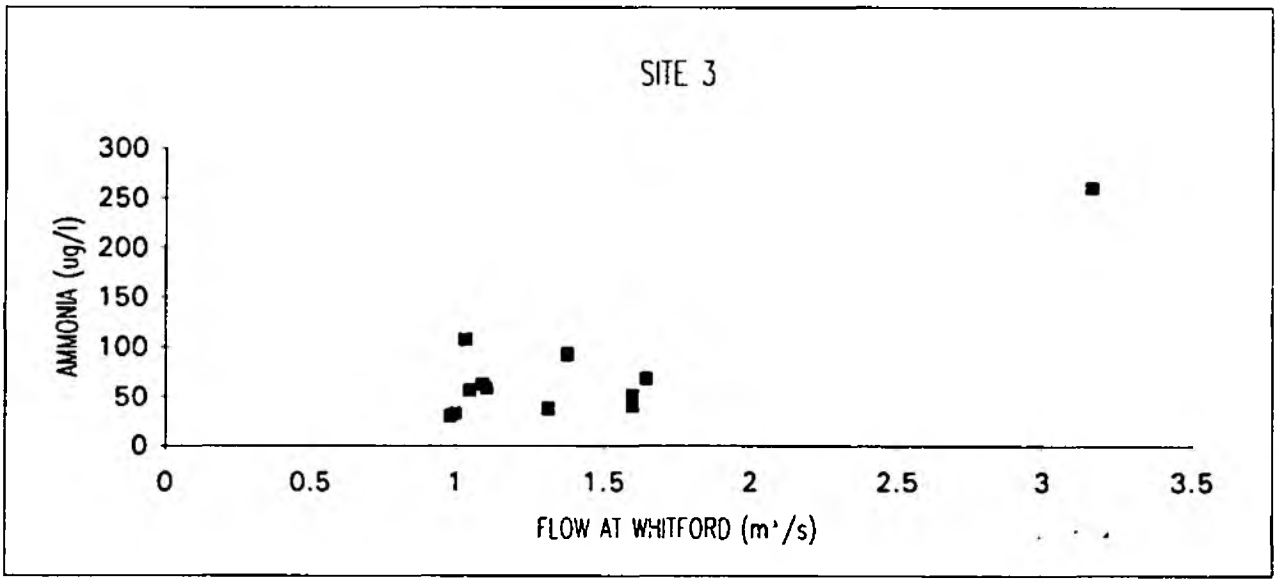
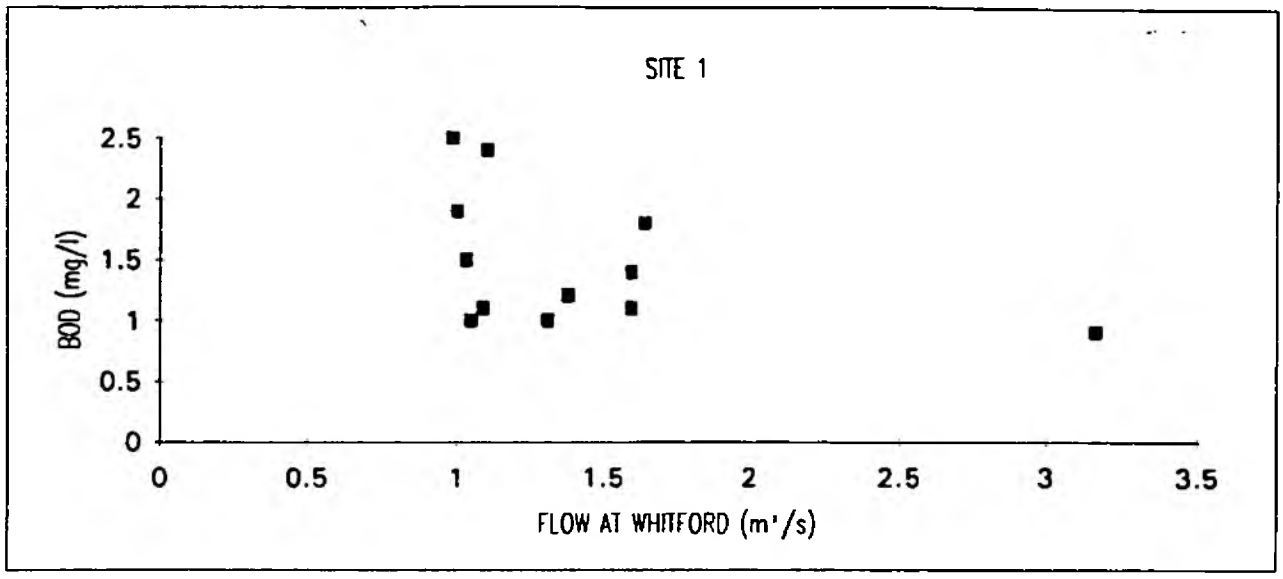
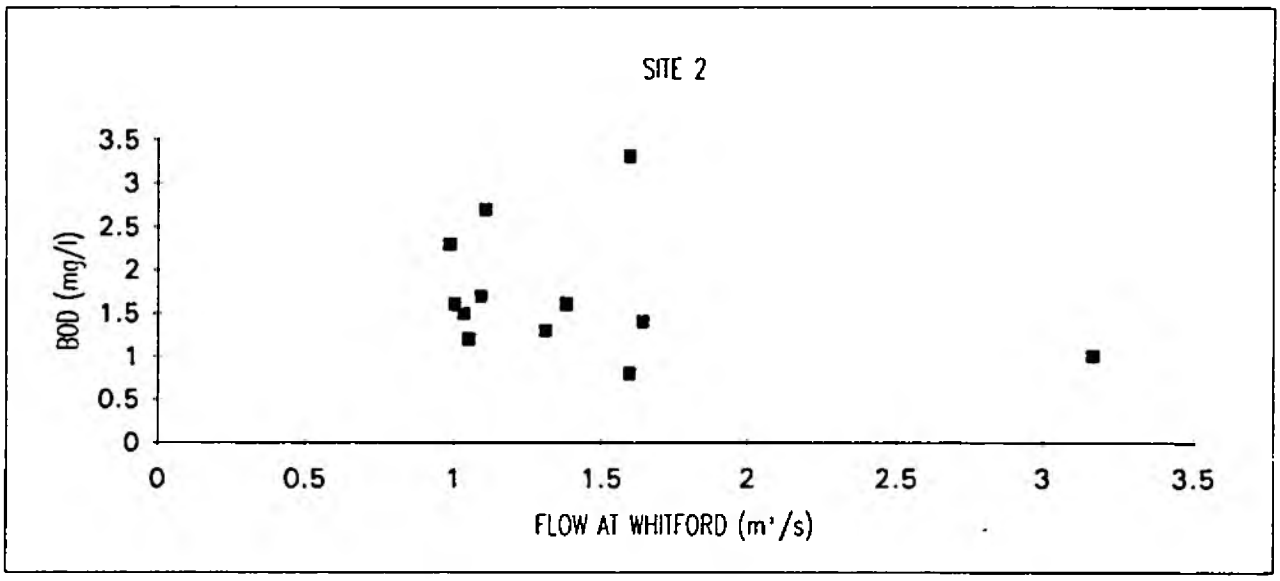


FIGURE 2.2: AMMONIA CONCENTRATIONS IN THE ESTUARY vs FLOW AT WHITFORD BRIDGE





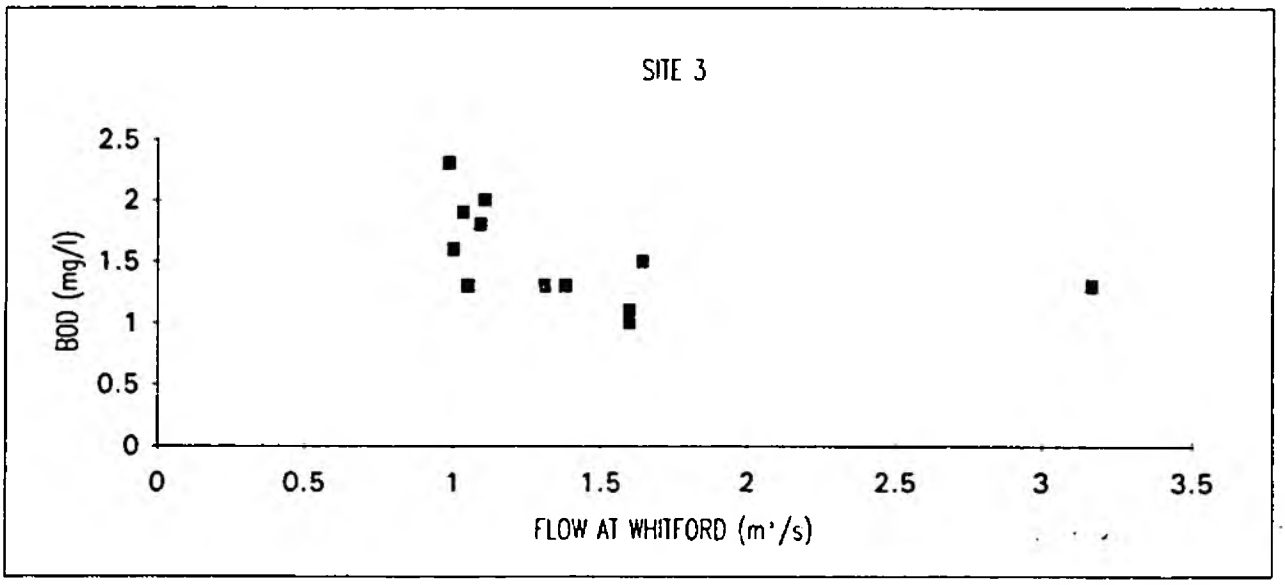
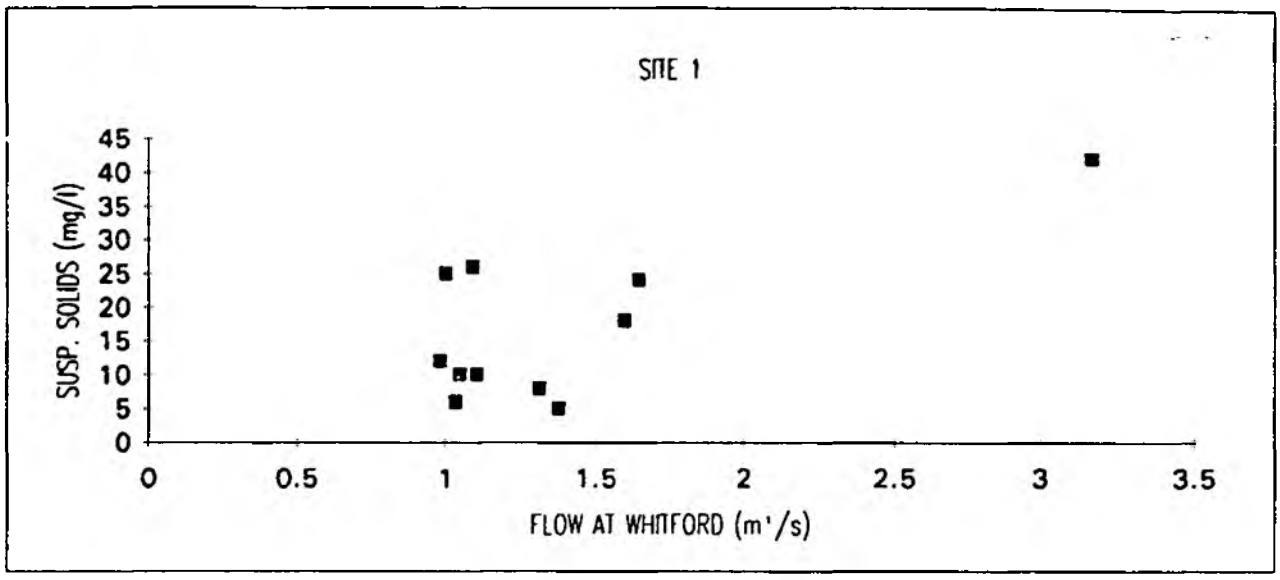
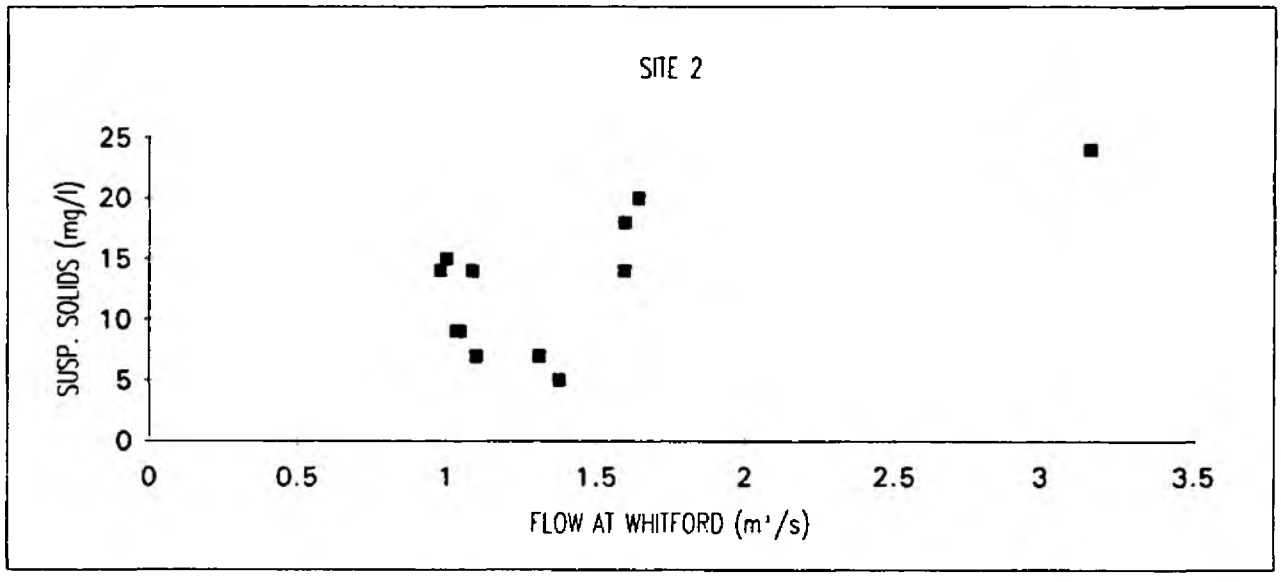


FIGURE 2.3: BOD LEVELS IN THE ESTUARY vs FLOW AT WHITFORD BRIDGE





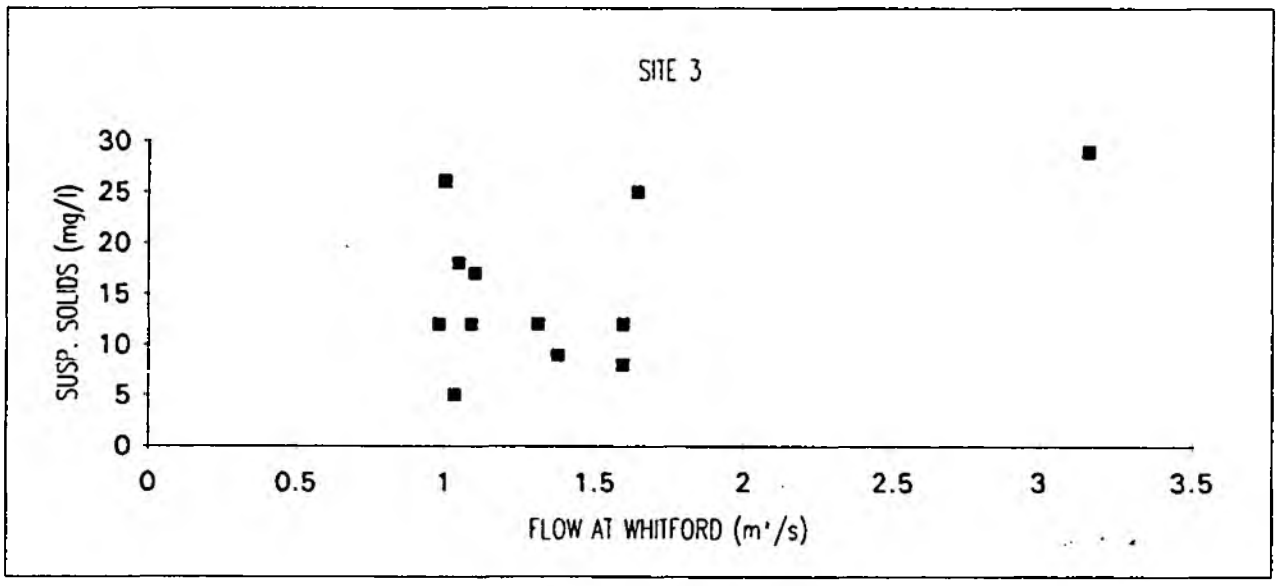
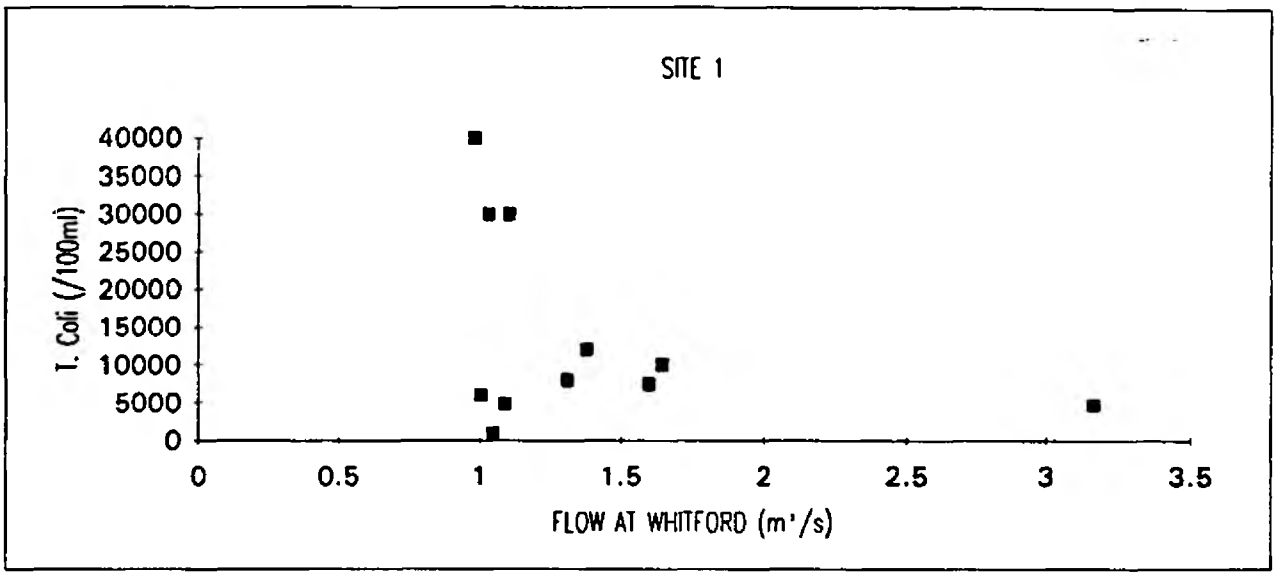
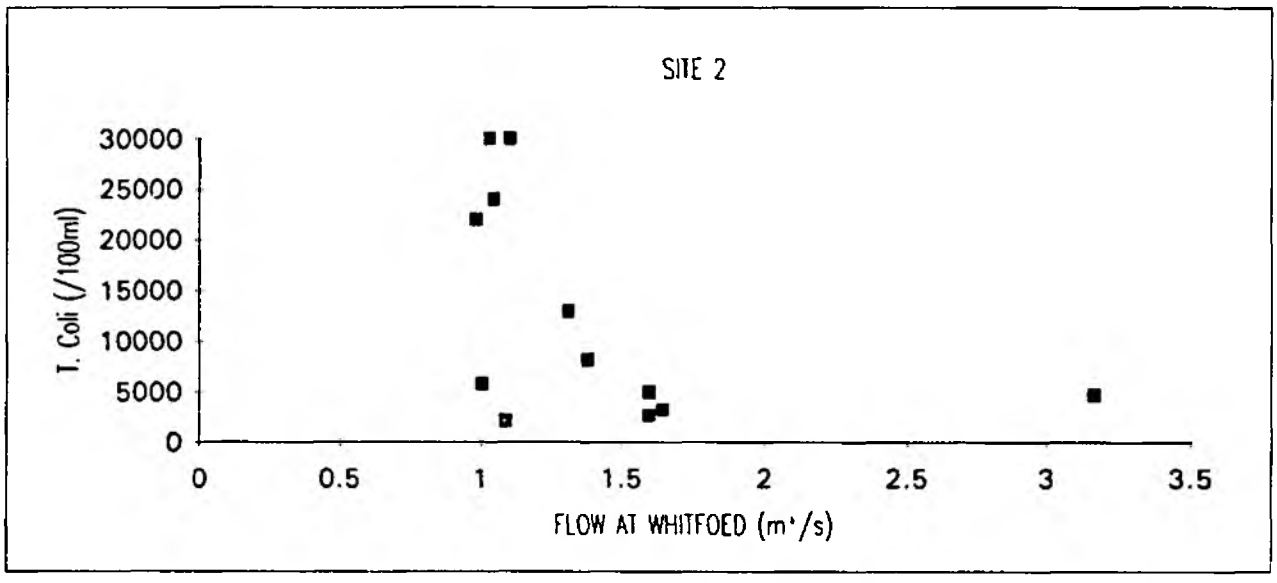


FIGURE 2.4: SUSPENDED SOLIDS IN THE ESTUARY vs FLOW AT WHITFORD BRIDGE





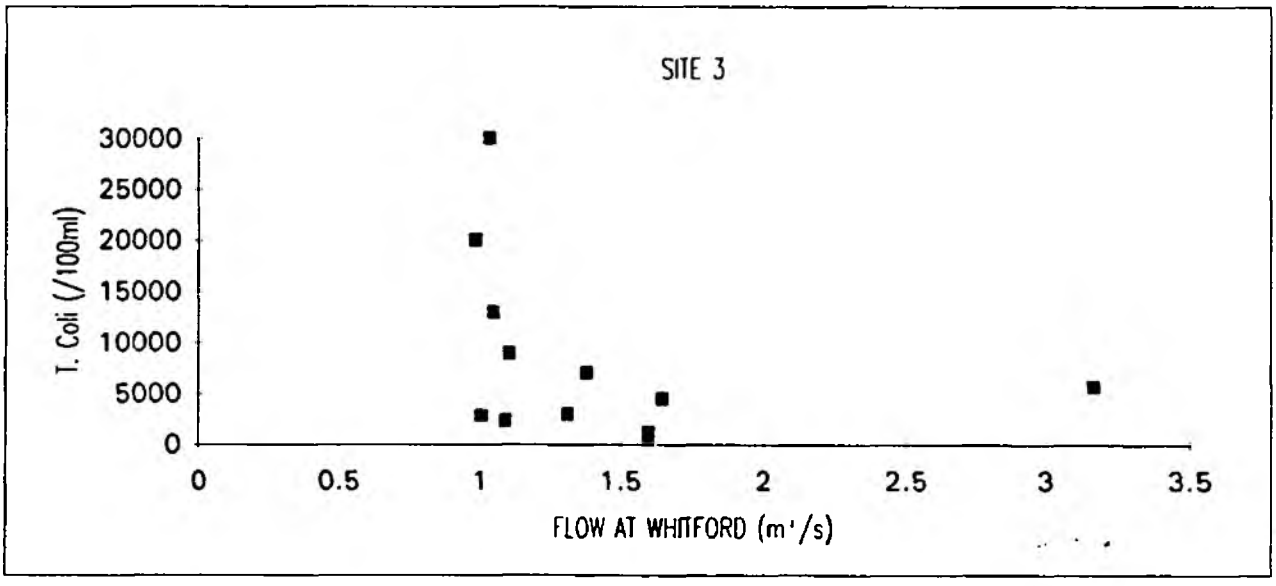
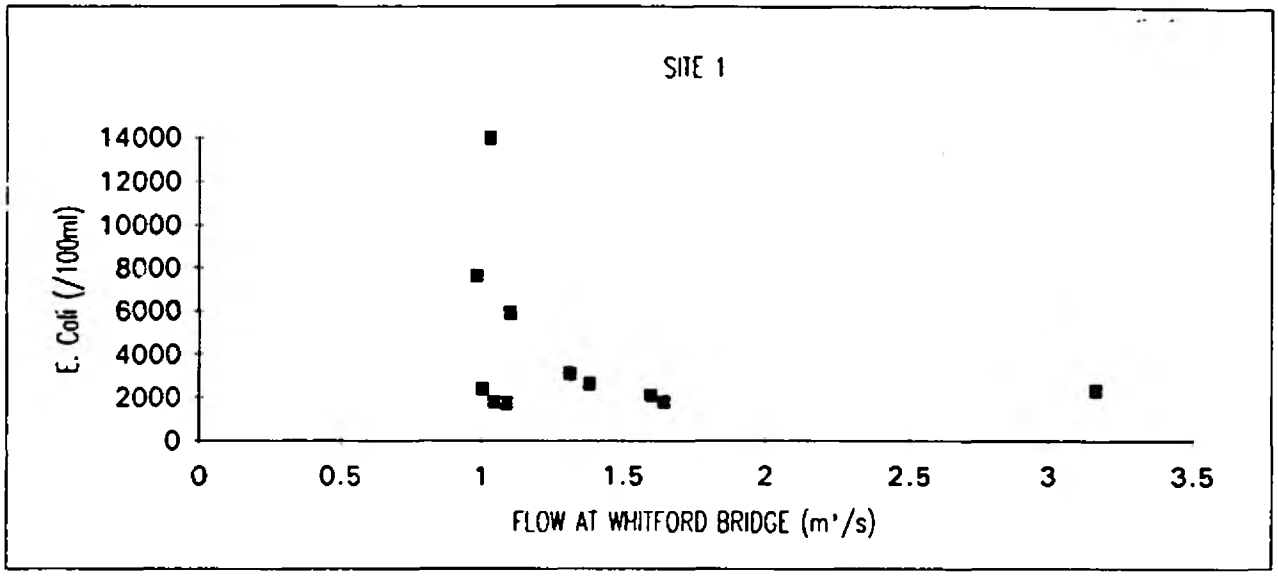
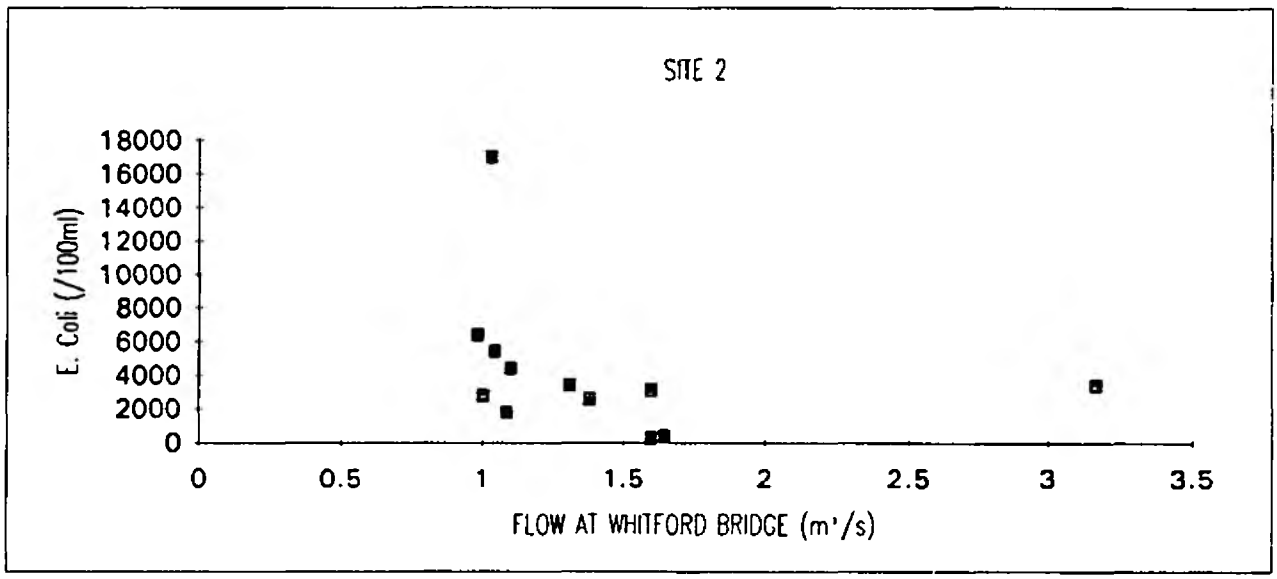


FIGURE 2.5: TOTAL COLIFORMS IN THE ESTUARY vs FLOW AT WHITFORD BRIDGE





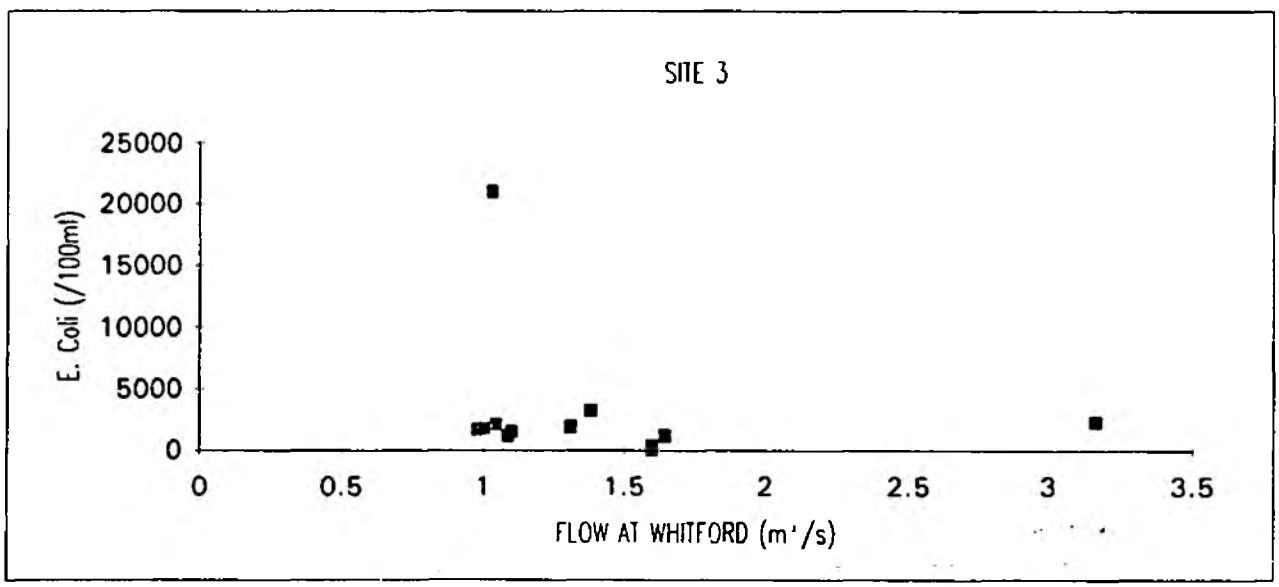
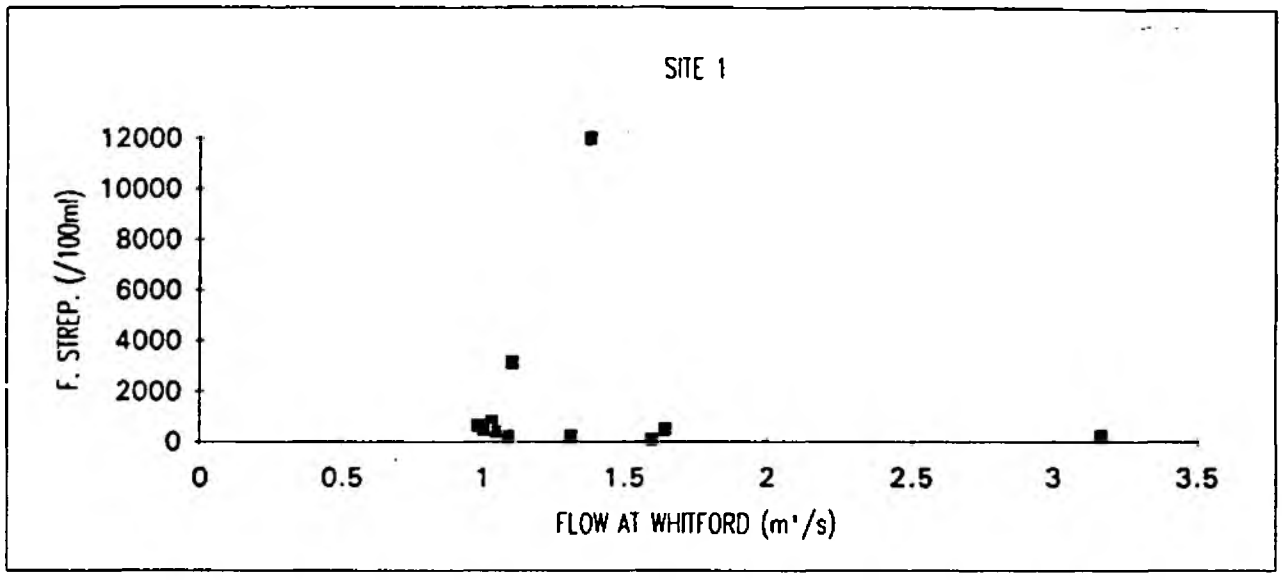
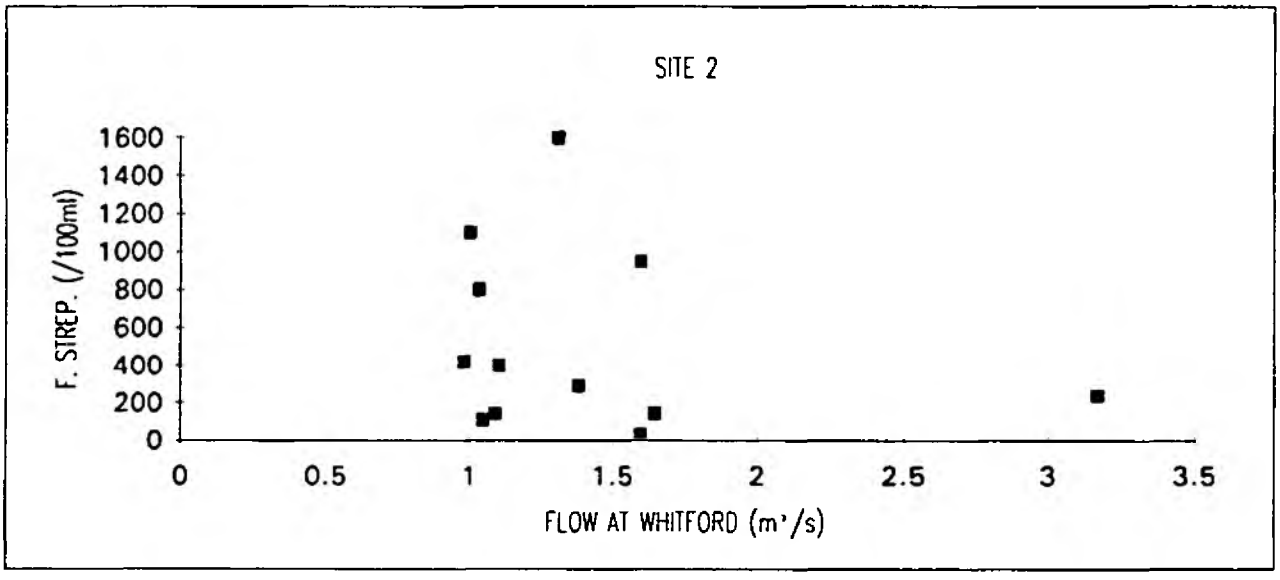


FIGURE 2.6: FAECAL COLIFORMS IN THE ESTUARY vs FLOW AT WHITFORD BRIDGE





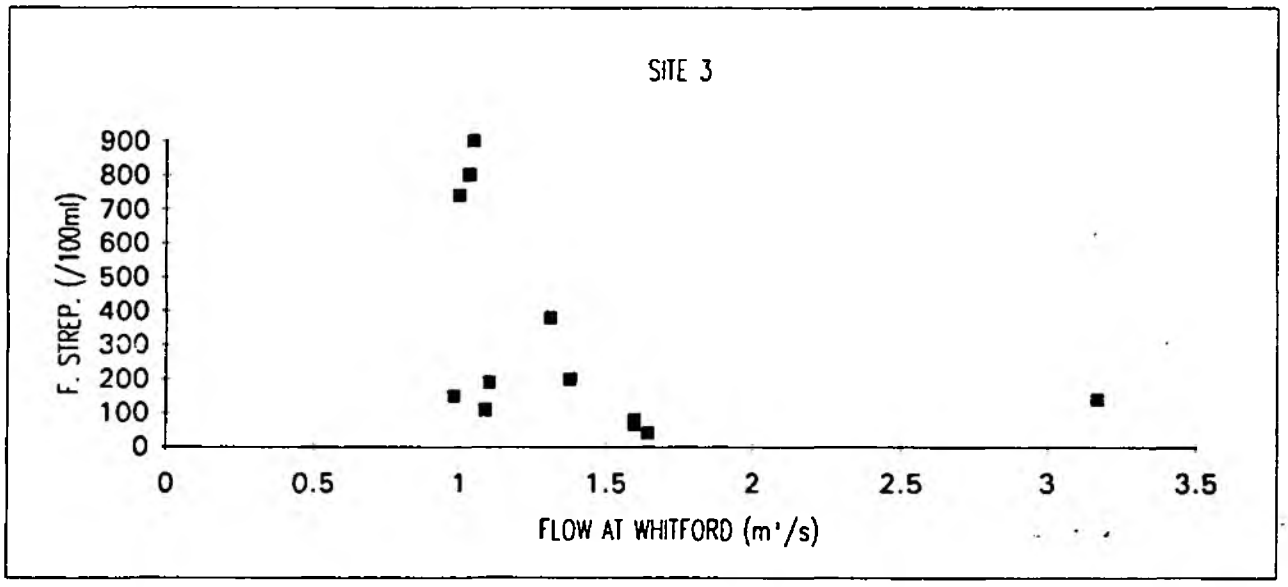


FIGURE 2.7: FAECAL STREPTOCOCCI IN THE ESTUARY vs FLOW AT WHITFORD BRIDGE

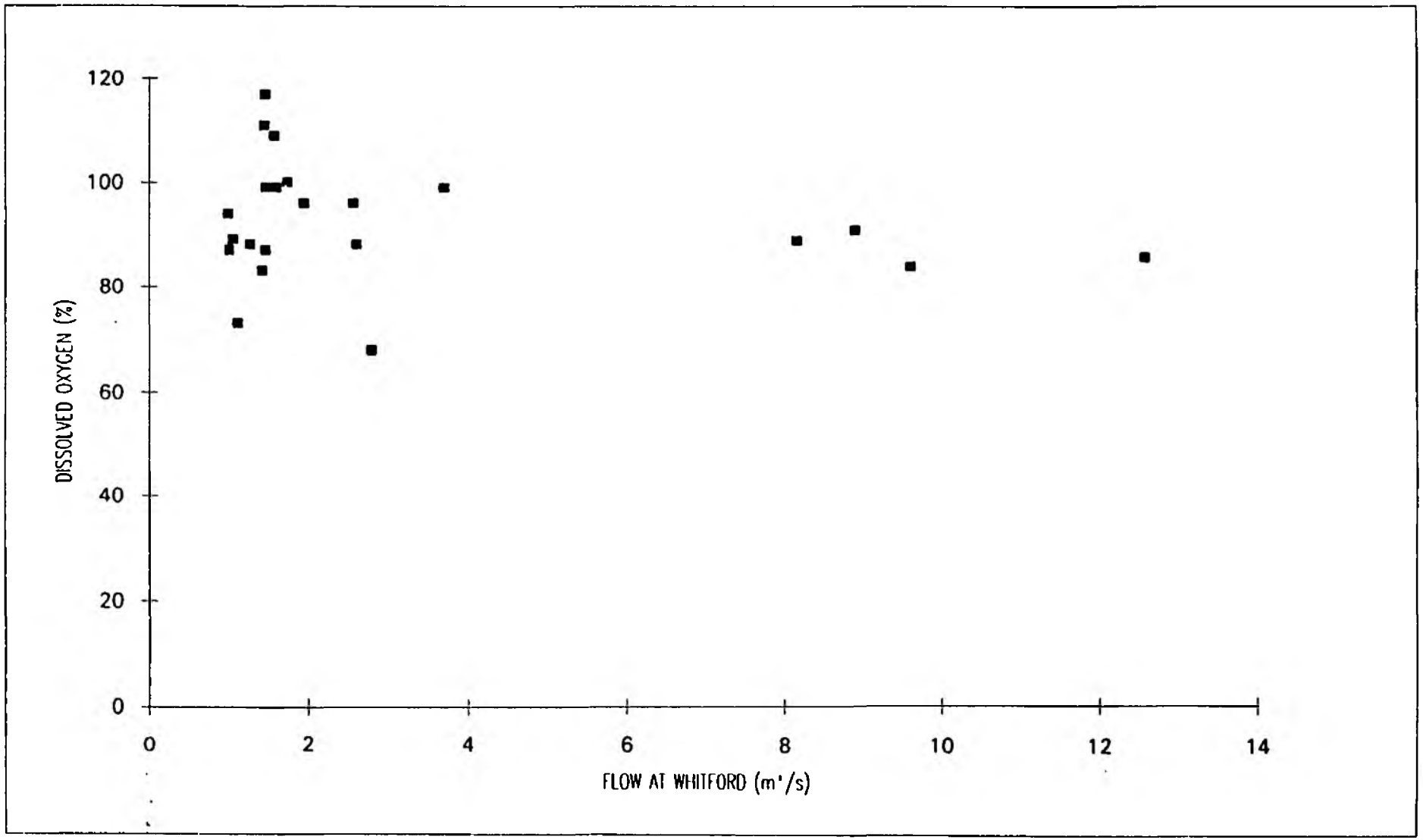


FIGURE 3.1: DISSOLVED OXYGEN AT AXE BRIDGE vs FLOW AT WHITFORD BRIDGE

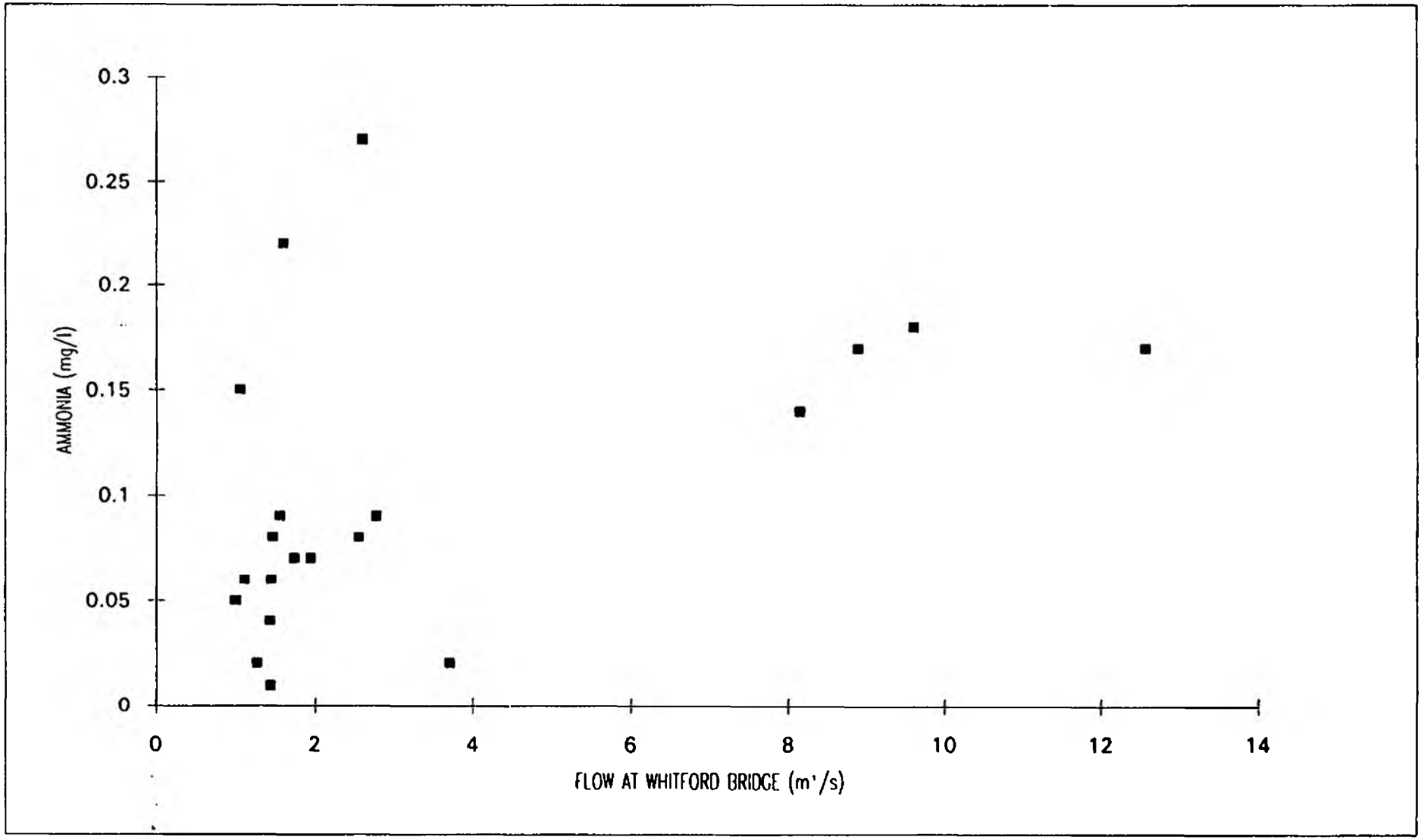


FIGURE 3.2: AMMONIA CONCENTRATIONS AT AXE BRIDGE vs FLOW AT WHITFORD BRIDGE

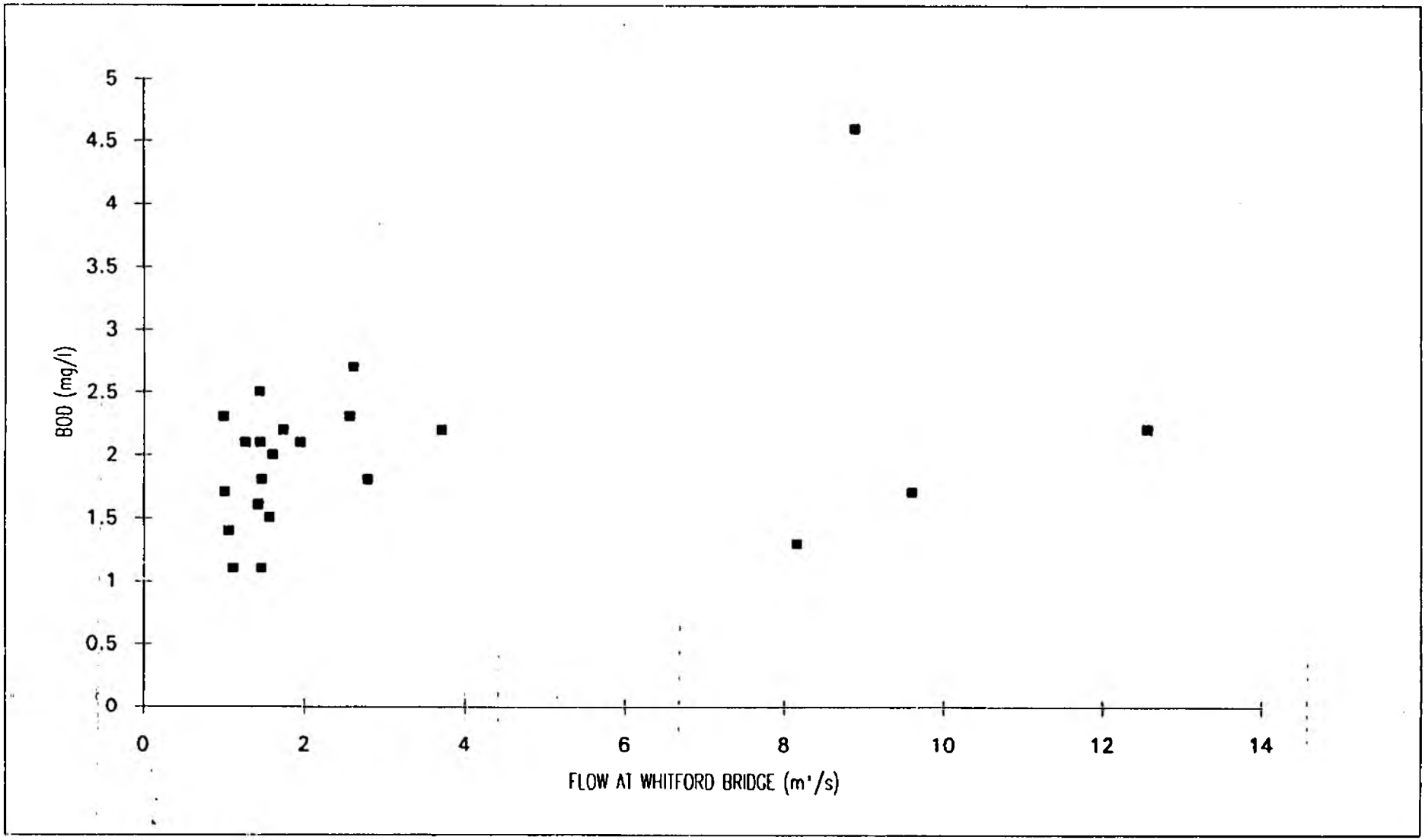


FIGURE 3.3: BOD AT AXE BRIDGE vs FLOW AT WHITFORD BRIDGE

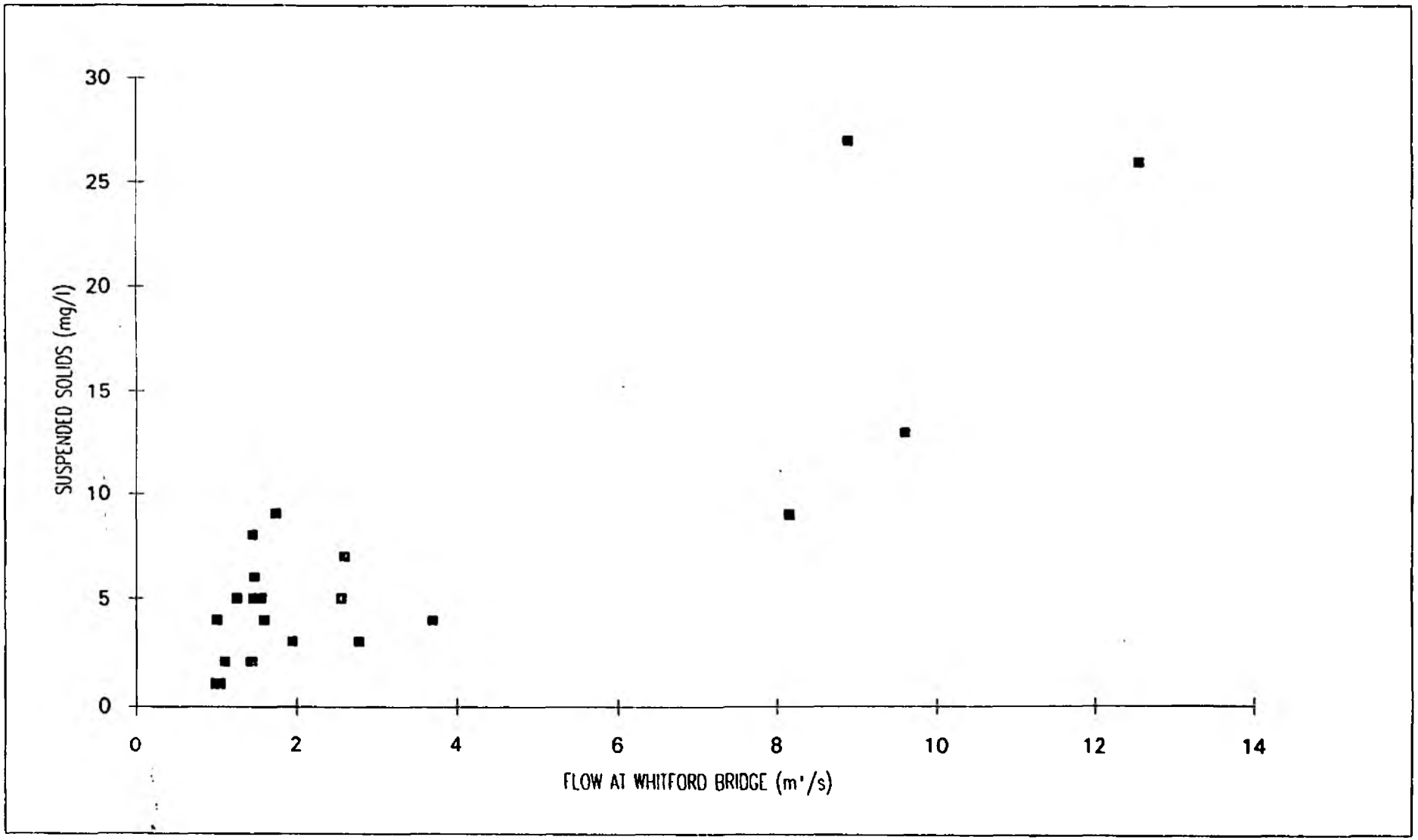


FIGURE 3.4: SUSPENDED SOLIDS AT AXE BRIDGE vs FLOW AT WHITFORD BRIDGE

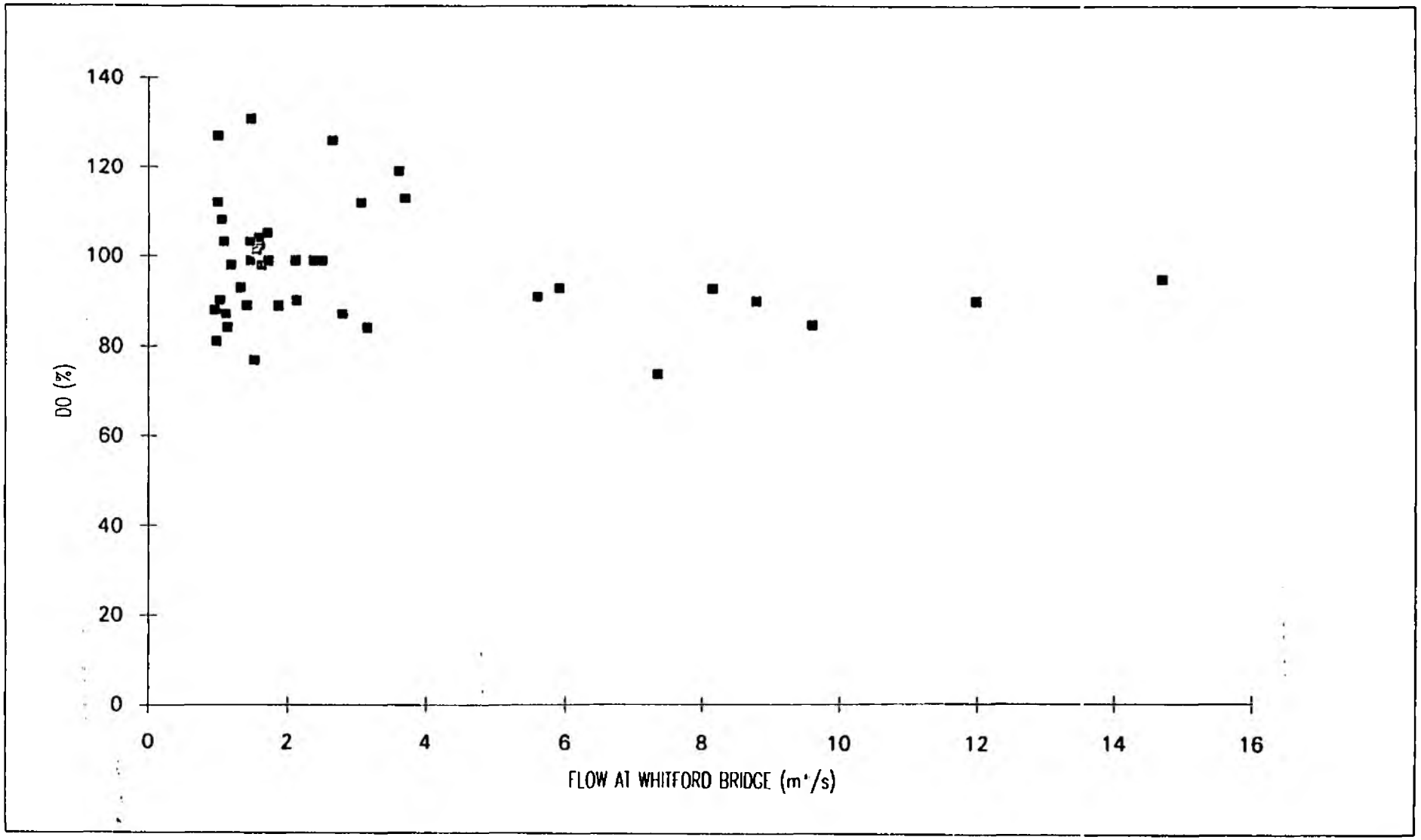


FIGURE 4.1: DISSOLVED OXYGEN AT WHITFORD BRIDGE vs FLOW AT WHITFORD BRIDGE

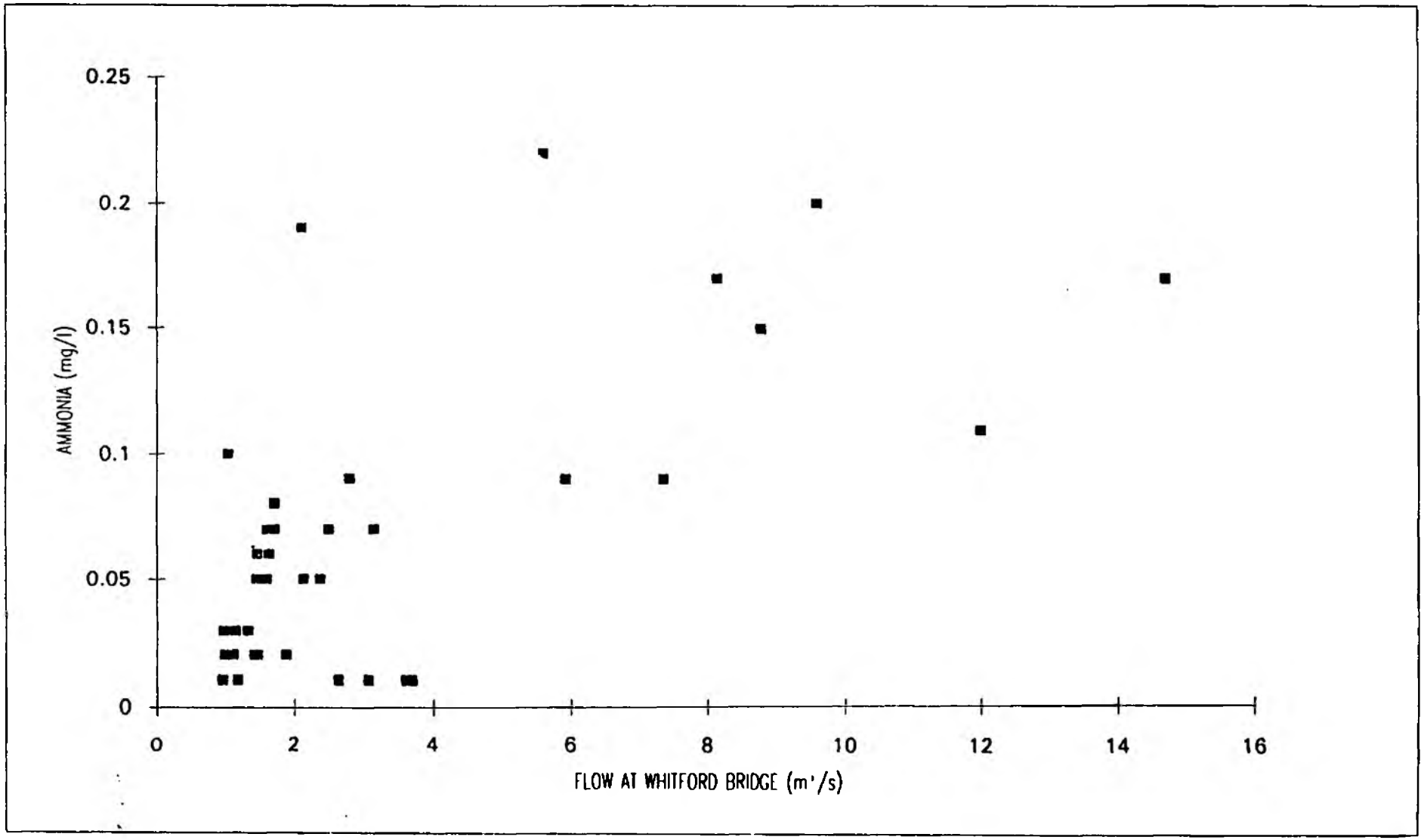


FIGURE 4.2: AMMONIA CONCENTRATIONS AT WHITFORD BRIDGE vs FLOW AT WHITFORD BRIDGE

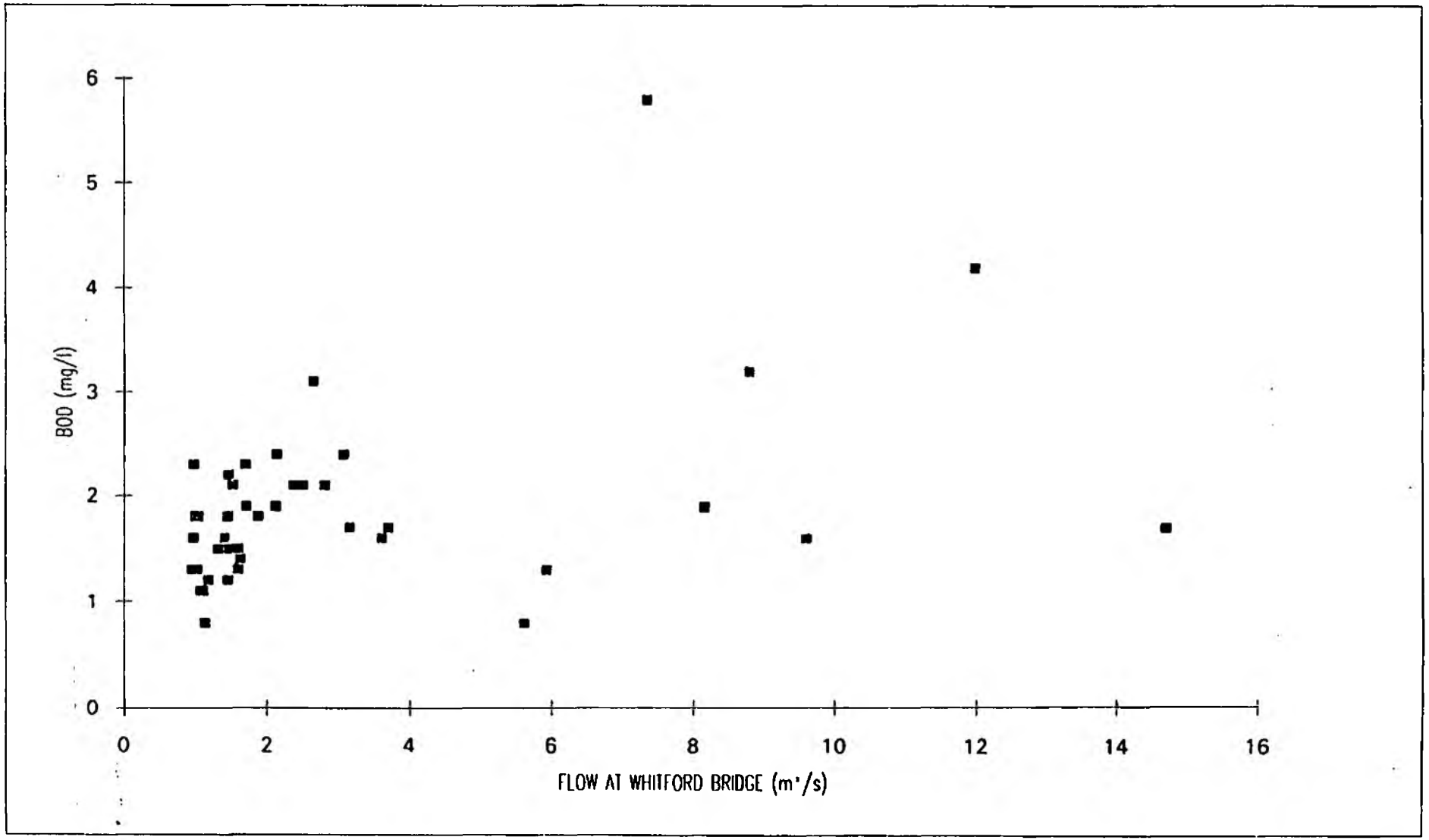


FIGURE 4.3: BOD LEVELS AT WHITFORD BRIDGE vs FLOW AT WHITFORD BRIDGE

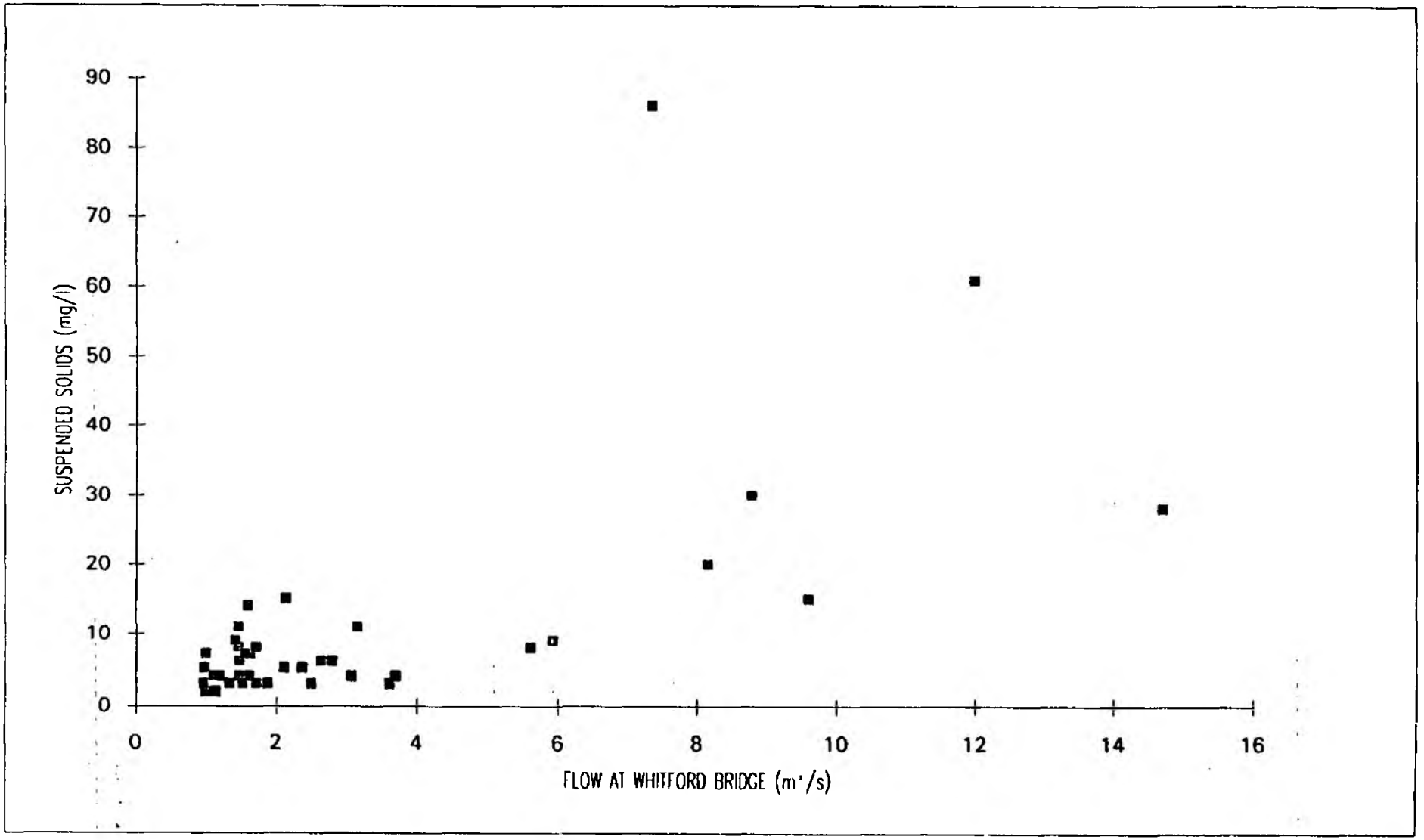


FIGURE 4.4: SUSPENDED SOLIDS AT WHITFORD BRIDGE vs FLOW AT WHITFORD BRIDGE

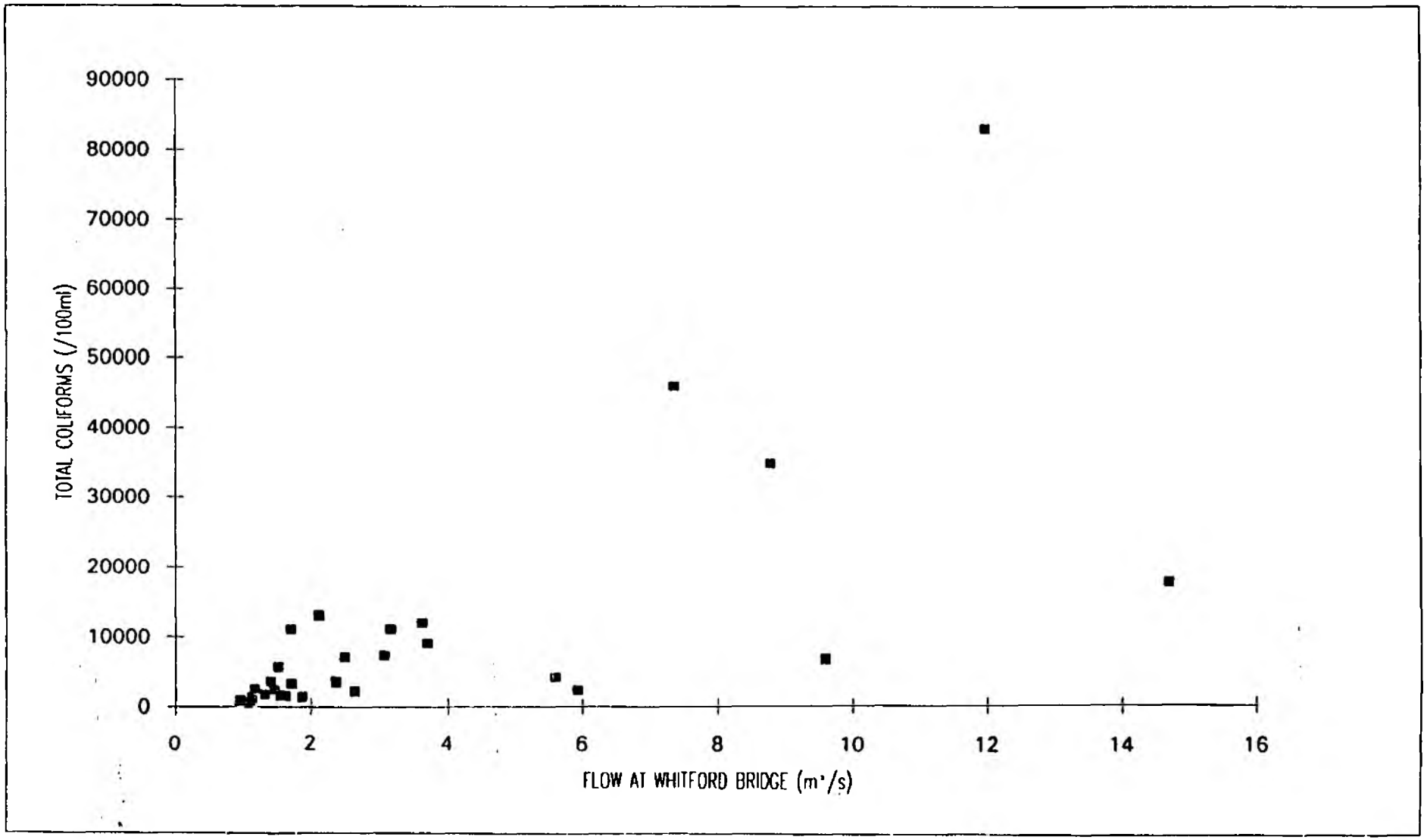


FIGURE 4.5: TOTAL COLIFORMS AT WHITFORD BRIDGE *vs* FLOW AT WHITFORD BRIDGE

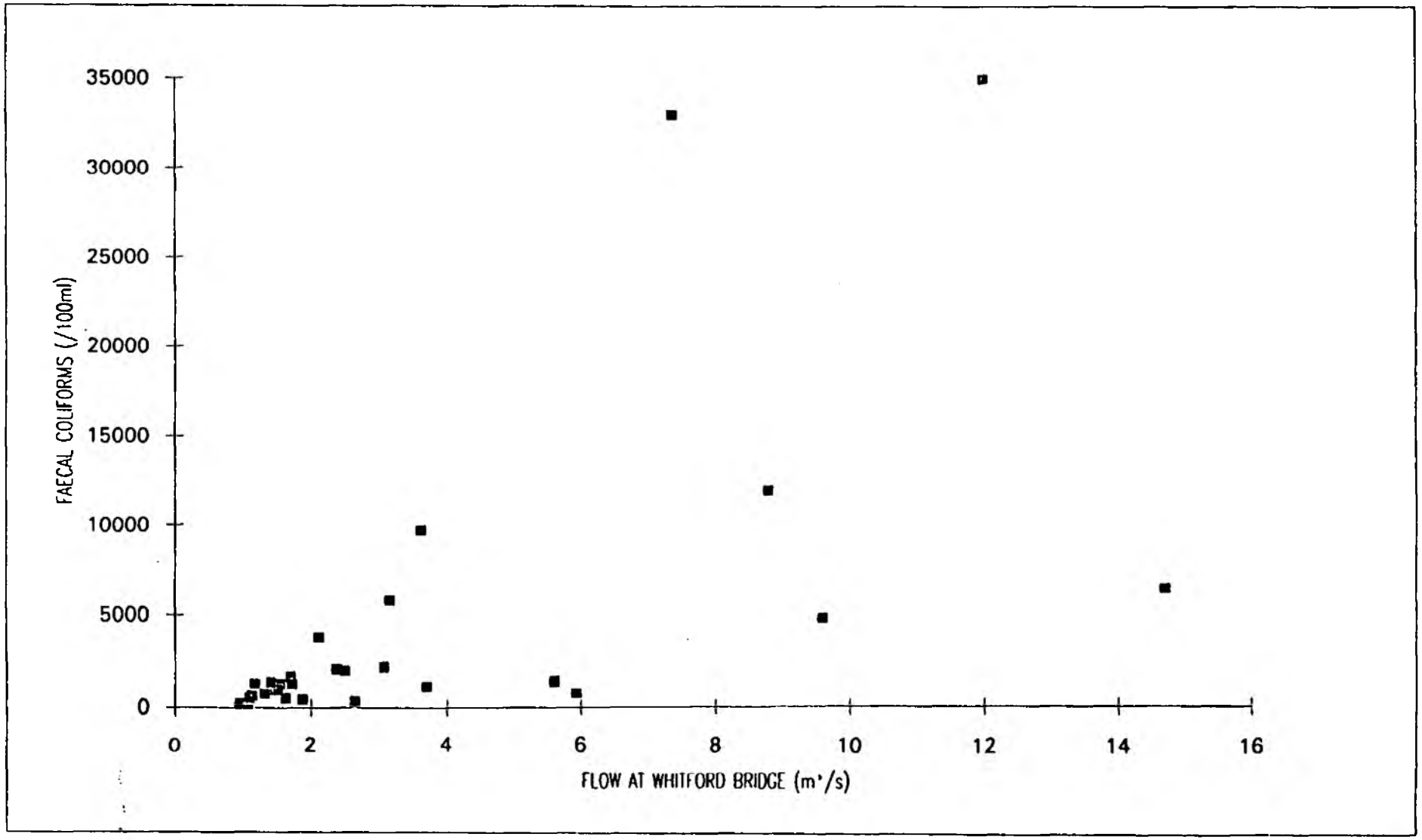


FIGURE 4.6: FAECAL COLIFORMS AT WHITFORD BRIDGE vs FLOW AT WHITFORD BRIDGE

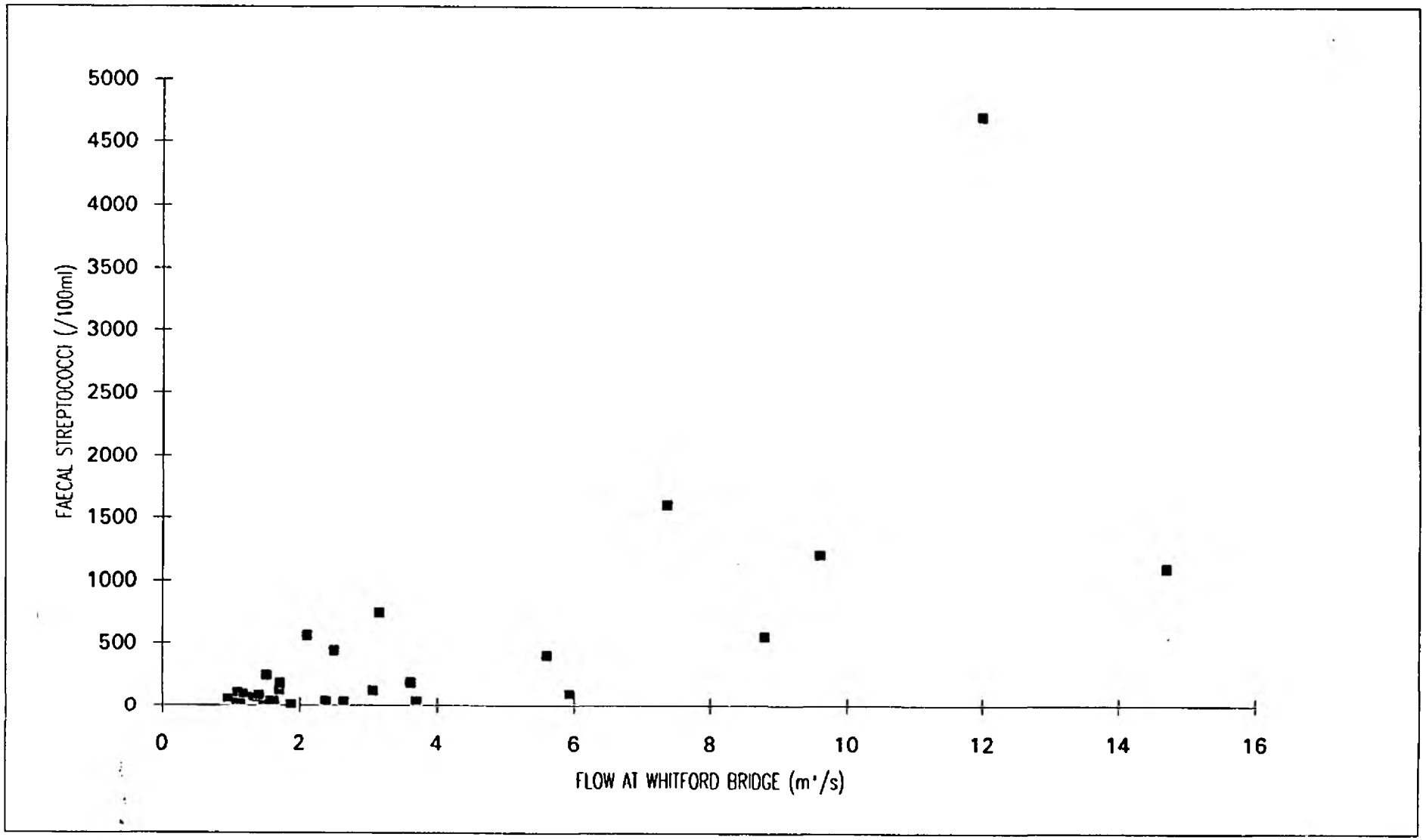


FIGURE 4.7: FAECAL STREPTOCOCCI AT WHITFORD BRIDGE vs FLOW AT WHITFORD BRIDGE

APPENDIX A

MONTHLY SUMMARY OF RIVER FLOW FOR FEB 1991

STATION SY29F052
DESCRIPTION WHITFORD RIVER AXE
NGR SY-2620-9530
CATCHMENT AREA 288.5 SQ KM
START 0900.01.02.1991
END 0859.01.03.1991

FIRST RATING CURVE START 0001.28.12.1979
LAST RATING CURVE START 0001.28.12.1979

DAY	NUMBER OF READINGS	MEASURED FLOW DMF---TCMD	DMF-CUMECS	MAX-CUMECS	TIME	MIN-CUMECS	TIME	STAGE OMS-M	MAX-M	TIME	MIN-M	TIME
1	96	235.358	2.72405	2.81382	0430	2.60218	0100	0.328	0.335	0430	0.319	0100
2	96	228.096	2.64000	2.74702	0900	2.55025	0800	0.321	0.330	0900	0.315	0800
3	96	217.707	2.51975	2.55025	0915	2.47308	0745	0.312	0.315	0915	0.309	0745
4	96	215.188	2.49060	2.53732	2345	2.42213	0700	0.310	0.314	2345	0.305	0700
5	96	206.700	2.39236	2.44756	0415	2.34645	0600	0.302	0.307	0415	0.299	0600
6	96	190.268	2.20217	2.38418	0915	1.67361	0845	0.287	0.302	0915	0.242	0845
7	96	185.298-L	2.14465-L	2.39681	1930	1.57528-L	1000	0.282	0.303	1930	0.233	1000
8	96	202.795	2.34717	2.53732	1215	2.11279	1015	0.298	0.314	1215	0.280	1015
9	96	215.577	2.49510	3.05922	1315	2.19781	1745	0.310	0.353	1315	0.287	1745
10	96	215.313	2.49205	3.17074	1330	1.89999	1045	0.310	0.361	1330	0.262	1045
11	96	196.943	2.27943	2.81382	1145	2.10075	2230	0.293	0.335	1145	0.279	2230
12	96	221.588	2.56468	3.08696	0530	2.11279	1345	0.315	0.355	0530	0.280	1345
13	96	231.145	2.67529	2.94920	0900	2.49871	0845	0.324	0.345	0900	0.311	0845
14	96	210.742	2.43915	2.74702	0845	2.33393	1345	0.306	0.330	0845	0.298	1345
15	96	338.362	3.89331	4.38148	2200	2.77366	0900	0.409	0.442	2200	0.332	0900
16	96	288.797	3.34256	3.76533	1000	3.00403	0845	0.372	0.402	1000	0.349	0845
17	96	240.022	2.77803	2.99028	0900	2.61523	0745	0.332	0.348	0900	0.320	0745
18	96	218.332	2.50384	2.84139	0930	2.35900	0800	0.311	0.322	0930	0.300	0800
19	96	202.320	2.34167	2.38418	2200	2.29650	1300	0.298	0.302	2200	0.295	1300
20	96	221.241	2.56066	2.94920	0830	2.28408	0900	0.315	0.345	0830	0.294	0900
21	96	1000.066	11.57484	18.55511	2230	3.01779	0900	0.685	0.895	2230	0.350	0900
22	96	1692.750-H	19.59201-H	32.72572-H	0130	8.09254	1600	0.922	1.304	0130	0.582	1600
23	96	1087.207	12.58341	24.76884	0900	8.05984	0845	0.712	1.084	0900	0.581	0845
24	96	650.450	7.52836	8.15817	1030	6.63719	0845	0.584	0.584	1030	0.535	0845
25	96	505.268	5.84801	6.78416	0900	5.21712	0745	0.506	0.540	0900	0.483	0745
26	96	418.858	4.84790	5.29373	0945	4.44501	0845	0.467	0.486	0945	0.446	0845
27	96	393.353	4.55269	4.77085	0245	4.33407	1230	0.452	0.465	0245	0.439	1230
28	96	367.129	4.24919	4.58918	0900	3.85551	0830	0.433	0.455	0900	0.408	0830

MONTHLY STATISTICS

TOTAL FLOW	122.6028 CUMEC DAYS	MAX FLOW	32.72572 CUMECS	MAX STAGE	1.304 METRES
TOTAL FLOW	10592.88 TCM	MIN FLOW	1.57528 CUMECS	MIN STAGE	0.233 METRES
MEAN FLOW	4.37867 CUMECS	MAX DMF	19.59201 CUMECS	MAX OMS	0.922 METRES
MEAN FLOW	378.317 TCMD	MIN DMF	2.14465 CUMECS	MIN OMS	0.282 METRES
MEAN STAGE	0.394 METRES				

..WA HIPS
REFERENCE R106

HYDROMETRIC SECTION
HYDROMETRIC SERVICES
MANLEY HOUSE

07/03/91 15:58

MONTHLY SUMMARY OF RIVER FLOW FOR JAN 1991

STATION SY29F052
DESCRIPTION WHITFORD RIVER AXE
NGR SY-2620-9530
CATCHMENT AREA 288.5 SQ KM
START 0900.01.01.1991
END 0859.01.02.1991

FIRST RATING CURVE START 0001.28.12.1979
LAST RATING CURVE START 0001.28.12.1979

DAY	NUMBER OF READINGS	MEASURED FLOW DMF---TCMD	DMF-CUMECS	MAX-CUMECS	TIME	MIN-CUMECS	TIME	STAGE DMS-M	MAX-M	TIME	MIN-M	TIME
1	96	1635.290	18.92697	44.83570	0500	5.31941	1600	0.671	1.543	0500	0.467	1600
2	96	1955.041	22.62779	39.57557	0900	14.47262	0845	1.009	1.454	0900	0.759	0845
3	96	1086.054	12.57007	14.70321	0915	10.15826	0845	0.702	0.767	0915	0.641	0845
4	96	797.299	9.22800	10.42138	0845	8.19110	0330	0.615	0.648	0845	0.585	0330
5	96	1316.236	15.23422	18.18133	1415	11.23407	0900	0.786	0.883	1415	0.669	0900
6	96	1012.154	11.71475	14.04358	0045	9.24997	1615	0.680	0.744	0045	0.616	1615
7	96	789.016	9.13213	11.63344	0915	7.61001	0845	0.611	0.679	0915	0.567	0845
8	96	2669.909	30.90173	53.55633	2230	7.42177	0900	1.190	1.638	2230	0.561	0900
9	96	2996.183-H	34.67805-H	56.32174-H	0615	20.20416	1830	1.280	1.656	0615	0.947	1830
10	96	2347.341	27.16830	51.80105	0900	13.81655	0845	1.108	1.625	0900	0.736	0845
11	96	1015.072	11.74852	14.10054	0930	8.96981	0845	0.681	0.746	0930	0.608	0845
12	96	652.711	7.55453	9.07417	1000	6.40587	0830	0.564	0.611	1000	0.527	0830
13	96	505.564	5.85144	6.52095	0900	5.29373	0715	0.506	0.531	0900	0.486	0715
14	96	430.011	4.97698	5.31941	0900	4.63781	0845	0.473	0.487	0900	0.458	0845
15	96	387.476	4.48467	4.72268	0915	4.20857	0845	0.448	0.463	0915	0.431	0845
16	96	375.937	4.35113	5.84813	0845	4.00759	1915	0.438	0.507	0845	0.418	1915
17	96	567.223	6.56508	7.35962	1345	5.60664	0830	0.532	0.559	1345	0.498	0830
18	96	1158.367	13.40703	25.07952	0400	5.37099	1315	0.736	1.093	0400	0.489	1315
19	96	962.831	11.14388	20.42973	0900	7.48421	0745	0.669	0.954	0900	0.563	0745
20	96	561.022	6.49331	7.61001	0915	5.68649	0830	0.529	0.567	0915	0.501	0830
21	96	449.408	5.20149	5.84813	0915	4.65380	0845	0.482	0.507	0915	0.459	0845
22	96	385.473	4.46149	4.70249	0900	4.14634	0830	0.446	0.462	0900	0.427	0830
23	96	346.120	4.00602	4.22418	1000	3.81031	0745	0.417	0.432	1000	0.405	0745
24	96	315.077	3.64672	3.84042	1100	3.47051	0830	0.394	0.407	1100	0.382	0830
25	96	292.630	3.38693	3.51416	1130	3.24119	0815	0.376	0.385	1130	0.368	0815
26	96	274.283	3.17458	3.28374	1030	3.07308	0615	0.361	0.369	1030	0.354	0615
27	96	263.339	3.04790	3.12874	1315	2.97656	0445	0.352	0.358	1315	0.347	0445
28	96	256.679	2.97314	3.14272	1115	2.88121	0800	0.346	0.359	1115	0.340	0800
29	96	245.094	2.83674	2.93555	1330	2.74701	0445	0.336	0.344	1330	0.330	0445
30	96	237.582-L	2.74980-L	2.80040	0330	2.70722	2000	0.330	0.334	0330	0.327	2000
31	96	238.247	2.75749	2.90833	0600	2.68082-L	1230	0.330	0.342	0600	0.325	1230

MONTHLY STATISTICS

TOTAL FLOW 306.9995 CUMEC DAYS
TOTAL FLOW 26524.75 TCM
MEAN FLOW 9.90320 CUMECS
MEAN FLOW 855.637 TCMD
MEAN STAGE 0.599 METRES

MAX FLOW 56.32174 CUMECS
MIN FLOW 2.68082 CUMECS
MAX DMF 34.67805 CUMECS
MIN DMF 2.74980 CUMECS

MAX STAGE 1.656 METRES
MIN STAGE 0.325 METRES
MAX DMS 1.280 METRES
MIN DMS 0.330 METRES

MONTHLY SUMMARY OF RIVER FLOW FOR DEC 1990

STATION SV29F052
DESCRIPTION WHITFORD RIVER AXE
NGR SY-2620-9530
CATCHMENT AREA 288.5 SQ KM
START 0900.01.12.1990
END 0859.01.01.1991

FIRST RATING CURVE START 0001.28.12.1979
LAST RATING CURVE START 0001.28.12.1979

		MEASURED FLOW						STAGE				
DAY	NUMBER OF READINGS	DMF---TCMD	DMF-CUMECS	MAX-CUMECS	TIME	MIN-CUMECS	TIME	DMS-M	MAX-M	TIME	MIN-M	TIME
1	98	176.036	2.03745	2.10074	0900	1.96998	0600	0.273	0.279	0900	0.268	0600
2	96	168.597	1.95135	2.00533	1515	1.91159	0430	0.268	0.271	1515	0.263	0430
3	96	163.369	1.89085	1.95825	1015	1.81954	0015	0.261	0.267	1015	0.255	0015
4	96	157.909	1.82765	1.91159	0930	1.72919	0045	0.255	0.263	0930	0.247	0045
5	96	153.249	1.77371	1.80815	1345	1.71802	0815	0.250	0.254	1345	0.246	0815
6	96	150.185-L	1.73825-L	1.80815	0815	1.67361-L	0030	0.247	0.254	0815	0.242	0030
7	96	171.744	1.98778	2.40945	0830	1.77415	1300	0.269	0.304	0830	0.251	1300
8	96	244.686	2.83202	3.14272	0745	2.47308	0900	0.336	0.359	0745	0.309	0900
9	96	315.042	3.64632	7.35962	0845	3.08696	1545	0.388	0.559	0845	0.355	1545
10	96	907.563	10.50421	12.96574	2015	6.54990	0830	0.646	0.711	2015	0.532	0830
11	96	421.504	4.87852	6.52095	0900	4.00759	0845	0.464	0.531	0900	0.418	0845
12	96	294.742	3.41137	3.96173	0900	2.96287	0845	0.377	0.415	0900	0.346	0845
13	96	235.799	2.72915	2.97656	0915	2.55025	0845	0.328	0.347	0915	0.315	0845
14	96	211.242	2.44493	2.58916	0900	2.32142	2300	0.306	0.318	0900	0.297	2300
15	96	194.186	2.24752	2.34645	0900	2.14907	0045	0.291	0.299	0900	0.283	0045
16	96	186.754	2.16151	2.19780	0945	2.11279	0400	0.284	0.287	0945	0.280	0400
17	96	177.035	2.04901	2.14907	1945	1.93487	0015	0.274	0.283	1945	0.265	0015
18	96	172.991	2.00221	2.06477	1115	1.89999	0545	0.270	0.276	1115	0.262	0545
19	96	163.622	1.89378	1.92322	0900	1.84239	0500	0.261	0.264	0900	0.257	0500
20	96	177.594	2.05549	2.47308	0845	1.85386	0900	0.274	0.309	0845	0.258	0900
21	96	208.933	2.41821	2.57616	1415	2.25930	2330	0.304	0.317	1415	0.292	2330
22	96	187.564	2.17088	2.30695	0915	2.00533	0545	0.284	0.296	0915	0.271	0545
23	96	193.941	2.24468	2.69401	0845	2.06477	0900	0.290	0.326	0845	0.276	0900
24	96	313.415	3.62749	4.23981	1415	2.70722	0900	0.392	0.433	1415	0.327	0900
25	96	1054.802	12.20836	20.30073	1645	3.39822	0900	0.698	0.950	1645	0.377	0900
26	96	1333.043-H	15.42874-H	22.56411-H	1845	7.70516	0900	0.796	1.019	1845	0.570	0900
27	96	743.009	8.59965	11.19457	0900	6.54990	0845	0.595	0.668	0900	0.532	0845
28	96	611.181	7.07386	8.66013	0615	6.26370	1400	0.548	0.599	0615	0.522	1400
29	96	799.151	9.24944	10.95926	2345	8.05984	1245	0.615	0.662	2345	0.581	1245
30	96	564.975	6.53907	8.42374	0900	5.52744	0700	0.530	0.592	0900	0.495	0700
31	96	573.351	6.63601	7.42177	1700	5.74008	0900	0.534	0.561	1700	0.503	0900

MONTHLY STATISTICS

TOTAL FLOW 132.2594 CUMEC DAYS
TOTAL FLOW 11427.21 TCM
MEAN FLOW 4.26643 CUMECS
MEAN FLOW 368.619 TCMD
MEAN STAGE 0.384 METRES

MAX FLOW 22.56411 CUMECS
MIN FLOW 1.67361 CUMECS
MAX DMF 15.42874 CUMECS
MIN DMF 1.73825 CUMECS

MAX STAGE 1.019 METRES
MIN STAGE 0.242 METRES
MAX DMS 0.796 METRES
MIN DMS 0.247 METRES

MONTHLY SUMMARY OF RIVER FLOW FOR NOV 1990

STATION SY29F052
DESCRIPTION WHITFORD RIVER AXE
NGR SY-2620-9530
CATCHMENT AREA 288.5 SQ KM
START 0900.01.11.1990
END 0859.01.12.1990

FIRST RATING CURVE START 0001.28.12.1979
LAST RATING CURVE START 0001.28.12.1979

DAY	NUMBER OF READINGS	MEASURED FLOW DMF---TCMD	DMF-CUMECS	MAX-CUMECS	TIME	MIN-CUMECS	TIME	STAGE OMS-M	MAX-M	TIME	MIN-M	TIME
1	96	157.738	1.82567	1.98174	0900	1.69576	0715	0.255	0.269	0900	0.244	0715
2	96	146.982	1.70118	1.78287	0600	1.64058	1545	0.244	0.250	0600	0.239	1545
3	96	140.867	1.63041	1.74039	0900	1.53229	0645	0.238	0.248	0900	0.229	0645
4	96	130.446	1.50979	1.54299	1145	1.46865	0245	0.226	0.230	1145	0.223	0245
5	96	125.827	1.45633	1.48975	0900	1.41639	0545	0.221	0.225	0900	0.218	0545
6	63	123.361	1.42779	1.44766	2200	1.40603-L	0630	0.219	0.221	2200	0.217	0830
7	48	122.807-L	1.42138-L	1.43721	2230	1.40603	0900	0.218	0.220	2230	0.217	0900
8	48	122.959	1.42313	1.44766	2100	1.40603	0900	0.218	0.221	2100	0.217	0900
9	48	130.008	1.50473	1.65156	0830	1.41639	0900	0.226	0.240	0830	0.218	0900
10	48	156.628	1.81281	1.87687	1300	1.67361	0900	0.254	0.260	1300	0.242	0900
11	48	256.273	2.96812	8.35688	0830	1.76287	1300	0.321	0.590	0830	0.250	1300
12	48	447.085	5.17460	8.35688	0900	3.29797	0830	0.467	0.590	0900	0.370	0830
13	84	273.296	3.16316	3.25535	0900	3.07308	0500	0.360	0.367	0900	0.354	0500
14	96	247.157	2.86082	3.36946	1100	2.49870	0845	0.338	0.375	1100	0.311	0845
15	96	188.634	2.18326	2.49870	0915	1.98174	0845	0.285	0.311	0915	0.269	0845
16	96	167.864	1.94287	2.01717	1045	1.85386	0715	0.265	0.272	1045	0.258	0715
17	96	164.914	1.90873	1.98174	0045	1.85386	0915	0.262	0.269	0045	0.258	0915
18	96	156.899	1.81598	1.98174	0900	1.67361	0545	0.254	0.269	0900	0.242	0545
19	96	158.569	1.83529	2.05263	0345	1.71802	0900	0.256	0.275	0345	0.246	0900
20	96	172.725	1.99913	2.10074	1100	1.86535	0815	0.270	0.279	1100	0.259	0815
21	96	155.830	1.80359	1.89999	0915	1.72919	0645	0.253	0.262	0915	0.247	0645
22	96	147.330	1.70521	1.74039	1045	1.65156	0715	0.244	0.248	1045	0.240	0715
23	96	391.811	4.53485	14.04358	0630	1.65156	0900	0.379	0.744	0630	0.240	0900
24	96	869.328	10.06167	13.98671	1730	6.60801	0600	0.633	0.742	1730	0.534	0600
25	96	1224.569-H	14.17326-H	20.98104-H	1815	7.54698	0900	0.760	0.971	1815	0.665	0900
26	96	480.292	5.55894	7.80098	0915	4.20857	0845	0.493	0.573	0915	0.431	0845
27	96	302.465	3.50075	4.19297	0900	3.01778	0845	0.383	0.430	0900	0.350	0845
28	96	239.868	2.77626	3.03157	0900	2.56319	0830	0.332	0.351	0900	0.316	0830
29	96	212.173	2.45570	2.58916	0900	2.29650	0745	0.307	0.318	0900	0.295	0745
30	96	190.407	2.20379	2.29650	0900	2.08873	0815	0.287	0.295	0900	0.278	0815

MONTHLY STATISTICS

TOTAL FLOW	90.3369 CUMEC DAYS	MAX FLOW	20.98104 CUMECS
TOTAL FLOW	7805.10 TCM	MIN FLOW	1.40603 CUMECS
MEAN FLOW	3.01123 CUMECS	MAX DMF	14.17326 CUMECS
MEAN FLOW	260.170 TCMD	MIN DMF	1.42138 CUMECS
MEAN STAGE	0.315 METRES		

MAX STAGE 0.971 METRES
MIN STAGE 0.217 METRES
MAX DMS 0.760 METRES
MIN DMS 0.218 METRES

MONTHLY SUMMARY OF RIVER FLOW FOR OCT 1990

STATION SV29F052
DESCRIPTION WHITFORD RIVER AXE
NGR SY-2020-9530
CATCHMENT AREA 288.5 SQ KM
START 0900.01.10.1990
END 0859.01.11.1990

FIRST RATING CURVE START 0001.28.12.1979
LAST RATING CURVE START 0001.28.12.1979

DAY	NUMBER OF READINGS	MEASURED FLOW DMF---TCMD	DMF-CUMECS	MAX-CUMECS	TIME	MIN-CUMECS	TIME	STAGE DMS-M	MAX-M	TIME	MIN-M	TIME
1	48	164.817	1.90760	2.47308	0900	1.54299	0830	0.262	0.309	0900	0.230	0830
2	89	122.468	1.41745	1.53229	0900	1.25398	0230	0.218	0.229	0900	0.202	0230
3	96	128.964	1.49264	1.64058	1215	1.39569	0215	0.225	0.239	1215	0.216	0215
4	96	115.288	1.33435	1.40603	1115	1.24408	0630	0.209	0.217	1115	0.201	0630
5	96	114.085	1.32043	1.37510	2245	1.26392	0900	0.208	0.214	2245	0.203	0900
6	96	113.915	1.31846	1.40603	1300	1.24408	0315	0.208	0.217	1300	0.201	0315
7	96	108.470-E	1.25545-E	1.31402	1215	1.15628-E	0615	0.202	0.208	1215	0.192	0615
8	96	103.770-E	1.20104-E	1.22436	1815	1.15628-E	0745	0.196	0.199	1815	0.192	0745
9	96	104.742	1.21229	1.27388	0045	1.17558	0700	0.197	0.204	0045	0.194	0700
10	96	106.192	1.22908	1.27388	0100	1.18528	1030	0.199	0.204	0100	0.195	1030
11	96	109.254	1.26452	1.33426	1100	1.20476	0615	0.203	0.210	1100	0.197	0615
12	96	104.998	1.21525	1.25398	1815	1.16592	0745	0.198	0.202	1815	0.193	0745
13	96	103.269	1.19525	1.22436	1830	1.16592	0615	0.196	0.199	1830	0.193	0615
14	96	101.772EL	1.17792EL	1.20476	1945	1.14667EL	0300	0.194	0.197	1945	0.191	0300
15	96	119.013	1.37747	1.51097	2300	1.18528	0900	0.214	0.227	2300	0.195	0900
16	96	117.380	1.35857	1.51097	0930	1.23421	0745	0.212	0.227	0930	0.200	0745
17	96	124.562	1.44169	1.54299	0115	1.25398	0900	0.220	0.230	0115	0.202	0900
18	96	120.796	1.39811	1.45814	0900	1.33426	0330	0.216	0.222	0900	0.210	0330
19	96	114.245	1.32228	1.35463	2115	1.28387	0845	0.208	0.212	2115	0.205	0845
20	96	111.100	1.28681	1.30394	1045	1.25398	0830	0.205	0.207	1045	0.202	0830
21	96	111.059	1.28541	1.34443	1215	1.20476	0845	0.205	0.211	1215	0.197	0845
22	96	105.579	1.22198	1.26392	2115	1.18528	0515	0.198	0.203	2115	0.195	0515
23	96	107.930	1.24919	1.32413	0800	1.19501	0900	0.201	0.209	0800	0.196	0900
24	96	117.353	1.35825	1.42679	0645	1.27388	1245	0.212	0.219	0645	0.204	1245
25	96	246.496	2.85296	7.42177-H	0815	1.41639	0900	0.317	0.561	0815	0.218	0900
26	96	313.516	3.62866	7.29777	0915	2.51155	0115	0.383	0.557	0915	0.312	0115
27	96	286.212	3.31264	6.29198	0845	2.43483	1515	0.362	0.523	0845	0.306	1515
28	96	413.920-H	4.79075-H	6.54990	1345	2.96287	0845	0.450	0.532	1345	0.348	0845
29	96	222.693	2.57747	2.96287	0915	2.38418	2345	0.316	0.346	0915	0.302	2345
30	96	191.224	2.21324	2.51155	0930	1.99352	0715	0.288	0.312	0930	0.270	0715
31	96	180.617	2.09047	2.18558	2045	1.98174	1215	0.278	0.286	2045	0.269	1215

MONTHLY STATISTICS

TOTAL FLOW 53.3076 CUMEC DAYS
TOTAL FLOW 4605.78 TCM
MEAN FLOW 1.71960 CUMECS
MEAN FLOW 148.573 TCMD
MEAN STAGE 0.238 METRES

MAX FLOW 7.42177 CUMECS
MIN FLOW 1.14667 CUMECS
MAX DMF 4.79075 CUMECS
MIN DMF 1.17792 CUMECS

MAX STAGE 0.561 METRES
MIN STAGE 0.191 METRES
MAX DMS 0.450 METRES
MIN DMS 0.194 METRES

MONTHLY SUMMARY OF RIVER FLOW FOR SEP 1990

STATION SY29F052
DESCRIPTION WHITFORD RIVER AXE
NGR SY-2620-9530
CATCHMENT AREA 288.5 SQ KM
START 0900.01.09.1990
END 0859.01.10.1990

FIRST RATING CURVE START 0001.28.12.1979
LAST RATING CURVE START 0001.28.12.1979

DAY	NUMBER OF READINGS	MEASURED FLOW DMF---TCMD	DMF-CUMECS	MAX-CUMECS	TIME	MIN-CUMECS	TIME	STAGE DMS-M	MAX-M	TIME	MIN-M	TIME
1	96	99.420-E	1.15070-E	1.21455	2115	1.07090-E	0545	0.191	0.198	2115	0.183	0545
2	96	93.098-E	1.07752-E	1.12755-E	2000	1.01536-E	0645	0.183	0.189	2000	0.177	0645
3	96	93.788-E	1.08552-E	1.14667-E	2330	1.02454-E	0900	0.184	0.191	2330	0.178	0900
4	96	92.048-E	1.06537-E	1.09909-E	1015	0.99709-E	0545	0.182	0.186	1015	0.175	0545
5	96	93.609-E	1.08343-E	1.13710-E	0145	1.00621-E	0900	0.184	0.190	0145	0.176	0900
6	96	93.564-E	1.08292-E	1.16592	1945	0.99709-E	0630	0.184	0.193	1945	0.175	0630
7	96	85.928-E	0.99454-E	1.06157-E	2130	0.96093-E	0415	0.174	0.182	2130	0.171	0415
8	96	85.155-E	0.98559-E	1.01536-E	2100	0.96093-E	0300	0.173	0.177	2100	0.171	0300
9	96	84.801-E	0.98149-E	1.04299-E	2330	0.92527-E	0600	0.173	0.180	2330	0.167	0600
10	96	83.027EL	0.96096EL	1.00621-E	2100	0.91643EL	0830	0.170	0.176	2100	0.166	0830
11	96	83.584-E	0.96741-E	1.02454-E	2100	0.91643-E	0900	0.171	0.178	2100	0.166	0900
12	96	85.368-E	0.98806-E	1.02454-E	2130	0.94303-E	1545	0.173	0.178	2130	0.169	1545
13	96	86.050-E	0.99595-E	1.03375-E	2015	0.95196-E	0800	0.174	0.179	2015	0.170	0800
14	96	84.954-E	0.98327-E	1.03375-E	2015	0.93413-E	0645	0.173	0.179	2015	0.168	0645
15	96	84.018-E	0.97243-E	1.01536-E	2045	0.94303-E	0900	0.172	0.177	2045	0.169	0900
16	96	85.793-E	0.99297-E	1.06157-E	2315	0.96093-E	0900	0.174	0.182	2315	0.171	0900
17	96	87.171-E	1.00893-E	1.08027-E	2045	0.96093-E	0900	0.176	0.184	2045	0.171	0900
18	96	87.777-E	1.01594-E	1.08027-E	0245	0.96093-E	0915	0.177	0.184	0245	0.171	0915
19	96	89.539-E	1.03633-E	1.08027-E	2045	0.96093-E	0815	0.179	0.184	2045	0.171	0815
20	96	89.050-E	1.03067-E	1.11803-E	0245	0.96992-E	1700	0.178	0.186	0245	0.172	1700
21	96	91.849-E	1.06307-E	1.09909-E	1200	1.03375-E	0900	0.182	0.186	1200	0.179	0900
22	96	100.506-E	1.16327-E	1.22436	1845	1.06157-E	0900	0.192	0.199	1845	0.182	0900
23	96	94.528-E	1.09408-E	1.13710-E	0900	1.03375-E	0530	0.185	0.190	0900	0.179	0530
24	96	94.224-E	1.09056-E	1.12755-E	2200	1.03375-E	0900	0.185	0.189	2200	0.179	0900
25	57	91.874-E	1.06335-E	1.09909-E	1000	0.99709-E	0830	0.182	0.186	1000	0.175	0830
26	48	87.867-E	1.01698-E	1.04299-E	1430	0.96992-E	0730	0.177	0.180	1430	0.172	0730
27	48	84.975-E	0.98350-E	1.00621-E	2300	0.96992-E	0900	0.173	0.176	2300	0.172	0900
28	48	87.102-E	1.00812-E	1.02454-E	2030	0.99709-E	1130	0.176	0.178	2030	0.175	1130
29	48	205.505-E	2.37853-E	4.72268	0830	1.00621-E	0900	0.291	0.463	0830	0.176	0900
30	48	468.334-H	5.42054-H	9.64359-H	1430	2.51155	0830	0.470	0.627	1430	0.312	0830

MONTHLY STATISTICS

TOTAL FLOW	36.7420 CUMEC DAYS	MAX FLOW	9.64359 CUMECS	MAX STAGE	0.627 METRES
TOTAL FLOW	3174.51 TCM	MIN FLOW	0.91643 CUMECS	MIN STAGE	0.166 METRES
MEAN FLOW	1.22473 CUMECS	MAX DMF	5.42054 CUMECS	MAX DMS	0.470 METRES
MEAN FLOW	105.817 TCMD	MIN DMF	0.96096 CUMECS	MIN DMS	0.170 METRES
MEAN STAGE	0.191 METRES				

MONTHLY SUMMARY OF RIVER FLOW FOR AUG 1990

STATION SV29F052
DESCRIPTION WHITFORD RIVER AXE
NGR SY-2620-9530
CATCHMENT AREA 288.5 SQ KM
START 0900.01.08.1990
END 0859.01.09.1990

FIRST RATING CURVE START 0001.28.12.1979
LAST RATING CURVE START 0001.28.12.1979

DAY	NUMBER OF READINGS	MEASURED FLOW DMF---TCMD	DMF-CUMECS	MAX-CUMECS	TIME	MIN-CUMECS	TIME	STAGE DMS-M	MAX-M	TIME	MIN-M	TIME
1	96	103.863-E	1.20212-E	1.42679	1015	1.10855-E	0530	0.196	0.219	1015	0.187	0530
2	96	92.879-E	1.07499-E	1.15628-E	1845	0.94303-E	0515	0.183	0.192	1845	0.169	0515
3	96	86.374-E	0.99970-E	1.05227-E	1830	0.96093-E	0130	0.175	0.181	1830	0.171	0130
4	96	83.811-E	0.97004-E	1.02454-E	1845	0.92527-E	0500	0.172	0.178	1845	0.167	0500
5	96	82.168-E	0.95102-E	1.07090-E	1415	0.89885-E	0815	0.169	0.183	1415	0.164	0815
6	96	80.159EL	0.92776EL	0.97895-E	1830	0.89011EL	0300	0.167	0.173	1830	0.163	0300
7	96	81.106-E	0.93873-E	0.98800-E	1345	0.90763-E	0900	0.168	0.174	1345	0.165	0900
8	96	82.672-E	0.95917-E	0.98800-E	1815	0.92527-E	0900	0.170	0.174	1815	0.167	0900
9	96	83.102-E	0.96183-E	1.03375-E	1530	0.92527-E	0415	0.171	0.179	1530	0.167	0415
10	96	86.160-E	0.99722-E	1.02454-E	1615	0.96093-E	0900	0.175	0.178	1615	0.171	0900
11	96	86.756-E	1.00412-E	1.05227-E	1615	0.95196-E	0615	0.175	0.181	1815	0.170	0615
12	96	84.750-E	0.98090-E	1.02454-E	1745	0.93413-E	0830	0.173	0.178	1745	0.168	0830
13	96	87.143-E	1.00860-E	1.06157-E	0315	0.94303-E	0900	0.176	0.182	0315	0.169	0900
14	96	91.286-E	1.05655-E	1.13710-E	0845	1.02454-E	0915	0.181	0.190	0845	0.178	0915
15	96	111.409-E	1.28945-E	1.47919	0045	1.13710-E	0900	0.205	0.224	0045	0.190	0900
16	96	101.973-E	1.18024-E	1.29389	0900	1.06157-E	0600	0.194	0.206	0900	0.182	0600
17	96	93.494-E	1.08210-E	1.13710-E	0945	1.04299-E	0345	0.184	0.190	0945	0.180	0345
18	96	99.468-E	1.15125-E	1.34443	0845	1.08966-E	1015	0.191	0.211	0845	0.185	1015
19	96	158.610-H	1.83576-H	2.06477	2115	1.36485	0900	0.256	0.276	2115	0.213	0900
20	96	123.926	1.43433	1.80815	0930	1.19501	0615	0.219	0.254	0930	0.196	0615
21	96	102.504-E	1.18639-E	1.24408	2200	1.12755-E	1415	0.195	0.201	2200	0.189	1415
22	96	100.759-E	1.16619-E	1.20476	2200	1.13710-E	0900	0.193	0.197	2200	0.190	0900
23	96	99.904-E	1.15630-E	1.18528	1200	1.09909-E	0830	0.191	0.195	1200	0.186	0830
24	96	94.385-E	1.09242-E	1.13710-E	1930	1.04299-E	0700	0.185	0.190	1930	0.180	0700
25	96	92.985-E	1.07621-E	1.11803-E	2015	1.02454-E	0615	0.183	0.188	2015	0.178	0615
26	96	92.553-E	1.07122-E	1.11803-E	1230	0.99709-E	0815	0.183	0.188	1230	0.175	0815
27	96	94.316-E	1.09163-E	1.11803-E	2130	1.02454-E	0900	0.185	0.188	2130	0.178	0900
28	96	96.142-E	1.11275-E	1.14667-E	1845	1.07090-E	0700	0.187	0.191	1845	0.183	0700
29	96	142.233-E	1.64621-E	2.53732-H	0430	1.01536-E	1345	0.236	0.314	0430	0.177	1345
30	96	134.923	1.56161	2.23462	0900	1.18528	0730	0.230	0.290	0900	0.195	0730
31	96	102.587-E	1.18735-E	1.21455	1015	1.14667-E	0500	0.195	0.198	1015	0.191	0500

MONTHLY STATISTICS

TOTAL FLOW	35.3542 CUMEC DAYS	MAX FLOW	2.53732 CUMECS	MAX STAGE	0.314 METRES
TOTAL FLOW	3054.60 TCM	MIN FLOW	0.89011 CUMECS	MIN STAGE	0.163 METRES
MEAN FLOW	1.14045 CUMECS	MAX DMF	1.83576 CUMECS	MAX DMS	0.256 METRES
MEAN FLOW	98.535 TCMD	MIN DMF	0.92776 CUMECS	MIN DMS	0.167 METRES
MEAN STAGE	0.189 METRES				

MONTHLY SUMMARY OF RIVER FLOW FOR JUL 1990

STATION SV29F052
DESCRIPTION WHITFORD RIVER AXE
NGR SV-2620-9530
CATCHMENT AREA 288.5 SQ KM
START 0900.01.07.1990
END 0859.01.08.1990

FIRST RATING CURVE START 0001.28.12.1979
LAST RATING CURVE START 0001.28.12.1979

DAY	NUMBER OF READINGS	MEASURED FLOW DMF---TCMD	DMF-CUMECS	MAX-CUMECS	TIME	MIN-CUMECS	TIME	STAGE DMS-M	MAX-M	TIME	MIN-M	TIME
1	96	188.250	2.17882	2.42212	1730	1.77415	0800	0.285	0.305	1730	0.251	0800
2	96	135.416	1.56731	1.79679	1000	1.37510	0245	0.232	0.253	1000	0.214	0245
3	96	125.313	1.45039	1.64058	0845	1.40603	0900	0.221	0.239	0845	0.217	0900
4	96	304.543-H	3.52481-H	5.42285-H	1900	1.65156	0900	0.378	0.491	1900	0.240	0900
5	96	176.513	2.04297	2.53732	0900	1.72919	0830	0.273	0.314	0900	0.247	0830
6	96	141.265	1.63501	1.72919	0945	1.50034	0015	0.238	0.247	0945	0.226	0015
7	96	143.711	1.66333	1.71802	1515	1.59693	0830	0.241	0.246	1515	0.235	0830
8	96	131.848	1.52602	1.65156	1245	1.37510	0615	0.228	0.240	1245	0.214	0615
9	96	121.297	1.40390	1.46865	1930	1.32413	0815	0.216	0.223	1930	0.209	0815
10	96	114.049	1.32001	1.38538	1230	1.23421	0615	0.208	0.215	1230	0.200	0615
11	96	110.648	1.28065	1.33426	1915	1.20476	0600	0.204	0.210	1915	0.197	0600
12	96	107.860	1.24838	1.29389	1715	1.21455	0245	0.201	0.206	1715	0.198	0245
13	96	104.093-E	1.20479-E	1.25398	1130	1.14667-E	0545	0.196	0.202	1130	0.191	0545
14	96	98.608-E	1.14130-E	1.21455	1500	1.08966-E	0530	0.190	0.198	1500	0.185	0530
15	96	96.816-E	1.12055-E	1.14667-E	1745	1.08966-E	0345	0.188	0.191	1745	0.185	0345
16	96	97.678-E	1.13054-E	1.18528	1000	1.04299-E	0700	0.189	0.195	1000	0.180	0700
17	96	95.190-E	1.10174-E	1.15628-E	2030	1.06157-E	0900	0.186	0.192	2030	0.182	0900
18	96	93.066-E	1.07716-E	1.11803-E	1730	1.03375-E	0330	0.183	0.188	1730	0.179	0330
19	96	89.900-E	1.04051-E	1.08027-E	1915	0.98800-E	0445	0.179	0.184	1915	0.174	0445
20	96	89.115-E	1.03142-E	1.08027-E	1845	0.98800-E	0715	0.178	0.184	1845	0.174	0715
21	96	88.320-E	1.02223-E	1.07090-E	1845	0.97895-E	0445	0.177	0.183	1845	0.173	0445
22	96	87.712-E	1.01518-E	1.06157-E	1715	0.96093-E	0415	0.176	0.182	1715	0.171	0415
23	96	84.723-E	0.98059-E	1.03375-E	1845	0.96093-E	1345	0.173	0.179	1845	0.171	1345
24	96	85.216-E	0.98630-E	1.02454-E	1915	0.95196EL	0600	0.173	0.178	1915	0.170	0600
25	96	84.642EL	0.97965EL	1.02454-E	1830	0.95196-E	0900	0.173	0.178	1830	0.170	0900
26	96	85.476-E	0.98931-E	1.03375-E	1830	0.96093-E	0900	0.174	0.179	1830	0.171	0900
27	96	93.094-E	1.07748-E	1.13710-E	1845	1.02454-E	0945	0.183	0.190	1845	0.176	0945
28	96	92.583-E	1.07156-E	1.12755-E	1745	1.02454-E	0900	0.183	0.189	1745	0.178	0900
29	96	102.318-E	1.18423-E	1.58609	0845	1.03375-E	0900	0.194	0.234	0845	0.179	0900
30	96	240.435	2.78281	4.25546	1400	1.60781	0900	0.329	0.434	1400	0.236	0900
31	96	124.101	1.43635	1.74039	0900	1.23421	0530	0.219	0.248	0900	0.200	0530

MONTHLY STATISTICS

TOTAL FLOW 43.2153 CUMEC DAYS
TOTAL FLOW 3733.80 TCM
MEAN FLOW 1.39404 CUMECS
MEAN FLOW 120.445 TCMD
MEAN STAGE 0.211 METRES

MAX FLOW 5.42285 CUMECS
MIN FLOW 0.95196 CUMECS
MAX DMF 3.52481 CUMECS
MIN DMF 0.97965 CUMECS

MAX STAGE 0.491 METRES
MIN STAGE 0.170 METRES
MAX DMS 0.379 METRES
MIN DMS 0.173 METRES

MONTHLY SUMMARY OF RIVER FLOW FOR JUN 1990

STATION SV29F052
DESCRIPTION WHITFORD RIVER AXE
NGR SV-2620-9530
CATCHMENT AREA 288.5 SQ KM
START 0900.01.06.1990
END 0859.01.07.1990

FIRST RATING CURVE START 0001.28.12.1979
LAST RATING CURVE START 0001.28.12.1979

DAY	NUMBER OF READINGS	MEASURED FLOW DMF---TCMD	DMF-CUMECS	MAX-CUMECS	TIME	MIN-CUMECS	TIME	STAGE DMS-M	MAX-M	TIME	MIN-M	TIME
1	96	133.068	1.54014	1.57527	1700	1.50034	0900	0.229	0.233	1700	0.226	0900
2	96	133.338	1.54327	1.59693	0800	1.50034	0230	0.230	0.235	0800	0.226	0230
3	96	155.451	1.79920	2.00533	2145	1.58609	0900	0.253	0.271	2145	0.234	0900
4	96	137.759	1.59443	1.71802	0900	1.47919	0430	0.234	0.246	0900	0.224	0430
5	96	145.905	1.68871	1.77415	2330	1.54299	0900	0.243	0.251	2330	0.230	0900
6	96	164.985	1.90954	2.02903	2400	1.71802	0900	0.262	0.273	2400	0.246	0900
7	96	149.393	1.72908	1.96998	0900	1.58609	2400	0.246	0.268	0900	0.234	2400
8	96	141.511	1.63786	1.67361	0700	1.60781	0145	0.238	0.242	0700	0.236	0145
9	96	136.543	1.58036	1.68467	1515	1.50034	0400	0.233	0.243	1515	0.226	0400
10	96	129.060	1.49375	1.58609	1115	1.41639	0115	0.225	0.234	1115	0.218	0115
11	96	135.184	1.56463	1.66257	0145	1.44766	0900	0.231	0.241	0145	0.221	0900
12	96	131.838	1.52591	1.59693	0900	1.43721	0315	0.228	0.235	0900	0.220	0315
13	96	126.953	1.46936	1.51097	1730	1.42679	0545	0.223	0.227	1730	0.219	0545
14	96	126.393	1.46289	1.50034	1515	1.42679	0400	0.222	0.226	1515	0.219	0400
15	96	124.557	1.44163	1.47919	1100	1.40603	0600	0.220	0.224	1100	0.217	0600
16	96	120.584-L	1.39565-L	1.45814	1015	1.32413-L	0530	0.215	0.222	1015	0.209	0530
17	96	121.242	1.40327	1.68467	0845	1.34443	0900	0.216	0.243	0845	0.211	0900
18	96	201.056	2.32704	2.81381	1800	1.74039	0900	0.296	0.335	1800	0.248	0900
19	96	148.854	1.72285	2.00533	0930	1.54299	2345	0.246	0.271	0930	0.230	2345
20	96	145.422	1.68313	1.80815	0630	1.54299	0900	0.242	0.254	0630	0.230	0900
21	96	224.781-H	2.60163-H	3.08696-H	2045	1.80815	0900	0.318	0.355	2045	0.254	0900
22	96	179.286	2.07484	2.60218	0945	1.69576	0830	0.278	0.319	0945	0.244	0830
23	96	145.970	1.68946	1.77415	2100	1.59693	0315	0.243	0.251	2100	0.235	0315
24	96	142.185	1.64566	1.69576	2130	1.59693	0900	0.239	0.244	2130	0.235	0900
25	96	142.123	1.64495	1.69576	0945	1.58609	0745	0.239	0.244	0945	0.234	0745
26	96	138.177	1.59927	1.64058	1815	1.54299	0530	0.235	0.239	1815	0.230	0530
27	96	130.276	1.50782	1.57527	1645	1.42679	0715	0.226	0.233	1645	0.219	0715
28	96	125.118	1.44813	1.47919	1745	1.41639	0430	0.221	0.224	1745	0.218	0430
29	96	124.356	1.43931	1.59693	0830	1.37510	0145	0.220	0.235	0830	0.214	0145
30	96	160.367	1.85611	2.29650	0845	1.57527	0915	0.257	0.295	0845	0.233	0915

MONTHLY STATISTICS

TOTAL FLOW	50.0198 CUMEC DAYS	MAX FLOW	3.08696 CUMECS	MAX STAGE	0.355 METRES
TOTAL FLOW	4321.71 TCM	MIN FLOW	1.32413 CUMECS	MIN STAGE	0.209 METRES
MEAN FLOW	1.66732 CUMECS	MAX DMF	2.60163 CUMECS	MAX DMS	0.318 METRES
MEAN FLOW	144.057 TCMD	MIN DMF	1.39565 CUMECS	MIN DMS	0.215 METRES
MEAN STAGE	0.240 METRES				

MONTHLY SUMMARY OF RIVER FLOW FOR MAY 1990

STATION SY29F052
DESCRIPTION WHITFORD RIVER AXE
NGR SY-2620-9530
CATCHMENT AREA 288.5 SQ KM
START 0900.01.05.1990
END 0859.01.06.1990

FIRST RATING CURVE START 0001.28.12.1979
LAST RATING CURVE START 0001.28.12.1979

DAY	NUMBER OF READINGS	MEASURED FLOW DMF---TCMD	DMF-CUMECS	MAX-CUMECS	TIME	MIN-CUMECS	TIME	STAGE DMS-M	MAX-M	TIME	MIN-M	TIME
1	96	185.902	2.15164	2.23462	2100	2.07674	0145	0.283	0.290	2100	0.277	0145
2	96	177.667	2.05633	2.12485	0930	1.99352	0400	0.275	0.281	0930	0.270	0400
3	96	174.723	2.02226	2.08873	1815	1.95825	0645	0.272	0.278	1815	0.267	0645
4	96	171.940	1.99005	2.08873	2130	1.91159	0330	0.269	0.278	2130	0.263	0330
5	96	167.581	1.93960	2.01717	1830	1.86535	0600	0.265	0.272	1830	0.259	0600
6	96	166.214	1.92378	1.98174	1645	1.86535	0315	0.264	0.269	1645	0.259	0315
7	96	165.997	1.92126	2.01717	2030	1.87687	0230	0.263	0.272	2030	0.260	0230
8	96	171.229	1.98182	2.11279	1930	1.91159	0900	0.268	0.280	1930	0.263	0900
9	59	185.431	2.14619	2.78702	0830	1.94655	0900	0.282	0.333	0830	0.266	0900
10	87	219.032-H	2.53509-H	2.82724-H	1030	2.23462	0800	0.313	0.336	1030	0.290	0800
11	96	182.076	2.10736	2.24695	0900	1.96998	0515	0.279	0.291	0900	0.268	0515
12	96	173.166	2.00423	2.18558	1745	1.91159	0115	0.270	0.286	1745	0.263	0115
13	96	167.024	1.93314	2.05283	1815	1.86535	0500	0.264	0.275	1815	0.259	0500
14	96	168.201	1.94677	2.01717	1845	1.88842	1115	0.266	0.272	1845	0.261	1115
15	96	168.135	1.94600	2.04092	1845	1.85386	0545	0.265	0.274	1845	0.258	0545
16	96	154.931	1.79319	1.88842	1000	1.70688	2215	0.252	0.261	1000	0.245	2215
17	96	150.980	1.74745	1.84239	1515	1.66257	0215	0.248	0.257	1515	0.241	0215
18	96	147.164	1.70328	1.77415	1800	1.62963	0400	0.244	0.251	1800	0.238	0400
19	96	147.362	1.70558	1.78546	1845	1.64058	0915	0.244	0.252	1845	0.239	0915
20	96	145.089	1.67904	1.72919	1045	1.61870	0500	0.242	0.247	1045	0.237	0500
21	96	145.518	1.68423	1.72919	0900	1.65156	1230	0.242	0.247	0900	0.240	1230
22	96	143.660	1.66273	1.71802	1030	1.55373	0615	0.240	0.246	1030	0.231	0615
23	96	138.630	1.60451	1.70688	2015	1.50034	0600	0.235	0.245	2015	0.226	0600
24	96	134.448	1.55611	1.66257	1900	1.44766-L	0500	0.231	0.241	1900	0.221	0500
25	96	132.572	1.53440	1.59693	1915	1.47919	0200	0.229	0.235	1915	0.224	0200
26	96	133.938	1.55021	1.62963	2200	1.47919	0545	0.230	0.238	2200	0.224	0545
27	96	130.227	1.50725	1.56449	1445	1.44766	0400	0.226	0.232	1445	0.221	0400
28	96	129.606-L	1.50007-L	1.55373	0515	1.44766	0215	0.225	0.231	0515	0.221	0215
29	96	134.367	1.55517	1.67361	0800	1.48975	0900	0.231	0.242	0800	0.225	0900
30	96	140.796	1.62958	1.77415	1245	1.52161	2330	0.237	0.251	1245	0.228	2330
31	96	135.252	1.56542	1.64058	1445	1.46865	0345	0.232	0.239	1445	0.223	0345

MONTHLY STATISTICS

TOTAL FLOW	56.5837 CUMEC DAYS	MAX FLOW	2.82724 CUMECS	MAX STAGE	0.336 METRES
TOTAL FLOW	4888.83 TCM	MIN FLOW	1.44766 CUMECS	MIN STAGE	0.221 METRES
MEAN FLOW	1.82828 CUMECS	MAX DMF	2.53509 CUMECS	MAX DMS	0.313 METRES
MEAN FLOW	157.704 TCMD	MIN DMF	1.50007 CUMECS	MIN DMS	0.225 METRES
MEAN STAGE	0.254 METRES				

APPENDIX B

AXE UPPER ESTUARY SURVEY - DROUGHT ORDER WORK

FILE NAME: SEE01JOB_31MOB DATE: 31.05.90 NEAP TIDES WEATHER: CLOUDY AM, SUNSHINE LATER IN DAY

SITE	GRID REFERENCE	TIME (LOCAL)	TIDE	DEPTH (m)	pH (SITE)	TEMP oC	COND mS/cm	ON-SITE SALINITY	LAB SALINITY	DO2 %	TOTAL COLI /100ml	E. COLI /100ml	FAECAL ST. /100ml	BOD mg/l	PO4 ug/l	TON ug/l	NH4 ug/l	SS(105C) mg/l	SS(500C) mg/l	CHLORO'A ug/l	COMMENTS
1	SY 2530 9000	0620	DW	0.0	7.77	15.4	11.4	6.41	6.19	68				1.4	346	3110	87	18	14	5	Laboratory DO 6.5 mg/l
2	SY 2540 9050	0720		0.0	7.40	15.5	5.23	2.79	2.73	63	5.0e+03	3.1e+03	9.5e+02	3.3	430	2070	97	16	13	7	
3	SY 2545 9105	0745		0.0	7.71	15.7	4.32	2.27	2.24	50	3.5e+02	2.0e+01	6.5e+01	1.0	188	2910	51	8	6	8	
4	SY 2540 9155	0810		0.0	7.79	15.7	3.29	1.70	1.57	70	9.8e+02	3.9e+02	8.5e+01	0.8	157	3710	33	7	5	7	
1	SY 2530 9000	0915	HW - 3	0.0	7.77	15.5	6.2	3.35	3.15	74	4.5e+02	3.8e+02	6.7e+01	1.1	291	1510	323	10	7	11	
2	SY 2540 9050	0930		0.0	7.75	15.9	4.12	2.16	1.97	74	6.3e+03	4.2e+03	6.9e+02	1.4	305	1330	50	10	6	10	
3	SY 2545 9105	0940		0.0	7.97	16.0	4.11	2.16	2.01	83	6.5e+02	2.1e+02	2.1e+01	1.3	218	3580	32	8	6	12	
4	SY 2540 9155	0955		0.0	7.88	15.9	2.62	1.33	1.23	81	1.4e+03	4.5e+02	2.4e+01	1.2	361	3400	40	5	3	9	
		1139																			Salinity check: 33.1 gm/kg TDS
		1230	HW																		
1	SY 2530 9000	1245		2.0	7.60	14.4	53.1	35.02	32.9	103	6.5e+01	5.0e+01	2.0e+00	2.8	23	50	17	20	15	6	
		1250		0.0	8.05	14.4	52.8	34.79	32.9	102	4.5e+01	4.0e+01	3.0e+00	0.8	20	180	59	22	17	5	
2	SY 2540 9050	1305		1.0	7.95	14.7	52.1	34.28	30.8	81	7.0e+02	3.4e+02	1.0e+02	0.9	60	520	91	28	23	6	(1'FACE ~0.3m)
		1310		0.0	7.94	16.5	8.2-8.7	4.5-4.8	4.58	86	3.7e+03	8.0e+02	4.3e+01	0.8	119	1980	65	8	6	3	
3	SY 2545 9105	1335		1.0	7.96	14.8	51.2	33.61	30.4	92	1.7e+02	3.1e+01	9.0e+00	0.8	26	460	42	38	29	6	(1'FACE ~0.5m)
		1340		0.0	8.04	16.8	3.1	1.59	1.74	93	1.7e+03	3.1e+02	3.0e+01	0.8	214	2720	52	7	4	5	
4	SY 2540 9155	1355		1.0	7.96	15.2	44	28.37	10.1	114	7.9e+02	5.8e+02	3.1e+01	1.1	85	1000	46	13	8	15	(1'FACE ~0.8m)
		1400		0.0	8.13	16.6	1.2	0.55	cl	98	7.1e+03	1.5e+03	3.8e+02	1.0	383	1870	61	6	4	5	Lab DO = 12.0 mg/l
1	SY 2530 9000	1530	HW + 3	1.5	8.00	16.2	25.4	15.44	7.69	107											
		1535		0.8	8.04	16.3	18-21v	11-13v		109	3.8e+03	2.5e+03	9.5e+01	0.8	176	2660	57	17	13	4	
				0.0	8.09	16.7	11-18v	6-11v		110											
2	SY 2540 9050	1550		1.0	7.70	16.2	25-27v	13-18v		111											
				0.5	8.14	16.9	11-13v	7-8v	6.82	116	4.0e+04	3.0e+03	4.5e+02	0.9	326	2810	138	16	12	5	
				0.0	8.08	17.2	11-13v	6.5-8.5		116											
3	SY 2545 9105	1605		1.0	8.24	17.2	5.8	3.50	3.56	129	1.2e+03	5.2e+02	5.2e+01	1.1	199	1170	50	13	9	7	
				0.0	8.29	17.3	5.8	3.50		130											
4	SY 2540 9155	1635		1.0	8.30	17.0	6.4	4.00	2.8	132	3.1e+03	3.5e+02	4.3e+01	1.2	260	1450	46	9	6	5	
				0.0	8.36	17.1	4.1-4.4	2.7-3.0		132											
1	SY 2530 9000	1820		1.0	8.39	17.9	5.7	3.40	3.33	139	7.4e+03	2.1e+03	8.5e+01	1.1	243	2330	54	18	15	6	
			DW	0.0	8.40	18.0	5.7	3.40		142											
2	SY 2540 9050	1840		0.0	8.53	17.7	3.88	2.30	2.21	143	2.7e+03	2.7e+02	3.2e+01	0.8	293	1120	39	14	10	7	
3	SY 2545 9105	1850		0.0	8.53	17.5	2.83	1.60	1.64	144	1.2e+03	3.4e+02	7.8e+01	1.1	262	2410	41	12	9	9	
4	SY 2540 9155	1915		0.0	8.49	17.0	2.11	1.20	1.13	133				1.2	311	2070	41	9	6	7	
											4.0e+03	9.8e+02	1.5e+02	1.2	220.7	1931.7	67.2	13.9	10.3	7.1	
											8.4e+03	1.2e+03	2.5e+02	0.6	118.9	1069.0	80.1	7.7	6.3	2.8	
											BLANKS:	1st (0615)			8	20	20				
												2nd (1830)			7	20	17				

AXE UPPER ESTUARY SURVEY DROUGHT ORDER

FILE NAME: SEEDLLOA_2SPOB DATE: 25.06.90 SPRING TIDES

SITE	GRID REFERENCE	TIME (LOCAL)	DEPTH (m)	pH	TEMP oC	ON-SITE SALINITY	LAB SALINITY	DO2 %	COLIFORMS /100ml	E. COLI /100ml	FAECAL ST /100ml	BOD mg/l	PO4 ug/l	TON ug/l	NH4 ug/l	SS(105C) mg/l	SS(500C) mg/l	CHLORO'A ug/l	TURB'TY FTU	COMMENTS
1	SY 2530 9000	0635	0.0	7.80	14.3	7.20	5.31	69	2.4e+04	5.9e+02	8.0e+01	1.3	160	2960	113	18	10	7	7.4	Flood' at barge ~ 06.15
2	SY 2540 9050	0645	<0.5		14.5	5.00		69												
			0.0	7.80	14.3	4.70	4.24	69	2.4e+04	5.0e+03	5.0e+02	1.4	232	3250	117	16	8	13	9.3	
3	SY 2545 9105	0725	1.0		14.4	9.80		68												Increase with flood tide
			0.0	7.80	14.3	13.00	5.79	69	1.8e+04	5.9e+02	3.9e+02	1.7	149	1540	112	20	11	13	13.0	
4	SY 2540 9155	0740	1.0		14.4	3.20	2.85	69				2.2	178	1840	105	22	14	17	10.9	
1	SY 2530 9000	0940	2.5	8.00	14.2	34.50	32.80	80	2.6e+02	1.3e+02	8.2e+01	1.2	39	60	64	39	31	4	23.0	
			1.5		14.2	34.50		79												
			0.0	8.00	14.2	34.50	33.00	80	2.5e+02	7.0e+01	3.9e+01	0.8	47	30	30	22	14	4	12.9	
2	SY 2540 9050	1000	2.0	8.00	14.3	34.50	33.00	82	2.8e+02	1.0e+02	4.0e+01	0.7	40	20	31	21	14	11	10.2	
			1.0		14.3	34.50		83												
			0.0	8.00	14.3	34.20	33.10	83	1.5e+02	9.0e+01	1.0e+01	1.1	24	20	26	15	10	4	9.5	
3	SY 2545 9105	1020	1.5	8.00	14.4	34.30	32.80	81	2.8e+02	8.0e+01	2.8e+01	0.8	46	30	48	17	14	5	10.0	
			1.0		14.4	34.10		81												
			0.0	8.00	14.5	32.00	31.50	83	7.0e+02	3.8e+02	4.0e+01	0.9	66	210	44	9	7	4	7.8	
4	SY 2540 9155	1035	1.5	8.00	14.3	33.70	32.10	80	1.3e+03	1.9e+02	3.0e+01	1.5	51	70	31	86	51	37	42.0	
			1.0		14.3	33.00		81												At 0.5m: Sal. change;
			0.0	7.90	14.4	23.00	3.80	74	5.0e+03	5.0e+02	7.0e+01	1.2	191	2280	86	5	2	5	4.4	5 to 33 :DO sample=6.2 mg/l
1	SY 2530 9000	1230	1.0		14.8	27.00		88												In situ data site 1
			0.0	7.90	14.8	8.00	8.70	85	4.8e+03	1.8e+03	4.0e+01	1.0	230	5710	75	7	4	4	6.0	as for FS at 12.08
2	SY 2540 9050	1240	1.0		14.6	30.60		84												
			0.0	7.90	15.6	6.10	6.00	80	2.5e+03	1.8e+03	5.0e+01	1.3	285	3340	80	5	1	4	4.5	Gradual change in sal.
3	SY 2545 9105	1255	0.5		14.9	23.60		87												
			0.0	7.90	15.6	8.00	6.70	83	6.1e+03	1.0e+03	9.0e+01	1.0	255	2620	78	5	3	4	4.8	
4	SY 2540 9155	1305	0.5		14.9	28.00		92												Gradual change in sal.
			0.0	8.00	15.7	5.60	5.10	86	5.3e+03	2.8e+03	2.0e+01	1.1	241	3190	68	4	3	5	3.9	
1	SY 2530 9000	1440	<0.5		16.7	11.82		101												In situ data site 1
			0.0	8.00	16.6	12.33	11.60	101	1.0e+04	1.8e+03	5.0e+02	1.8	186	3340	73	24	17	6	17.0	as for FS at 14.35
2	SY 2540 9050	1450	0.3		16.9	9.40		102												
			0.0	8.10	17.0	9.40	9.10	104	3.3e+03	4.0e+02	1.4e+02	1.4	337	2780	365	20	17	6	6.9	
3	SY 2545 9105	1500	0.2	8.20	17.1	6.90	6.70	110	4.5e+03	1.2e+03	4.0e+01	1.5	194	2190	68	25	19	11	12.8	
4	SY 2540 9155	1520	0.4	8.20	16.9	4.10	3.60	109	7.5e+03	2.2e+03	5.0e+01	1.6	220	2340	54	13	10	9	5.4	Do sample col'; 11.3 mg/l
								MEAN	6.2e+03	1.1e+03	1.2e+02	1.3	158.6	******	83.4	19.7	13.0	8.7	11.1	
DO CHECKS AT SITE 4	1035	1530						SD	7.6e+03	1.3e+03	1.6e+02	0.4	95.5	******	72.2	17.9	11.4	7.7	8.7	
WATER TEMP (oC)	14.4	16.5																		
DO (% SATURATION)	80.0	116.0							BLANKS:	1st			59	10	30					
DO (as mg/l)	8.2	11.3								2nd			12	10	30					

AXE UPPER ESTUARY SURVEY DROUGHT ORDER

FILE NAME: SDE01NOA.18MAR2 DATE: 18.07.90 NEAP TIDES

SITE	GRID REFERENCE	TIME (LOCAL)	TIDE	DEPTH (m)	pH (SITE)	pH (LAB)	TEMP (oC)	ON-SITE SALINITY	LAB SALINITY	DO2 %	TOTAL COLI /100ml	E. COLI /100ml	FAECAL ST. /100ml	BOD mg/l	PO4 ug/l	TON ug/l	NH4 ug/l	SS(105C) mg/l	SS(500C) mg/l	CHLORO'A ug/l	TURBIDITY FTU
1	SY 2530 9000	0739	EW	1.0	7.00	8.0	18.1	11.8	11.3	75	4.8e+03	1.7e+03	2.2e+02	1.1	174	960	88	26	13	5.8	6.7
2	SY 2540 9050	0800		0.5	7.42	8.1	18.6	6.9	6.17	79	2.2e+03	1.8e+03	1.4e+02	1.7	171	650	61	14	1	10.6	7.8
3	SY 2545 9105	0816		0.3	7.70	8.1	19.0	5.5	5.17	89	2.4e+03	1.2e+03	1.1e+02	1.8	226	570	62	12	< 1	11.3	8.0
2	SY 2540 9050	1445	HW	2.0		8.1	17.9	34.7		120											
				1.0	7.90		17.9	34.8	31.7	118	7.0e+01	3.2e+01	2.0e+01	2.4	21	20	68	8	< 1	2.7	2.1
				0.0	7.96		18.0	34.8		120											
3	SY 2545 9105	1457		2.0		8.1	18.4	34.1		125											
				1.0	7.98		18.4	34.2	32.1	125	1.8e+02	4.0e+01	3.0e+01	1.6	22	40	53	54	37	3.1	4.0
				0.0	7.98		18.6	34.0		121											
4	SY 2540 9155	1511		2.5		8.3	20.6	26.8		158											
				1.5	7.98		21.2	24.2	8.38	161	2.5e+03	5.0e+02	2.0e+01	5.0	171	740	60	38	11	28.2	13.0
				0.5	7.98		22.2	13.1		164											
				0.0	8.00		23.6	3.9		174											
										MEAN	2.0e+03	8.8e+02	9.0e+01	2.3	130.8	496.7	65.3	25.3	10.7	10.3	6.9
										SD	1.8e+03	8.0e+02	8.1e+01	1.4	87.2	384.3	12.1	17.8	14.0	9.5	3.8
										BLANKS:		1st			<10	30	38				
												2nd			<10	10	29				

AXE UPPER ESTUARY SURVEY DROUGHT ORDER

FILE NAME: SDED1NOB_ZSMDB3 DATE: 25.07.90 SPRING TIDES

SITE	GRID REFERENCE	TIME (LOCAL)	TIDE	DEPTH (m)	pH (SITE)	pH (LAB)	TEMP oC	CM-SITE SALINITY	LAB SALINITY	DO2 %	TOTAL COLI /100ml	E. COLI /100ml	FAECAL ST. /100ml	BOD mg/l	PO4 ug/l	TON ug/l	NH4 ug/l	SS(105C) mg/l	SS(500C) mg/l	CHLORO'A ug/l	TURBIDITY FTU
2	SX 2540 9050	1000	HW	2.5	8.13	8.1	17.4	35.0		85											
				1.5			17.4	35.0	33.1	88	1.8e+03	1.0e+02	2.0e+01	1.5	18	10	31	5	1	4.0	0.9
				0.5			17.5	34.9		92											
				0.0	8.17		17.6	34.9		87											
3	SX 2545 9105	1015		2.0	8.19	8.1	17.6	35.0		89											
				1.0			17.6	34.8	32.9	88	1.8e+03	1.3e+02	2.0e+01	1.5	32	50	30	4	4	2.0	2.2
				0.5			17.6	34.7		87											
				0.0	8.12		17.8	31.8		85											
4	SX 2540 9155	1027		2.5	8.01	8.1	17.6	34.8		91											
				1.5			17.6	34.8	32.4	88	3.2e+03	2.4e+02	1.0e+01	1.4	50	70	38	7	1	32.4	3.4
				0.5			17.7	21.6		84											
				0.0	8.14		18.3	10.2		77											
1	SX 2530 9000	1600	EW	0.5	8.38	8.3	21.1	14.2		111											
				0.0			21.0	13.4	13.7	116	4.0e+04	7.6e+03	6.6e+02	2.5	122	1090	479	12	6	8.0	3.5
2	SX 2540 9050	1619		0.5	8.56	8.4	21.0	11.7		128											
				0.0			21.0	11.7	11.2	130	2.2e+04	6.4e+03	4.2e+02	2.3	148	670	90	14	7	10.0	5.1
3	SX 2545 9105	1637		0.5	8.74	8.6	21.2	9.2		143											
				0.0			21.2	9.1	8.7	149	2.0e+04	1.7e+03	1.5e+02	2.3	526	1430	30	12	6	16.0	3.8
										MEAN	14866.7	2695.0	213.3	1.9	149.3	553.3	116.3	9.0	4.2	12.1	3.2
										SD	15442.6	3409.3	269.2	0.5	191.6	608.7	179.2	4.2	2.6	11.1	1.4
										BLANKS:		1st			10	<10	21				
												2nd			15	<10	15				

AXE UPPER ESTUARY SURVEY - DROUGHT ORDER WORK

FILE NAME:SCI0100A_14RES DATE: 14.08.90 NEAP TIDES WEATHER: DULL WITH SOME RAIN SHOWERS

SITE	GRID REFERENCE	TIME (LOCAL)	TIDE	DEPTH (m)	pH (LAB)	TEMP oC	ON-SITE SALINITY	LAB SALINITY	DO2 %	COLIFORMS /100ml	E. COLI /100ml	FAECAL ST. /100ml	BOD mg/l	PO4 ug/l	TON ug/l	NH4 ug/l	SS(105C) mg/l	SS(500C) mg/l	CHLORO'A ug/l	TURB'TY FTU
1	SX 2530 9000	0610	EW	0.75		17.9	11.9		49											
				0.50	7.9	17.9	11.3-11.6	10.9	52	> 3.0e+04	1.4e+04	8.0e+02	1.5	236	2040	108	6	6	8	4.0
				0.00		17.9	10.8		52											
2	SX 2540 9050	0642		0.50		17.9	9.1	8.79	49	> 3.0e+04	1.7e+04	8.0e+02	1.5	324	1090	50	9	8	12	4.2
				0.00	7.8	17.9	9.0		49											
3	SX 2545 9105	0710		<0.25		17.8	6.0	5.79	59	> 3.0e+04	2.1e+04	8.0e+02	1.9	268	1770	107	5	3	23	3.4
				0.00	7.9	17.8	5.6		57											
2	SX 2540 9050	0910	EW - 3	1.00		18.0	13.6		54											
				0.50		18.0	12.8		52											
				0.00		18.0	11.8		54											
3	SX 2545 9105	0915		0.50		18.0	4.1		67											
				0.00		18.0	4.2		68											
2	SX 2540 9050	1245	EW	2.00		17.8	34.8		92											
				1.50		17.8	34.8		92											
				1.00	8.1	17.8	34.8	33.6	91	1.7e+02	6.8e+01	1.4e+01	1.8	5	30	15	1	1	2	0.9
				0.50		17.8	34.8		91											
				0.00		17.8	34.8		93											
3	SX 2545 9105	1255		1.75		17.9	34.4		76											
				1.50		17.9	34.4		89											
				1.00	8.1	17.9	34.4	32.3	90	5.0e+02	4.4e+02	2.0e+01	1.1	24	240	21	5	5	3	2.4
				0.50		18.1	30.0-32.9		91											
				0.00		18.4	8.7		91											
4	SX 2540 9155	1310		1.50		18.0	34.0		97											
				1.00	8.1	18.0	33.8	30.2	90	1.2e+03	4.4e+02	1.0e+02	1.4	74	200	30	7	2	15	3.8
				0.50		18.2	28.69		87											
				0.00		18.4	2.8		98											
									MEAN	1.5e+04	8.8e+03	4.2e+02	1.5	155.2	695.0	55.2	5.5	4.2	10.5	3.1
									SD	1.6e+04	9.6e+03	4.1e+02	0.3	137.2	868.9	42.2	2.7	2.6	7.9	1.3
									BLANKS:	1st (0558)				cl	cl0	2				
										2nd (1310)				cl	70	14				

AXE UPPER ESTUARY SURVEY – DROUGHT ORDER WORK

FILE NAME: SDE01P0A.ZIRES DATE: 21.08.90 SPRING TIDES WEATHER: OVERCAST IN MORNING. BECAME MISTY, MIST CLEARED UP ABOUT LUNCHTIME

SITE	GRID REFERENCE	TIME (LOCAL)	TIDE	DEPTH (m)	pH (LAB)	TEMP oC	ON-SITE SALINITY	LAB SALINITY	DO2 %	COLIFORMS /100ml	E. COLI /100ml	FAECAL ST. /100ml	BOD mg/l	PO4 ug/l	TON ug/l	NH4 ug/l	SS(105C) mg/l	SS(500C) mg/l	CHLORO'A ug/l	TURB'TY FTU	COMMENTS
2	SY 2540 9050	0820	HW	2.75		17.2	35.0		87												All salinity readings checked 3 times
				2.50		17.2	35.0		86												
				2.00		17.2	35.0		86												
				1.50	8.1	17.2	35.0	33.9	86	3.0e+01	2.0e+01	1.8e+01	< 0.5	7	10	10	2	< 1	3	1.2	
				1.00		17.2	35.0		88												
				0.50		17.1	35.0		88												
				0.00		17.2	35.0		87												
3	SY 2545 9105	0830		2.50		17.2	35.0		77												
				2.00		17.2	35.0		81												
				1.50	8.1	17.2	35.0	33.2	81	5.1e+02	8.0e+01	2.0e+01	0.5	24	110	14	5	< 1	3	1.7	
				1.00		17.1	35.0		81												
				0.50		16.9	34.9		85												
				0.00		17.2	16.9-37		81												
4	SY 2540 9155	0845		2.50		17.2	34.9		68												
				2.00		17.2	34.9		77												
				1.50	8.1	17.2	34.9	33.1	76-79	5.0e+02	7.2e+01	4.2e+01	< 0.5	22	40	13	5	2	4	1.5	
				1.00		17.2	34.9		79												
				0.50		17.1	29.5-32		80												
				0.00		17.1	7.1-8.6		65												
2	SY 2540 9050	1120	HW + 3	1.50		17.3	32.3		80												
				1.00		17.3	31.9		80												
				0.50		17.4	19.5		73												
				0.00		17.5	15.2		71												
3	SY 2545 9105	1125		1.00		17.3	30.5		83												
				0.50		17.4	30.5		80												
				0.00		17.4	17.4		76												
4	SY 2540 9155	1135		1.00		17.4	34.7		85												
				0.50		17.3	14.2		78												
				0.00		17.5	7.7		68												
1	SY 2530 9000	1420	DW	0.75		19.3	11.6		99												
				0.50	8.2	19.3	11.5	10.9	103	8.0e+03	3.1e+03	2.3e+02	1	270	800	76	8	4	6	3.5	
				0.00		19.3	11.1		103												
2	SY 2540 9050	1443		0.50	8.2	19.0	7.8	7.7	106	1.3e+04	3.4e+03	1.6e+03	1.3	469	2210	118	7	4	10	4.7	
				0.00		19.0	7.7		108												
3	SY 2545 9105	1505		<.50	8.3	19.0	4.4	4.4	113	3.0e+03	1.9e+03	3.8e+02	1.3	352	2580	38	12	7	15	4.5	
				0.00		19.0	4.3		113												
									MEAN	4173.3	1428.7	381.7	0.9	190.7	958.3	44.8	6.5	3.2	6.8	2.9	
									SD	5253.8	1584.0	614.1	0.4	199.9	1156.2	43.7	3.4	2.3	4.8	1.6	
									BLANK:		1510			10	20	2					

AXE UPPER ESTUARY SURVEY - DROUGHT ORDER WORK

FILE NAME: SDE01P0B_28RES DATE: 28.08.90 (DAY 1 OF OVERNIGHT SURVEY) NEAP TIDES

SITE	GRID REFERENCE	TIME (LOCAL)	TIDE	DEPTH (m)	pH (SITE)	pH (LAB)	TEMP oC	ON-SITE SALINITY	LAB SALINITY	DO2%	COLIFORMS /100ml	E. COLI /100ml	FAECAL ST. /100ml	BOD mg/l	PO4 ug/l	TON ug/l	NH4 ug/l	SS(105C) mg/l	SS(500C) mg/l	CHLORO'A ug/l	TURB'TY FTU	COMMENTS
2	SY 2540 9050	1150	HW	1.75	8.17	8.1	18.2	34.6		96												
				1.50	8.19		18.2	34.6		97												
				1.00	8.19		18.2	34.6	32.8	99	1.0e+04	9.0e+03	2.1e+03	1.1	48	30	129	10	10	2	1.1	
				0.50	8.19		18.2	34.5		99												
				0.00	V8.17		18.2	34.5		100												
3	SY 2545 9105	1200		1.50	8.17	8.1	18.2	33.7		84												
				1.00	8.17		18.2	33.5	31.7	86	> 3.0e+04	> 3.0e+04	9.0e+02	0.9	44	90	98	13	13	3	1.7	
				0.50	8.13		18.3	32 - 33		87												
				0.00	8.16		19.0	4.3		82												
4	SY 2540 9158	1215		1.50	8.05	8.0	18.2	31.3		87												
				1.00	8.10		18.2	31.1	28.3	87	> 3.0e+04	> 3.0e+04	7.0e+02	1.8	92	280	157	31	27	10	2.9	
				0.50	8.40		19.2	0.8 - 0.9		90												
				0.00	8.34		19.2	0.7		92												
2	SY 2540 9050	1450	HW + 3	0.75	8.19	8.2	18.8	18.5-18.9		114												
				0.50	V8.23		19.0	15.4-16.5	8.6	115	> 3.0e+04	> 3.0e+04	1.0e+03	1.2	182	1990	153	8	7	4	4.6	
				0.00	8.15		19.5	7.4		99												
3	SY 2545 9105	1505		0.50	8.33	8.2	19.4	6.2	7.59	108	> 3.0e+04	> 3.0e+04	2.6e+02	2	400	1730	71	10	10	14	4.4	
				0.00	8.33		19.4	6.2		114												
1	SY 2530 9000	1720	LW	<0.50	8.38	8.2	19.6	6.2	6.98	117	> 3.0e+04	5.9e+03	3.1e+03	2.4	347	1840	140	10	8	13	5.9	Tide was still going out fast
				0.00	8.38		19.6	6.1		117												(times checked)
2	SY 2540 9050	1742		0.50	8.46	8.2	19.6	3.7	5.23	117	> 3.0e+04	4.4e+03	4.0e+02	2.7	390	2230	133	7	7	7	4.5	
				0.00	8.44		19.6	3.9		116												
3	SY 2545 9105	1802		<0.50	8.51	8.3	19.7	2.2	2.86	114	9.0e+03	1.5e+03	1.9e+02	2	416	2490	58	17	16	12	7.8	
				0.00	8.53		19.7	2.2		115												
4	SY 2540 9158	1830		0.50	8.65		19.7	1.2-3.2		115												
				0.00	8.56		19.8	0.7		112												
2	SY 2540 9050	2020	HW - 3	1.00	8.17	8.1	18.7	13.8		92												STW o/fall v. dirty into river
				0.50	8.20		19.0	9.6-10.2	10.7	93	> 3.0e+04	2.7e+03	2.9e+02	1.2	176	1220	126	< 1	< 1	4	3.7	See scum at site 1
				0.00	8.26		19.1	6.3		91												
3	SY 2545 9105	2037		1.00	V8.34	8.2	19.3	3.1		94												A lot of scum on water surface
				0.50	8.40		19.3	3.0	4.41	97	1.0e+04	4.0e+03	4.1e+02	2.4	464	1500	158	3	3	15	4.5	
				0.00	8.33		19.4	2.7		98												
												BLANK:	(1142)		61	270	170					

AXE UPPER ESTUARY SURVEY - DROUGHT ORDER WORK

FILE NAME: SDE01FOB 2RES DATE: 29.08.90 (DAY 2 OF OVERNIGHT SURVEY) NEAP TIDES

SITE	GRID REFERENCE	TIME (LOCAL)	TIDE	DEPTH (m)	pH (SITE)	pH (LAB)	TEMP oC	ON-SITE SALINITY	LAB SALINITY	DO2%	TOTAL COLI /100ml	E. COLI /100ml	FAECAL ST. /100ml	BOD mg/l	PO4 ug/l	TON ug/l	NH4 ug/l	SS(105C) mg/l	SS(500C) mg/l	CHLORO'A ug/l	TURB'TY FTU
2	SY 2540 9050	0001	HW	1.25	8.19	8.1	18.0	34.2													
				1.00	8.19		18.0	34.2	32.1		4.2e+03	5.0e+02	2.0e+02	1.0	46	130	90	28	21	2	2.0
				0.50	8.19		18.0	33.8													
				0.00	8.34		18.1	12.0													
3	SY 2545 9105	0016		1.00	8.13	8.2	18.2	33.0													
				0.50	8.20		18.6	3 - 13	2.76		1.2e+04	3.8e+03	5.1e+02	0.8	54	169	154	7	7	6	4.8
				0.00	8.48		19.0	2.3													
4	SY 2540 9155	0042		1.00	8.03	8.2	18.8	12.8													
				0.50	8.48		19.4	1.0	<1		7.2e+03	1.1e+03	2.0e+02	0.9	530	219	52	2	1	3	1.6
				0.00	8.48		19.4	0.5													
2	SY 2540 9050	0300	ME	0.90	8.04	8.0	18.3	32.0		58											
		0301		0.50	8.07		18.8	11.0	19.3	70	6.5e+03	1.1e+03	2.1e+02	1.2	284	1880	119	4	4	4	3.1
		0303		0.00	8.10		18.7	7.5		72											
3	SY 2545 9105	0318		0.50	8.04	8.0	19.0	4.0	3.85	68				1.1	396	1490	96	6	4	5	5.0
		0319		0.00	8.04		19.0	4.0		69											
		0353									6.4e+03	2.7e+03	1.0e+02								
3	SY 2545 9105	0525	DW	0.15	7.92	7.9	18.7	3.5	3.44	62	7.0e+03	3.2e+03	2.0e+02	1.3	347	3150	92	9	5	395	4.8
2	SY 2540 9050	0544		0.50	7.96	7.9	18.6	3.9	3.74	58	8.2e+03	2.6e+03	2.9e+02	1.6	438	1490	91	5	2	6	6.7
				0.00	7.93		18.6	3.7		60											
1	SY 2530 9000	0607		0.10	7.92	8.0	18.4	5.7	5.58	57	1.2e+04	2.6e+03	1.2e+04	1.2	356	1290	193	5	3	5	4.6
										MEAN	1.7e+04	9.2e+03	1.3e+03	1.5	305.4	1289.9	117.2	9.8	8.3	28.3	4.1
										SD	1.1e+04	1.2e+03	4.2e+03	0.3	157.3	1062.4	44.0	8.2	6.4	138.1	1.7
												BLANK:	0607		44	150	6				

AXE UPPER ESTUARY SURVEY – DYOLIGHT ORDER WORK

FILE NAME: SDE01R0A_21RES DATE: 21.09.90 SPRING TIDES

SITE	GRID REFERENCE	TIME (LOCAL)	TIDE	DEPTH (m)	pH (SITE)	pH (LAB)	TEMP oC	SALIN (Site)	SALIN (Lab)	DO2 %	DO2 Temp oC	COLIFORMS /100ml	E. COLI /100ml	FAECAL ST 100ml	BOD mg/l	PO4 ug/l	TON ug/l	NH4 ug/l	SS(105C) mg/l	SS(500C) mg/l	CHLORO'A ug/l	TURB'TY FTU	COMMENTS
2	SY 2540 9050	0855	FW	2.25	7.75		16.2	35.1		No results	15.9												DO calibration: 1.08 slope, 100%
				2.00	8.10		16.2	35.1			16.0												in air
				1.50	8.10	8.0	16.2	35.1	33.7	Suspect	16.1	7.0e+01	1.6e+01	2.0e+01	0.8	51	70	32	11	7	2	2.2	
				1.00	8.10		16.2	35.1		air bubble													
				0.50	8.14		16.2	35.2		in DO probe													
				0.00	8.14		16.2	35.1		PROBE													99 – 100% in air at end
3	SY 2545 9105	0903		1.75	8.13		16.2	35.1			16.1												pH probe stuck in mud
				1.50	8.13		16.3	35.1			16.2												
				1.00	8.12	8.0	16.3	35.2	33.3		16.2	7.0e+02	1.0e+02	1.0e+01	0.7	25	60	45	12	7	2	1.5	
				0.50	8.11		16.0	34.8			15.9												
				0.00	8.05		13.7	17.9			13.6												DO: 99% in air at end
4	SY 2540 9155	0915		2.00	7.78		16.1	35.0			15.9												
				1.50	8.13		16.2	35.0			16.0												
				1.00	8.13	8.0	16.2	35.0	32.8		16.0	3.0e+02	1.0e+02	2.0e+01	0.8	4	80	41	11	8	4	3.8	
				0.50	8.10		15.6	33.99			15.5												
				0.00	7.98		13.3	9.7			13.3												DO: 97% in air at end
2	SY 2540 9050	1204	FW	1.50	8.10		16.0	32.1			15.8												DO calibration: 1.03 slope, 101%
				1.00	8.11		15.9	30.7			15.7												in air
				0.50	8.10		15.3	24.3			15.2												
				0.00	8.05		14.9	19.1			14.8												100% in air at end
3	SY 2545 9105	1215		1.00	8.09		16.0	30.2			15.8												
				0.50	8.09		15.5	25.3			15.3												
				0.00	8.05		14.8	17.4			14.7												100% in air at end
1	SY 2530 9000	1455	DW	0.75	8.20		16.3	14.6			16.1												DO calibration: 1.03 slope, 102%
				0.50	8.21	8.1	16.2	14.0	13.2			1.0e+03	1.8e+03	4.0e+02	1.0	331	970	103	10	7	3	2.0	in air
				0.00	8.22		16.2	13.2			15.9												
2	SY 2540 9050	1517		0.50	8.26	8.1	16.0	10.2	9.76		15.9	2.4e+04	5.4e+03	1.1e+02	1.2	360	2820	74	9	9	3	2.7	
				0.00	8.26		16.0	10.2			15.8												
3	SY 2545 9105	1532		>0.5	8.39	8.2	15.5	6.2	6		15.3	1.3e+04	2.1e+03	9.0e+02	1.3	355	2370	56	18	14	9	2.9	
				0.00	8.39		15.5	6.2			15.3												104% in air at end
										MEAN		6.5e+03	1.6e+03	2.4e+02	1.0	187.7	1061.7	58.5	11.8	8.7	3.8	2.5	
										SD		9.9e+03	2.1e+03	3.5e+02	0.2	177.3	1246.0	26.1	3.2	2.7	2.6	0.8	
										BLANKS:			0845			12	10	24					
													1537			21	<10	33					

AXE UPPER ESTUARY SURVEY – DROUGHT ORDER WORK

FILE NAME: SDED1R0B_27RES DATE: 27.09.90 NEAP TIDES

SITE	GRID REFERENCE	TIME	TIDE	DEPTH (m)	pH (SITE)	TEMP oC	ON-SITE SALINITY	SALIN (Lab)	DO2 %	DO2 Long Probe	DO2 Temp oC	COLIFORMS /100ml	E. COLI /100ml	FAECAL ST 100ml	BOD mg/l	PO4 ug/l	TON ug/l	NH4 ug/l	SS(105C) mg/l	SS(500C) mg/l	CHLORO'A ug/l	TURB'TY FTU	COMMENTS
2	SY 2540 9050	0837	HW-3	1.00	8.51	14.6	32.3		90		14.5												pH took long time to settle in morning
				0.50	8.43	13.5	21.0-29.4		89		13.8												with v.high reading at first. New probe
				0.00	8.49-8.50	10.1	7.7-9.0		82		10.1												fitted yesterday – calibrated OK
																							DO calibration: 1.08 slope; 101% in air
																							CHEMISTRY: DO sample only – 8.7 mg/l
3	SY 2545 9105	0845		0.75	8.25	11.6	14.2		76		11.5												Air bubble in probe – removed
				0.50	8.27	11.2	11.1		77		11.1												electrolyte yesterday
				0.00	8.35	10.1	5.8		78		10.0												96% in air at end
																							CHEMISTRY: DO sample only – 9.2 mg/l
2	SY 2540 9050	1205	HW	1.25	8.16	15.7	34.5		114		15.4												Removed electrolyte, pH settling out
				1.00	8.16	15.6	34.5	31.5	115			5.0e+02	9.0e+01	8.0e+00	< 1.3	44	300	27	43	34	4	2.2	more quickly. No air bubble.
				0.50	8.15	15.1	33.6		114		14.9												DO calibration: 1.01 slope;
				0.00	8.14	12.4	4.3		106		12.3												101% in air
3	SY 2545 9105	1221		1.00	8.11	15.2	33.3		121		15.0												At short HW run:
				0.50	8.11	11.8	33.3	24.7	122			1.3e+03	2.3e+02	2.0e+01	< 1.3	314	2570	29	36	29	5	4.1	DO calibration: 0.97 slope;
				0.00	8.23	15.2	2.1		111		11.7												101% in air
4	SY 2540 9155	1235		0.75	8.14	12.2	11.3-12.0		111-117		12.1												Air bubble reformed
				0.50	8.23	11.8	2.9	1.47	116		11.7	1.1e+03	3.0e+02	1.1e+02	1.9	270	5430	31	8	3	3	2.2	100% in air at end
				0.00	8.28-8.29	11.8	1.6		120		11.8												
2	SY 2540 9050	1501	HW-3	0.75	8.19	15.6	31.9		115		15.7												Air bubble again, removed electrolyte
				0.50	8.19	15.0	29.6		119		15.1												DO calibration: 0.94 slope; 100% in air
				0.00	8.34	14.2	11.4		125		14.0												CHEMISTRY: DO sample only – 11.1 mg/l
3	SY 2545 9105	1515		<0.5	8.51	13.7	6.7		146		13.5												101% in air at end
				0.00	8.44	13.7	6.7		148														CHEMISTRY: DO sample only – 13.4 mg/l
1	SY 2530 9000	1725	DW	0.75	8.41	14.8	9.4-13.5		159	123	14.6												Removed electrolyte. No air bubble
				0.50	8.41	14.8	9.2	9.23	156	122		6.0e+03	2.4e+03	5.0e+02	1.9	198	3930	49	25	16	4	5.5	DO calibration: 0.93 slope; 100% in air
				0.00	8.45	14.7	8.3		154	122	18.5												
2	SY 2540 9050	1745		0.50	8.50	14.2	5.7		156	117	14.0												No air bubble in either probe, but 30%
				0.00	8.53	14.0	5.2	5.14	156	116	13.8	5.8e+03	2.8e+03	1.1e+03	1.6	262	5030	50	15	11	4	6.2	difference on readings
3	SY 2545 9105	1800		<0.5		13.2	3.0		158	122	13.1												100% in air at end. See below for DO
				0.00	8.6	13.2	3.0	2.98	162	122	13.1	2.8e+03	1.8e+03	7.6e+02	1.6	283	3530	33	26	18	9	10	readings with long probe at sites 1
																							2 & 3 (SEE OVER)
											MEAN	2.9e+03	1.3e+03	4.1e+02	1.6	228.5	3465.0	36.5	25.5	18.5	4.8	5.0	
											SD	2.4e+03	1.2e+03	4.5e+02	0.3	98.1	1852.7	10.3	12.9	11.4	2.1	2.9	
														BLANKS:	1200		3.0	< 10.0	19.0					
															1806		7.0	100.0	14.0					

AXE UPPER ESTUARY SURVEY – DROUGHT ORDER WORK

FILE NAME: AXE_ADF_150291 DATE: 15.02.1991 SPRING TIDE

SITE	GRID REFERENCE	TIME (LOCAL)	TIDE	DEPTH (m)	ON-SITE pH	LAB pH	TEMP oC	ON-SITE SALINITY	LAB SALINITY	ON-SITE DO2 %	COLIFORMS /100ml	E. COLI /100ml	FAECAL ST 100ml	BOD mg/l	PO4 ug/l	TON ug/l	NH4 ug/l	SS(105C) mg/l	SS(500C) mg/l	CHLORO'A ug/l	TURB'TY FTU	COMMENTS
4	SX 2540 9155	829	HW	2.50	8.00		5.4	35.3		98												
				2.00	8.00		5.4	35.3		99												
				1.50	8.00		5.4	35.2		103												
				1.00	8.00	8.0	5.3	34.9	31.6	102	4.2e+02	1.9e+02	1.4e+02	< 0.5	32	260	30	15	12	< 1		LAB DO = 2.3 mg/l, 18%
				0.50	8.00		5.1	34.2		102												
				0.00	8.03		4.2	18.7		102												
3	SX 2545 9105	842	HW	1.50	8.01		5.5	35.6		98												
				1.00	8.02		5.4	35.6		101												
				0.50	8.01	8.0	5.4	35.3	31.5	101	5.7e+02	3.6e+02	6.0e+01	< 0.5	20	630	20	13	10	1		LAB DO = 12.5 mg/l, 99%
				0.00	8.03		4.4	19.7		101												
2	SX 2540 9050	853	HW	2.50	8.01		5.4	35.5		100												
				2.00	8.02		5.4	35.4		100												
				1.50	8.02		5.4	35.4		101												
				1.00	8.02	8.0	5.4	35.5	32.8	102	3.4e+02	2.0e+02	3.0e+01	< 0.5	19	190	20	26	21	< 1		LAB DO = 12.3 mg/l, 97%
				0.50	8.02		5.4	35.1		102												
				0.00	8.04		3.8	4.8		100												
1	SX 2530 9000	905	HW	2.50	8.01		5.4	35.5		103												
				2.00	8.02		5.4	35.5		104												
				1.50	8.02		5.4	35.5		104												
				1.00	8.02	7.9	5.4	35.4	32.2	105	4.5e+03	8.0e+02	1.3e+02	< 0.5	41	700	30	21	17	< 1		LAB DO = 11.2 mg/l, 89%
				0.50	8.01		5.4	33.9		105												
				0.00	8.14		4.1	3.2		103												
5	SX 2590 9265	920	HW	0.00	7.99	7.8	2.9	0.2		97	> 3.0e+04	4.2e+03	2.0e+02	2.6	290	5534	380	4	1	1		Conductivity at 20C = 430 uS/cm

Continued

AXE UPPER ESTUARY SURVEY – DROUGHT ORDER WORK

FILE NAME: AXE_ADF_150291 DATE: 15.02.1991

SITE	GRID REFERENCE	TIME (LOCAL)	TIDE	DEPTH (m)	ON-SITE pH	LAB pH	TEMP oC	ON-SITE SALINITY	LAB SALINITY	DO2 %	COLIFORMS /100ml	E. COLI /100ml	FAECAL ST 100ml	BOD mg/l	PO4 ug/l	TON ug/l	NH4 ug/l	SS(105C) mg/l	SS(500C) mg/l	CHLORO'A ug/l	TURB'TY FTU	COMMENTS
1	SX 2530 9000	1007	ME	2.50			5.4	35.3		105												
				2.00			5.4	35.2		104												
				1.50			5.4	35.0		104												
				1.00			5.2	33.6		105												
				0.50			4.5	14.6		104												
				0.00			4.4	10.1		104												
2	SX 2540 9050	1014	ME	2.50			5.4	35.4		98												
				2.00			5.4	35.4		100												
				1.50			5.4	35.4		100												
				1.00			5.4	35.4		100												
				0.50			5.0	30.8		100												
				0.00			4.4	9.4		98												
3	SX 2545 9105	1021	ME	1.50			5.4	35.1		104												
				1.00			5.3	34.8		103												
				0.50			4.4	22.9		101												
				0.00			3.9	11.4		100												
4	SX 2540 9155	1030	ME	1.50			5.4	35.2		102												
				1.00			5.2	34.5		102												
				0.50			3.6	9.2		100												
				0.00			3.5	4.8		100												

Continued

AXE UPPER ESTUARY SURVEY – DROUGHT ORDER WORK

FILE NAME: AXE_ADF_150291 DATE: 15.02.1991

SITE	GRID REFERENCE	TIME (LOCAL)	TIDE	DEPTH (m)	ON-SITE pH	LAB pH	TEMP oC	ON-SITE SALINITY	LAB SALINITY	DO2 %	COLIFORMS /100ml	E. COLI /100ml	FAECAL ST 100ml	BOD mg/l	PO4 ug/l	TON ug/l	NH4 ug/l	SS(105C) mg/l	SS(500C) mg/l	CHLORO'A ug/l	TURB'TY FTU	COMMENTS
5	SY 2580 9265	1219	DW	0.00	8.10	7.8	3.7			95	5.5e+03	3.1e+03	3.1e+02	1.4	230	5642	300	38	31	2		Conductivity at 20C = 478 uS/cm
4	SY 2540 9155	1300	DW	0.50	8.00	7.8	4.2	3.6	3.3	97	4.2e+03	2.4e+03	2.4e+02	1	173	5280	230	15	10	2		LAB DO = 12.5 mg/l, 96%
3	SY 2545 9105	1318	DW	0.50	8.07	7.8	5.0	4.2	4.2	100	5.7e+03	2.3e+03	1.4e+02	1.3	169	4340	260	29	22	4		LAB DO = 12.1 mg/l, 95%
2	SY 2540 9050	1336	DW	0.75	8.04	7.9	4.5	5.7	5.5	100	4.8e+03	3.4e+03	2.4e+02	1	133	1900	200	24	19	3		LAB DO = 12.0 mg/l, 93%
1	SY 2530 9000	1347	DW	0.50	8.05		4.5	5.8		103												
				0.00	8.05	7.9	4.5	5.7	5.2	104	4.7e+03	2.3e+03	2.3e+02	0.9	205	2990	250	42	35	3		LAB DO = 11.6 mg/l 90%
4	SY 2540 9158	1704	MF	1.00	7.82		4.4	0.7		99												
				0.50	8.07		4.5	0.7		99												
				0.00	8.07		4.5	0.7		100												
3	SY 2545 9105	1714	MF	1.00	8.04		4.6	1.5		100												
				0.50	8.04		4.6	1.5		100												
				0.00	8.04		4.6	1.5		101												
2	SY 2540 9050	1722	MF	1.50	8.10		5.5	32.0		101												
				1.00	8.11		5.5	31.0		102												
				0.50	8.11		5.5	29.0		102												
				0.00	8.12		5.4	23.6		102												
1	SY 2530 9000	1730	MF	2.50	8.04		5.7	35.5		103												
				2.00	8.15		5.7	35.6		103												
				1.50	8.15		5.7	35.7		104												
				1.00	8.15		5.6	35.5		104												
				0.50	8.15		5.7	35.6		104												
				0.00	8.15		5.7	35.7		103												
										MEAN	3.2e+03	1.5e+03	1.5e+02	0.8	99.0	2036.3	130.0	23.1	18.3	2.0		
										SD	2.3e+03	1.2e+03	8.1e+01	0.3	78.6	1967.0	113.6	9.6	8.3	1.2		
										BLANKS: 1st (0710)					3	120	17					
										2nd (0814)					<1	10	12					
										3rd (1356)					4	30	14					

AXE UPPER ESTUARY SURVEY - DROUGHT ORDER WORK

FILE NAME: AXE_ADF_220291 DATE: 22.02.91 NEAP TIDE

SITE	GRID REFERENCE	TIME (LOCAL)	TIDE	DEPTH (m)	ON-SITE pH	LAB pH	TEMP oC	ON-SITE SALINITY	LAB SALINITY	DO2 %	COLIFORMS /100ml	E. COLI /100ml	FAECAL ST 100ml	BOD mg/l	PO4 ug/l	TON ug/l	NH4 ug/l	SS(105C) mg/l	SS(500C) mg/l	CHLORO'A ug/l	COMMENTS
4	SY 2540 9155	7.23	MF	0.50	7.88		4.5	0.1		94											DO calibration: 0.97 slope 103%
				0.00	7.86		4.5	0.1		94											in air
3	SY 2545 9105	7.31	MF	0.50	7.86		4.5	0.1		96											
				0.00	7.85		4.5	0.1		95											
2	SY 2540 9155	7.37	MF	1.00	7.86		4.5	0.1		92											
				0.50	7.86		4.5	0.1		92											
				0.00	7.86		4.5	0.1		92											
1	SY 2530 9000	7.42	MF	1.00	7.88		4.5	0.2		90											
				0.50	7.85		4.5	0.2		91											
				0.00	7.85		4.5	0.2		90											
4	SY 2540 9050	11.20	HW	1.50	7.86		4.7	0.1		86											
				1.00	7.86		4.7	0.1		87											
				0.50	7.86	7.6	4.7	0.1	0.14	87	3.9e+04	6.0e+03	1.6e+03	3.8	200	6080	730	65	52	18	LAB DO = 12.0 mg/l, 93%
				0.00	7.86		4.7	0.1		87											
3	SY 2545 9105	11.40	HW	1.50	7.85		4.7	0.1		89											
				1.00	7.85		4.7	0.1		89											
				0.50	7.85	7.6	4.7	0.1	0.14	89	3.0e+04	1.1e+04	1.8e+03	3.6	200	5370	570	63	50	16	LAB DO = 12.0 mg/l, 93%
				0.00	7.85		4.7	0.1		89											
2	SY 2540 9050	11.50	HW	1.50	7.64		4.9	5.8		87											
				1.00	7.80		4.9	5.6		87											
				0.50	7.80	7.6	4.9	0.2	0.25	88	3.6e+04	6.0e+03	1.5e+03	3.8	220	4780	650	60	48	16	LAB DO = 11.9 mg/l, 93%
				0.00	7.80		5.0	0.2		89											
1	SY 2530 9000	12.05	HW	2.00	8.00		5.5	28.5		92											
				1.50	8.00		5.1	10-20		89											
				1.00	8.00		4.9	0.4		89											
				0.50	7.90	7.6	4.9	0.4	0.42	89	2.9e+04	1.0e+04	2.2e+03	3.8	190	6370	640	57	45	16	LAB DO = 11.8 mg/l, 92%
				0.00	7.90		4.9	0.4		90											
5	SY 2590 2265	12.23	HW	0.00	7.80	7.5	5.6	0.1		91	3.8e+04	7.0e+03	1.6e+03	3.6	240	6986	480	77	60	18	Conductivity (20 C) = 386 uS/cm

Continued

AXE UPPER ESTUARY SURVEY - DROUGHT ORDER WORK

FILE NAME: AXE_ADF_220291 DATE: 22.02.91 NEAP TIDE

SITE	GRID REFERENCE	TIME (LOCAL)	TIDE	DEPTH (m)	ON-SITE pH	LAB pH	TEMP oC	ON-SITE SALINITY	LAB SALINITY	DO2 %	COLIFORMS /100ml	E. COLI /100ml	FAECAL ST 100ml	BOD mg/l	PO4 ug/l	TON ug/l	NH4 ug/l	SS(105C) mg/l	SS(500C) mg/l	CHLORO'A ug/l	COMMENTS
4	SX 2540 9155	14.18	ME	1.00	7.90		5.1	0.1		93											
				0.50	7.90		5.1	0.1		92											
				0.00	7.90		5.1	0.1		93											
3	SX 2545 9105	14.24	ME	1.00	7.90		5.1	0.2		92											
				0.50	7.90		5.1	0.2		92											
				0.00	7.90		5.1	0.2		92											
2	SX 2540 9155	14.30	ME	1.00	8.10		5.4	0.4		93											
				0.50	8.10		5.4	0.4		93											
				0.00	8.10		5.4	0.4		93											
1	SX 2530 9000	14.36	ME	1.50	8.10		5.4	0.4		92											
				1.00	8.03		5.4	0.3		92											
				0.50	7.98		5.4	0.3		94											
				0.00	8.00		5.4	0.3		94											
4	SX 2540 9155	17.10	DW	0.00	7.93	7.6	5.8	0.3	0.32	95	2.7e+04	3.0e+03	1.5e+03	3.2	200	5100	350	82	70	13	LAB DO = 11.5 mg/l, 92%
3	SX 2545 9105	17.20	DW	0.00	7.94	7.6	5.8	0.3	0.43	92	2.8e+04	8.0e+03	1.2e+03	2.2	210	5010	370	135	116	21	LAB DO = 11.5 mg/l, 92%
2	SX 2540 9155	17.45	DW	0.00	7.90	7.7	5.9	0.3	<1	92	3.3e+04	1.0e+03	1.2e+03	3.6	230	5070	250	135	116	18	LAB DO = 11.6 mg/l, 93%
1	SX 2530 9000	17.55	DW	0.00	8.00	7.7	5.9	0.2	0.32	92	2.1e+05	4.6e+04	8.0e+03	3	250	3890	360	92	77	15	LAB DO = 11.8 mg/l, 95%
5	SX 2590 2265	18.10	DW	0.00	8.01	7.8	6.4	0.0		98	2.9e+04	1.1e+04	3.0e+03	4.2	240	7074	320	47	37	11	Conductivity at 20C = 393 uS/cm
											5.4e+04	1.1e+04	2.4e+03	3.38	213	5209	490	86.125	71.75	16.625	
											6.3e+04	1.4e+04	2.3e+03	0.56	19.8	768	177.5	32.384	29.495	2.3867	
											BLANKS: 1st ( )										
											2nd ( )										

APPENDIX C

DROUGHT MONITORING 1990: LOADINGS TO AXE ESTUARY FROM R.AXE & SEATON STW Data + flow.

R. AXE at AXE BRIDGE (SK 2590 9265)

DATE	TIME	JULIAN DATE	JULIAN TIME	pH (site)	pH (lab)	TEMP oC	DO %	COND µS/cm	FLOW (cumecs)	S.SOLIDS (105 oC) (mg/l)	S.SOLIDS (500 oC) (mg/l)	NH4 (mg/l)	FOx (mg/l)	NO3 (mg/l)	NO2 (mg/l)	TON (mg/l)	BOD (mg/l)	CHLORO A (mg/l)	TOT COLI (/100ml)	E COLI (/100ml)	F STREPS (/100ml)
03-JAN-1990	11.00	32510	0.458333	7.7		6.0	84	327	9.789	13	10	0.18	0.23	6.9	0.068	6.968	1.7				
29-JAN-1990	10.10	32536	0.423611	7.7				334	12.289	17	13	0.14		6.7	0.050	6.750	1.4				
21-FEB-1990	13.50	32559	0.576389	7.8		8.0	89	374	7.929	9	7	0.14	0.25	4.9	0.067	4.967	1.3				
26-FEB-1990	13.50	32564	0.576389	8.0		9.0	91	373	9.535	27	18	0.17	0.37	4.7	0.073	4.773	4.6				
08-MAR-1990	9.35	32574	0.399306	7.9				411	4.605	25	17	0.05		5.1	0.036	5.136	1.7				
22-MAR-1990	12.05	32588	0.503472	8.3		10.0	99	431	3.690	4	3	0.02	0.32	4.6	0.026	4.626	2.2				
14-MAY-1990	10.50	32641	0.451389	8.3		13.0	96	392	1.899	3	1	0.07	0.65	4.2	0.053	4.253	2.1				
31-MAY-1990	12.55	32658	0.538194	8.3		17.0	109	449	1.596	5	3	0.09		4.0	0.079	4.079	1.5				
13-JUN-1990	10.45	32671	0.447917	8.3		14.5	99	426	1.468	6	5	0.08		4.1	0.086	4.186	1.8				
14-JUN-1990	10.45	32672	0.447917	8.0		14.0	87	420	1.468	5	3	0.06	0.83	3.5	0.088	3.588	1.1				
15-JUN-1990	15.35	32673	0.649306	8.4		16.0	111	451	1.479	2	2	< 0.01		3.4	0.074	3.474	2.5				
21-JUN-1990	13.45	32679	0.572917	8.2		13.9	88	424	2.076	7	3	0.27		3.3	0.077	3.377	2.7				
26-JUN-1990	16.30	32684	0.687500	8.4		18.3	99	447	1.607	4	2	0.22		3.8	0.087	3.887	2.0				
28-JUN-1990	14.15	32686	0.593750	8.4		17.9	117	443	1.458	8	5	0.06		2.5	0.059	2.559	2.1				
24-JUL-1990	11.00	32712	0.458333	8.4		20.0	92	466	0.960	2	1	0.08					1.3	0.003			
24-JUL-1990	12.00	32712	0.500000	8.3				454	0.978			0.06					2.6				
24-JUL-1990	12.01	32712	0.500694	8.6				471	0.978			0.04					4.0				
24-JUL-1990	12.02	32712	0.501389	8.4				472	0.978			< 0.01					4.1				
24-JUL-1990	12.03	32712	0.502083	8.4				467	0.978			0.08					2.8				
24-JUL-1990	12.04	32712	0.502778	8.5				489	0.978			0.09					3.9				
24-JUL-1990	12.05	32712	0.503472	8.6		20.9	111	422	0.978	5	5	0.07					1.8	0.004			
24-JUL-1990	13.00	32712	0.541667						0.978	4	3										
24-JUL-1990	13.01	32712	0.542361	8.6		21.0	117	450	0.978	4	4	0.06					1.7	0.004			
24-JUL-1990	14.00	32712	0.583333	8.6				485	0.960			< 0.01					4.2				
24-JUL-1990	14.01	32712	0.584028	8.7		21.0	127	447	0.960	4	2	0.07					1.7	0.003			
24-JUL-1990	15.00	32712	0.625000						0.960	3	2										
24-JUL-1990	15.01	32712	0.625694	8.7		21.2	132	453	0.969	2	2	0.06					1.8	0.003			
24-JUL-1990	16.00	32712	0.666667	8.6				471	0.969			0.04					3.7				
24-JUL-1990	16.01	32712	0.667361	8.7		21.4		454	0.969	3	2	0.07					2.1	0.002			
24-JUL-1990	17.00	32712	0.708333						0.988	2	2										
24-JUL-1990	17.01	32712	0.709028	8.7				447	0.988	4	2	0.07					1.6	0.003			
24-JUL-1990	18.00	32712	0.750000	8.7				423	1.006	3	3	0.06					1.7	0.003			
24-JUL-1990	19.00	32712	0.791667						1.006	2	2										
24-JUL-1990	19.01	32712	0.792361	8.7				452	1.006	3	3	0.07					1.8	0.003			
24-JUL-1990	20.00	32712	0.833333	8.6		21.0	114	459	1.015	10	7	0.08					2.1	0.003			
24-JUL-1990	21.00	32712	0.875000						1.024	2	2										
24-JUL-1990	21.01	32712	0.875694	8.6		20.5	104	461	1.024	7	5	0.06					1.4	0.003			
24-JUL-1990	22.00	32712	0.916667	8.5		20.0	111	449	1.015	6	6	0.06					1.5	0.003			
24-JUL-1990	23.08	32712	0.958333						1.015	2	2										

DROUGHT MONITORING 1990: LOADINGS TO AXE ESTUARY FROM R.AXE & SEATON STW

R. AXE at AXE BRIDGE (SX 2590 9265)

DATE	TIME	JULIAN DATE	JULIAN TIME	pH (site)	pH (lab)	TEMP oC	DO %	COND mS/cm	FLOW (cumecs)	S.SOLIDS (105 oC) (mg/l)	S.SOLIDS (500 oC) (mg/l)	NH4 (mg/l)	PO4 (mg/l)	NO3 (mg/l)	NO2 (mg/l)	TON (mg/l)	BOD (mg/l)	CHLORO A (mg/l)	TOT COLI (/100ml)	E COLI (/100ml)	F STREPS (/100ml)
25-JUL-1990	1.00	32713	0.041667						1.006	4	2										
25-JUL-1990	1.01	32713	0.042361	8.3		20.0	75	462	1.006	2	1	0.09					1.4	0.003			
25-JUL-1990	2.00	32713	0.083333	8.4		19.5	73	468	0.997	5	1	0.05					1.2	0.002			
25-JUL-1990	3.00	32713	0.125000						0.997	2	2										
25-JUL-1990	3.01	32713	0.125694	8.4		19.3	73	458	0.997	4	1	0.06					1.2	0.004			
25-JUL-1990	4.00	32713	0.166667	8.3				494	0.978			0.05					2.5				
25-JUL-1990	4.01	32713	0.167361	8.3		18.0	69	466	0.978	3	1	0.06					1.1	0.003			
25-JUL-1990	5.00	32713	0.208333						0.960	1	1										
25-JUL-1990	5.01	32713	0.209028	8.3		18.5	65	470	0.960	1	< 1	0.06					1.3	0.004			
25-JUL-1990	6.00	32713	0.250000	8.3				493	0.960			0.04					2.7				
25-JUL-1990	6.01	32713	0.250694	8.3		18.8	61	463	0.960	1	< 1	0.06					1.4	0.002			
25-JUL-1990	7.00	32713	0.291667						0.951	2	1										
25-JUL-1990	7.01	32713	0.292361	8.3		19.0	62	448	0.951	3	2	0.06					1.1	0.004			
25-JUL-1990	8.00	32713	0.333333	8.3		19.0	70	451	0.960	2	1	0.06					1.0	0.003			
25-JUL-1990	8.01	32713	0.334028	8.3				465	0.960			0.05					2.7				
25-JUL-1990	9.00	32713	0.375000	8.3		19.0	76	479	0.951	< 1	< 1	0.08					1.5	0.003			
25-JUL-1990	9.01	32713	0.375694						0.951	< 1	< 1										
25-JUL-1990	10.00	32713	0.416667	8.4		19.5	82	483	0.951	4	3	0.13					1.4	0.003			
25-JUL-1990	10.01	32713	0.417361	8.4				507	0.951			0.13					3.1				
25-JUL-1990	11.00	32713	0.458333	8.4		20.0	86	494	0.960	3	2	0.11					2.9	0.003			
25-JUL-1990	11.01	32713	0.459028						0.960	2	1										
25-JUL-1990	11.15	32713	0.468750	8.5		18.1	93	450	0.969	4	3	0.11		3.1	0.043	3.143	1.8				
25-JUL-1990	12.00	32713	0.500000	8.6				481	0.969	2	2	0.12					2.3	0.003			
25-JUL-1990	12.01	32713	0.500694	8.4		19.5	82	455	0.969	2	< 1	0.07					1.3	0.002			
25-JUL-1990	22.00	32713	0.916667	8.5				488	1.006			0.05					3.9				
30-JUL-1989	10.00	32353	0.416667	8.1		18.5	68	460	1.607	3	1	0.09	0.92	3.1	0.039	3.139	1.8				
14-AUG-1990	12.20	32733	0.513889	8.2		18.7	89		1.033	1	< 1	0.15					1.4	0.002			
28-AUG-1990	9.50	32747	0.409722	8.1		17.0	73	443	1.108	2	< 1	0.06	0.79	3.1	0.009	3.109	1.1				
13-SEP-1990	12.40	32763	0.527778	8.5		15.0	94		0.997	1	< 1	0.05	0.55				2.3	0.002			
17-SEP-1990	10.20	32767	0.430556	8.2		16.5	87	491	0.960	4	2	0.05	0.75	3.3	0.025	3.325	1.7				
11-OCT-1990	11.15	32791	0.468750	8.0		12.0	88	480	1.314	5	3	0.02	0.61	3.8	0.026	3.826	2.1				
06-NOV-1990	8.45	32817	0.364583	8.0		5.0	83	466	1.416	2	1	0.04	0.60	4.3	0.027	4.327	1.6				
06-DEC-1990	10.10	32847	0.423611	7.9		5.5	100	474	1.718	9	7	0.07	0.44	9.7	0.036	9.736	2.2				
03-JAN-1991	9.55	32875	0.413194		7.0	6.5	86	335	14.214	26	20	0.17		10.0	0.068	10.068	2.2				
15-FEB-1991	9.20	32918	0.388889	8.0	7.8	2.9	97	430	2.800	4	1	0.38	0.29	5.5	0.034	5.534	2.6	0.001	> 3.0e+04	4.2e+03	2.0e+02
15-FEB-1991	12.19	32918	0.513194	8.1	7.8	3.7	95	478	3.427	38	31	0.30	0.23	5.5	0.042	5.542	1.4	0.002	5.5e+03	3.1e+03	3.1e+02
20-FEB-1991	10.40	32923	0.444444		7.9	4.5	96	451	2.333	5	2	0.08		5.4	0.026	5.424	2.3				
22-FEB-1991	12.23	32925	0.515972	7.80	7.5	5.6	91	386	9.109	77	60	0.48	0.24	6.9	0.086	6.986	7.5	0.018	3.8e+04	7.0e+03	1.6e+03
22-FEB-1991	18.10	32925	0.756944	8.01	7.8	6.4	98	393	9.935	47	37	0.32	0.24	7.0	0.074	7.074	4.2	0.018	2.8e+04	1.1e+04	3.0e+03

DROUGHT MONITORING 1990: LOADINGS TO AXE ESTUARY FROM R.AXE —calculated loadings.

R. AXE at AXE BRIDGE (SX 2590 9265)

DATE	TIME	JULIAN DATE	JULIAN TIME	FLOW (m3) (day)	FLOW (m3) (12.5hr)	S.SOLIDS (105 oC) kg/day	S.SOLIDS (105 oC) kg/12.5hr	S.SOLIDS (500 oC) kg/day	S.SOLIDS (500 oC) kg/12.5hr	NH4 kg/day	NH4 kg/12.5hr	POx kg/day	POx kg/12.5hr	TON kg/day	TON kg/12.5hr	BOD kg/day	BOD kg/12.5hr	TOT COLI No./day	E COLI No./day	E COLI No./12.5hr	F STREPS No./day
03-JAN-1990	11.00	32510	0.458333	845770	440505	10995.0	5726.6	8457.7	4405.1	152.2	79.3	194.5	101.3	5893.3	3069.4	1437.8	748.9				
29-JAN-1990	10.10	32536	0.423611	1061770	553005	18050.1	9401.1	13803.0	7189.1	148.6	77.4			7166.9	3732.8	1486.5	774.2				
21-FEB-1990	13.50	32559	0.576389	685066	356805	6165.6	3211.2	4795.5	2497.6	95.9	50.0	171.3	89.2	3402.7	1772.3	890.6	463.8				
26-FEB-1990	13.50	32564	0.576389	823824	429075	22243.2	11585.0	14828.8	7723.4	140.1	72.9	304.8	158.8	3932.1	2048.0	3789.6	1973.7				
08-MAR-1990	9.35	32574	0.399306	397872	207225	9946.8	5180.6	6763.8	3522.8	19.9	10.4			2043.5	1064.3	676.4	352.3				
22-MAR-1990	12.05	32588	0.503472	318816	166050	1275.3	664.2	956.4	498.2	6.4	3.3	102.0	53.1	1474.8	768.1	701.4	365.3				
14-MAY-1990	10.50	32641	0.451389	164074	85455	492.2	256.4	164.1	85.5	11.5	6.0	106.6	55.5	697.8	363.4	344.6	179.5				
31-MAY-1990	12.55	32658	0.530194	137894	71820	689.5	359.1	413.7	215.5	12.4	6.5			552.5	293.0	206.8	107.7				
13-JUN-1990	10.45	32671	0.447917	126835	66060	761.0	396.4	634.2	330.3	10.1	5.3			530.9	276.5	228.3	118.9				
14-JUN-1990	10.45	32672	0.447917	126835	66060	634.2	330.3	380.5	198.2	10.1	5.3	105.3	54.8	455.1	237.0	139.5	72.7				
15-JUN-1990	15.35	32673	0.649306	127786	66555	255.6	133.1	255.6	133.1	< 1.3	< 0.7			443.9	231.2	319.5	166.4				
21-JUN-1990	13.45	32679	0.572917	179366	93420	1255.6	653.9	538.1	280.3	48.4	25.2			605.7	315.5	484.3	252.2				
26-JUN-1990	16.30	32684	0.687500	138845	72315	555.4	289.3	277.7	144.6	30.5	15.9			539.7	281.1	277.7	144.6				
28-JUN-1990	14.15	32686	0.593750	125971	65610	1007.8	524.9	629.9	328.1	7.6	3.9			322.4	167.9	264.5	137.8				
24-JUL-1990	11.00	32712	0.458333	82944	43200	165.9	86.4	82.9	43.2	6.6	3.5					107.8	56.2				
24-JUL-1990	12.00	32712	0.500000	84499	44010					5.1	2.6					219.7	114.4				
24-JUL-1990	12.01	32712	0.500694	84499	44010					3.4	1.8					338.0	176.0				
24-JUL-1990	12.02	32712	0.501389	84499	44010				<	0.8	< 0.4					346.4	180.4				
24-JUL-1990	12.03	32712	0.502083	84499	44010					6.8	3.5					236.6	123.2				
24-JUL-1990	12.04	32712	0.502778	84499	44010					7.6	4.0					329.5	171.6				
24-JUL-1990	12.05	32712	0.503472	84499	44010	422.5	220.1	422.5	220.1	5.9	3.1					152.1	79.2				
24-JUL-1990	13.00	32712	0.541667	84499	44010	338.0	176.0	253.5	132.0												
24-JUL-1990	13.01	32712	0.542361	84499	44010	338.0	176.0	338.0	176.0	5.1	2.6					143.6	74.8				
24-JUL-1990	14.00	32712	0.583333	82944	43200				<	0.8	< 0.4					348.4	181.4				
24-JUL-1990	14.01	32712	0.584028	82944	43200	331.8	172.8	165.9	86.4	5.8	3.0					141.0	73.4				
24-JUL-1990	15.00	32712	0.625000	82944	43200	248.8	129.6	165.9	86.4												
24-JUL-1990	15.01	32712	0.625694	82944	43200	165.9	86.4	165.9	86.4	6.6	3.5					149.3	77.8				
24-JUL-1990	16.00	32712	0.666667	83722	43605					3.3	1.7					309.8	161.3				
24-JUL-1990	16.01	32712	0.667361	83722	43605	251.2	130.8	167.4	87.2	5.9	3.1					175.8	91.6				
24-JUL-1990	17.00	32712	0.708333	85363	44460	170.7	88.9	170.7	88.9												
24-JUL-1990	17.01	32712	0.709028	85363	44460	341.5	177.8	170.7	88.9	6.0	3.1					136.6	71.1				
24-JUL-1990	18.00	32712	0.750000	86918	45270	260.8	135.8	260.8	135.8	5.2	2.7					147.8	77.0				
24-JUL-1990	19.00	32712	0.791667	86918	45270	173.8	90.5	173.8	90.5												
24-JUL-1990	19.01	32712	0.792361	86918	45270	260.8	135.8	260.8	135.8	6.1	3.2					156.5	81.5				
24-JUL-1990	20.00	32712	0.833333	87696	45675	877.0	456.8	613.9	319.7	7.0	3.7					184.2	95.9				
24-JUL-1990	21.00	32712	0.875000	88474	46080	176.9	92.2	176.9	92.2												
24-JUL-1990	21.01	32712	0.875694	88474	46080	619.3	322.6	442.4	230.4	5.3	2.8					123.9	64.5				
24-JUL-1990	22.00	32712	0.916667	87696	45675	526.2	274.1	526.2	274.1	5.3	2.7					131.5	68.5				
24-JUL-1990	23.00	32712	0.958333	87696	45675	175.4	91.4	175.4	91.4												

DROUGHT MONITORING 1990: LOADINGS TO AXE ESTUARY FROM R.AXE

R. AXE at AXE BRIDGE (SX 2590 9265)

DATE	TIME	JULIAN DATE	JULIAN TIME	FLOW (m3) (day)	FLOW (m3) (12.5hr)	S.SOLIDS (105 oC) kg/day	S.SOLIDS (105 oC) kg/12.5hr	S.SOLIDS (500 oC) kg/day	S.SOLIDS (500 oC) kg/12.5hr	NH4 kg/day	NH4 kg/12.5hr	POx kg/day	POx kg/12.5hr	TON kg/day	TON kg/12.5hr	BOD kg/day	BOD kg/12.5hr	TOT COLI No./day	E COLI No./day	E COLI No./12.5hr	F STREPS No./day
25-JUL-1990	1.00	32713	0.041667	86918	45270	347.7	181.1	173.8	90.5												
25-JUL-1990	1.01	32713	0.042361	86918	45270	173.8	90.5	86.9	45.3	7.8	4.1					121.7	63.4				
25-JUL-1990	2.00	32713	0.083333	86141	44865	430.7	224.3	86.1	44.9	4.3	2.2					103.4	53.8				
25-JUL-1990	3.00	32713	0.125000	86141	44865	172.3	89.7	172.3	89.7												
25-JUL-1990	3.01	32713	0.125694	86141	44865	344.6	179.5	86.1	44.9	5.2	2.7					103.4	53.8				
25-JUL-1990	4.00	32713	0.166667	84499	44010					4.2	2.2					211.2	110.0				
25-JUL-1990	4.01	32713	0.167361	84499	44010	253.5	132.0	84.5	44.0	5.1	2.6					92.9	48.4				
25-JUL-1990	5.00	32713	0.208333	82944	43200	82.9	43.2	82.9	43.2												
25-JUL-1990	5.01	32713	0.209028	82944	43200	82.9	< 43.2	< 82.9	< 43.2	5.0	2.6					107.8	56.2				
25-JUL-1990	6.00	32713	0.250000	82944	43200					3.3	1.7					223.9	116.6				
25-JUL-1990	6.01	32713	0.250694	82944	43200	82.9	< 43.2	< 82.9	< 43.2	5.0	2.6					116.1	60.5				
25-JUL-1990	7.00	32713	0.291667	82166	42795	164.3	85.6	82.2	42.8												
25-JUL-1990	7.01	32713	0.292361	82166	42795	246.5	128.4	164.3	85.6	4.9	2.6					90.4	47.1				
25-JUL-1990	8.00	32713	0.333333	82944	43200	165.9	86.4	82.9	43.2	5.0	2.6					82.9	43.2				
25-JUL-1990	8.01	32713	0.334028	82944	43200					4.1	2.2					223.9	116.6				
25-JUL-1990	9.00	32713	0.375000	82166	42795	< 82.2	< 42.8	< 82.2	< 42.8	6.6	3.4					123.2	64.2				
25-JUL-1990	9.01	32713	0.375694	82166	42795	< 82.2	< 42.8	< 82.2	< 42.8												
25-JUL-1990	10.00	32713	0.416667	82166	42795	328.7	171.2	246.5	128.4	10.7	5.6					115.0	59.9				
25-JUL-1990	10.01	32713	0.417361	82166	42795					10.7	5.6					254.7	132.7				
25-JUL-1990	11.00	32713	0.458333	82944	43200	248.8	129.6	165.9	86.4	9.1	4.8					240.5	125.3				
25-JUL-1990	11.01	32713	0.459028	82944	43200	165.9	86.4	82.9	43.2												
25-JUL-1990	11.15	32713	0.468750	83722	43605	334.9	174.4	251.2	130.8	9.2	4.8			263.1	137.1	150.7	78.5				
25-JUL-1990	12.00	32713	0.500000	83722	43605	167.4	87.2	167.4	87.2	10.0	5.2					192.6	100.3				
25-JUL-1990	12.01	32713	0.500694	83722	43605	167.4	87.2	< 82.7	< 43.6	5.9	3.1					108.8	56.7				
25-JUL-1990	22.00	32713	0.916667	86918	45270					4.3	2.3					339.0	176.6				
30-JUL-1989	10.00	32353	0.416667	138845	72315	416.5	216.9	138.8	72.3	12.5	6.5	127.7	66.5	435.8	227.0	249.9	130.2				
14-AUG-1990	12.20	32733	0.513889	89251	46485	89.3	46.5	89.3	46.5	13.4	7.0					125.0	65.1				
28-AUG-1990	9.50	32747	0.409722	95731	49860	191.5	99.7	95.7	49.9	5.7	3.0	75.6	39.4	297.6	155.0	105.3	54.8				
13-SEP-1990	12.40	32763	0.527778	86141	44865	86.1	44.9	86.1	44.9	4.3	2.2	47.4	24.7			198.1	103.2				
17-SEP-1990	10.20	32767	0.430556	82944	43200	331.8	172.8	165.9	86.4	4.1	2.2	62.2	32.4	275.8	143.6	141.0	73.4				
11-OCT-1990	11.15	32791	0.468750	113530	59130	567.6	295.7	340.6	177.4	2.3	1.2	69.3	36.1	434.4	226.2	238.4	124.2				
06-NOV-1990	8.45	32817	0.364583	122342	63720	244.7	127.4	122.3	63.7	4.9	2.5	73.4	38.2	529.4	275.7	195.7	102.0				
06-DEC-1990	10.10	32847	0.423611	148435	77310	1335.9	695.8	1039.0	541.2	10.4	5.4	65.3	34.0	1445.2	752.7	326.6	170.1				
03-JAN-1991	9.55	32875	0.413194	1228090	639630	31930.3	16630.4	24561.8	12792.6	208.8	108.7	0.0	0.0	12364.4	6439.8	2701.8	1407.2				
15-FEB-1991	9.20	32918	0.388889	241920	126000	967.7	504.0	241.9	126.0	91.9	47.9	70.2	36.5	1328.8	697.3	629.0	327.6	7.3e+13	1.0e+13	5.3e+12	4.8e+11
15-FEB-1991	12.19	32918	0.513194	296093	154215	11251.5	5860.2	9178.9	4780.7	88.8	46.3	68.1	35.5	1640.9	854.7	414.5	215.9	1.6e+13	9.2e+12	4.8e+12	9.2e+11
20-FEB-1991	10.40	32923	0.444444	201571	104985	1007.9	524.9	403.1	210.0	16.1	8.4	0.0	0.0	1093.3	569.4	463.6	241.5				
22-FEB-1991	12.23	32925	0.515972	787018	409905	60600.4	31562.7	47221.1	24594.3	377.8	196.8	188.9	98.4	5498.1	2863.6	5902.6	3074.3	3.0e+14	9.5e+13	2.9e+13	1.3e+13
22-FEB-1991	18.10	32925	0.756944	858384	447075	40044.0	21012.5	31760.2	16541.8	274.7	143.1	206.0	107.3	6072.2	3162.6	3605.2	1877.7	2.5e+14	9.4e+13	4.9e+13	2.6e+13

APPENDIX D

DROUGHT MONITORING 1990: LOADINGS TO AXE ESTUARY FROM R.AXE & SEATON STW

WHITFORD BRIDGE

DATE	TIME	JULIAN DATE	JULIAN TIME	pH (site)	pH (lab)	TEMP oC	DO %	COND mS/cm	FLOW (cumecs)	S.SOLIDS (105 oC) (mg/l)	S.SOLIDS (500 oC) (mg/l)	NH4 (mg/l)	POx (mg/l)	NO3 (mg/l)	NO2 (mg/l)	TON (mg/l)	BOD (mg/l)	CHLORO A (mg/l)	TOT COLI (/100ml)	E COLI (/100ml)	F STREPS (/100ml)
03-JAN-1990	10.30	32510	0.437500	7.80		6.0	85	328	9.607	15	10	0.2		6.9	0.066	6.966	1.6				
03-JAN-1990	10.31	32510	0.438194						9.607										6.8e+03	4.9e+03	1.2e+03
11-JAN-1990	10.55*	32518							5.929										2.4e+03	8.0e+02	1.0e+02
11-JAN-1990	11.00	32518	0.458333	7.90		9.0	93	364	5.929	9	7	0.09		6.6	0.065	6.665	1.3				
23-JAN-1990	10.20	32530	0.430556						11.999										8.3e+04	3.5e+04	4.7e+03
23-JAN-1990	10.21	32530	0.431250	7.70		10.0	90	349	11.999	61	48	0.11		7.2	0.067	7.267	4.2				
21-FEB-1990	9.30	32559	0.395833	7.90		9.0	93	366	8.158	20	15	0.17		5.1	0.074	5.174	1.9				
26-FEB-1990	12.35	32564	0.524306	8.00		8.5	90	363	8.796	30	22	0.15		4.7	0.069	4.769	3.2				
26-FEB-1990	12.40	32564	0.527778						8.900										3.5e+04	1.2e+04	5.5e+02
16-MAR-1990	12.40	32582	0.527778	8.40		9.0	119	402	3.616	3	2	0.01		4.7	0.016	4.716	1.6				
16-MAR-1990	12.41	32582	0.528472						3.616										1.2e+04	9.7e+03	1.9e+02
22-MAR-1990	11.45*	32588							3.705										9.0e+03	1.1e+03	4.0e+01
22-MAR-1990	11.50	32588	0.493056	8.30		10.0	113	403	3.705	4	2	0.01		4.6	0.023	4.623	1.7				
28-MAR-1990	12.20	32594	0.513889						3.073										7.1e+03	2.1e+03	1.2e+02
28-MAR-1990	12.30	32594	0.520833	8.30		8.0	112	628	3.073	4	3	< 0.01		4.7	0.017	4.717	2.4				
19-APR-1990	12.25	32616	0.517361	8.70		9.0	126	390	2.641	6	4	0.01		3.7	0.030	3.730	3.1				
19-APR-1990	12.27	32616	0.518750						2.641										2.1e+03	3.0e+02	4.0e+01
14-MAY-1990	9.35	32641	0.399306	8.20		13.0	89	415	1.876	3	2	0.02		4.1	0.043	4.143	1.8				
14-MAY-1990	9.36	32641	0.400000						1.876										1.3e+03	4.0e+02	1.0e+01
31-MAY-1990	11.30	32658	0.479167	8.10		17.0	102	425	1.607	4	3	0.07		4.0	0.071	4.071	1.3				
08-JUN-1990	12.35	32666	0.524306	8.10		12.0	98	381	1.629	7	5	0.06		3.7	0.072	3.772	1.4				
08-JUN-1990	12.40	32666	0.527778						1.629										1.4e+03	5.0e+02	4.0e+01
13-JUN-1990	10.15	32671	0.427083	8.20		14.6	99	392	1.458	8	6	0.06		4.1	0.065	4.165	1.8				
14-JUN-1990	10.15	32672	0.427083						1.468										2.3e+03	9.0e+02	4.0e+01
14-JUN-1990	10.16	32672	0.427778	8.10		14.0	92	413	1.468	6	4	0.06		3.7	0.067	3.767	1.2				
15-JUN-1990	15.50	32673	0.659722	8.30		16.0	131	425	1.468	4	3	0.02		3.6	0.059	3.659	2.2				
21-JUN-1990	14.15	32679	0.593750	8.10		14.0	90	396	2.136	15	10	0.05		3.4	0.058	3.458	2.4				
26-JUN-1990	16.00	32684	0.666667	7.40		18.1	104	228	1.596	14	13	0.05		1.1	0.014	1.114	1.5				
27-JUN-1990	12.40	32685	0.527778						1.553										1.5e+03	1.2e+03	4.0e+01
27-JUN-1990	12.45	32685	0.531250	8.30		15.0	101	423	1.553	7	4	0.05		4.4	0.049	4.449	1.5				
28-JUN-1990	14.40	32686	0.611111	8.30		17.9	103	437	1.458	11	8	0.05		2.2	0.046	2.246	1.5				
06-JUL-1990	12.20	32694	0.513889						1.706										1.1e+04	1.6e+03	1.3e+02
06-JUL-1990	12.25	32694	0.517361	8.10		15.0	105	383	1.706	8	5	0.08		3.4	0.069	3.469	2.3				
20-JUL-1990	10.25	32708	0.434028	8.20		18.3	122	440	1.033	4	3	0.05		2.8	0.025	2.825	1.7				
20-JUL-1990	11.15	32708	0.466750	8.80		19.6	108	473	1.042	2	2	0.10		2.8	0.038	2.838	1.8				
24-JUL-1990	12.30	32712	0.520833	8.60		20.0	130	436	0.988	6	4	0.02					1.5	0.006			
24-JUL-1990	12.31	32712	0.521528	8.60		20.0	131	443	0.988	6	5	0.02					0.7	0.006			
24-JUL-1990	14.30	32712	0.604167	8.70		20.0	139	441	0.978	5	3	0.02					1.7	0.004			
24-JUL-1990	15.30	32712	0.645833	8.70		21.2	144	898	0.969	5	4	0.02					1.9	0.006			
24-JUL-1990	16.50	32712	0.701389	8.80		21.4	160	436	0.978	5	2	0.01					1.9	0.005			
24-JUL-1990	17.30	32712	0.729167	8.80				431	0.997	4	2	0.02					1.8	0.004			
24-JUL-1990	18.30	32712	0.770833	8.80				435	0.997	5	3	0.04					1.6	0.004			
24-JUL-1990	19.50	32712	0.826389	8.90		21.1	139	436	1.015	7	6	0.08					2.5	0.004			
24-JUL-1990	20.30	32712	0.854167	8.90		21.5	122	437	1.024	8	8	0.03					1.9	0.005			
24-JUL-1990	21.30	32712	0.895833	8.80		20.0	109	430	1.024	9	7	0.03					1.7	0.004			
24-JUL-1990	22.30	32712	0.937500	8.70		20.0	101	389	1.015	20	16	0.03					2.8	0.006			
24-JUL-1990	23.30	32712	0.979167	8.70		20.0	96	425	1.006	2	< 1	0.04					1.6	0.006			

DROUGHT MONITORING 1990: LOADINGS TO AXE ESTUARY FROM R.AXE & SEATON STW

WHITFORD BRIDGE

DATE	TIME	JULIAN DATE	JULIAN TIME	pH (site)	pH (lab)	TEMP oC	DO %	COND mS/cm	FLOW (cumecs)	S.SOLIDS (105 oC) (mg/l)	S.SOLIDS (500 oC) (mg/l)	NH4 (mg/l)
25-JUL-1990	0.30	32713	0.020833	8.60		20.0	88	410	1.006	3	1	0.03
25-JUL-1990	1.30	32713	0.062500	8.50		19.5	84	413	0.997	4	2	0.03
25-JUL-1990	2.30	32713	0.104167	8.50		19.3	72	442	0.997	5	5	0.03
25-JUL-1990	3.30	32713	0.145833	8.40		18.7	70	422	0.988	5	1	0.03
25-JUL-1990	4.30	32713	0.187500	8.30		19.0	71	443	0.969	6	2	0.04
25-JUL-1990	5.30	32713	0.229167	8.30		18.0	67	443	0.960	4	2	0.03
25-JUL-1990	6.30	32713	0.270833	8.20		18.0	68	443	0.960	9	3	0.05
25-JUL-1990	7.30	32713	0.312500	8.20		18.0	72	432	0.988	7	5	0.03
25-JUL-1990	8.30	32713	0.354167	8.10		19.0	82	426	0.960	3	2	0.03
25-JUL-1990	9.30	32713	0.395833	8.20		19.0	92	464	0.951	4	4	0.03
25-JUL-1990	10.30	32713	0.437500	8.30				480	0.951	3	3	0.03
25-JUL-1990	10.40	32713	0.444444	8.20		18.3	99	423	0.960	4	3	0.02
25-JUL-1990	11.30	32713	0.479167	8.40		19.5	111	469	0.978	3	1	0.02
25-JUL-1990	12.30	32713	0.520833	8.50				468	0.988	3	3	0.02
30-JUL-1990	12.15	32718	0.510417	8.10		19.0	87	471	2.800	6	6	0.09
14-AUG-1990	11.30	32733	0.479167	8.10		17.8	90		1.033	2	< 1	0.02
17-AUG-1990	12.10	32736	0.506944						1.080			
17-AUG-1990	12.11	32736	0.507639	8.11		15.0	103		1.080	2	1	0.02
22-AUG-1990	10.07	32741	0.421528						1.137			
22-AUG-1990	10.25	32741	0.434028	8.10		17.5	84		1.137	2	1	0.03
28-AUG-1990	10.05	32747	0.420139						1.108			
28-AUG-1990	10.10	32747	0.423611	8.10		17.0	87		1.108	4	< 1	0.02
31-AUG-1990	10.00	32750	0.416667						1.185			
31-AUG-1990	10.05	32750	0.420139	8.00		16.0	98		1.185	4	< 1	0.01
13-SEP-1990	11.25	32763	0.475694	8.30		14.3	112		0.988	2	1	0.02
17-SEP-1990	10.00	32767	0.416667						0.960			
17-SEP-1990	10.01	32767	0.417361	8.10		16.0	88		0.960	3	1	0.01
03-OCT-1990	11.30	32783	0.479167						1.510			
03-OCT-1990	11.40	32783	0.486111	8.00		14.5	77	441	1.521	3	2	0.05
11-OCT-1990	11.45	32791	0.489583						1.324			
11-OCT-1990	11.46	32791	0.490278	8.00		12.5	93	448	1.324	3	2	0.03
26-OCT-1990	9.40	32806	0.402778						7.359			
26-OCT-1990	9.41	32806	0.403472	7.80		11.5	74	428	7.359	86	66	0.09
06-NOV-1990	9.15	32817	0.385417						1.416			
06-NOV-1990	9.20	32817	0.388889	8.00		5.0	89	452	1.416	9	7	0.02
13-NOV-1990	10.30	32824	0.437500	7.80		12.0	84	435	3.156	11	7	0.07
13-NOV-1990	10.32	32824	0.438889						3.156			
06-DEC-1990	9.35	32847	0.399306						1.718			
06-DEC-1990	9.36	32847	0.400000	7.90		5.5	99	432	1.718	3	2	0.07
03-JAN-1991	9.15	32875	0.385417		7.10	6.5	95	336	14.703	28	21	0.17
18-JAN-1991	10.25	32890	0.434028		7.70	6.0	91	348	5.606	8	5	0.22
04-FEB-1991	11.45	32907	0.489583		7.90	2.5	99	404	2.498	3	2	0.07
12-FEB-1991	14.05	32915	0.586806		7.90	1.0	99	455	2.112	5	3	0.19
20-FEB-1991	12.30	32923	0.520833		8.00	5.0	99	430	2.371	5	2	0.05

POx (mg/l)	NO3 (mg/l)	NO2 (mg/l)	TON (mg/l)	BOD (mg/l)	CHLORO A (mg/l)	TOT COLI (/100ml)	E COLI (/100ml)	F STREPS (/100ml)
				1.7	0.006			
				1.5	0.006			
				1.4	0.006			
				0.8	0.005			
				1.7	0.008			
				1.5	0.006			
				2.3	0.006			
				1.4	0.007			
				1.8	0.006			
				0.8	0.005			
				1.9	0.005			
	3.0	0.028	3.028	1.9				
				1.9	0.005			
				1.7	0.006			
	3.8	0.040	3.840	2.1				
				1.3	0.003			
						5.0e+02	< 1.0e+02	4.0e+01
	3.3	0.015	3.315	1.1				
						1.1e+03	6.0e+02	4.0e+01
	3.2	0.022	3.222	0.8				
						6.0e+02	5.0e+02	1.1e+02
	3.1	< 0.005	< 3.105	1.1				
						2.4e+03	1.2e+03	1.0e+02
	3.3	0.020	3.320	1.2				
0.6				2.3	0.003			
						8.0e+02	2.0e+02	6.0e+01
	3.4	0.019	3.419	1.3				
						5.5e+03	9.0e+02	2.4e+02
	4.3	0.056	4.356	2.1				
						1.7e+03	7.0e+02	7.0e+01
	3.7	0.026	3.726	1.5				
						4.6e+04	3.3e+04	1.6e+03
	3.9	0.053	3.953	5.8				
						3.5e+03	1.3e+03	9.0e+01
	4.0	0.023	4.023	1.6				
	4.8	0.080	4.880	1.7				
						1.1e+04	5.8e+03	7.4e+02
						3.1e+03	1.2e+03	1.8e+02
	5.3	0.030	5.330	1.9				
	10.0	0.064	10.064	1.7		1.8e+04	6.6e+03	1.1e+03
	6.8	0.080	6.880	0.8		4.2e+03	1.4e+03	4.0e+02
	5.4	0.036	5.436	2.1		6.9e+03	1.9e+03	4.4e+02
	6.5	0.020	6.520	1.9		1.3e+04	3.8e+03	5.6e+02
	5.2	0.022	5.222	2.1		3.4e+03	2.0e+03	4.0e+01

DROUGHT MONITORING 1990: LOADINGS TO AXE ESTUARY FROM R.AXE

WHITFORD BRIDGE

DATE	TIME	JULIAN DATE	JULIAN TIME	FLOW (m3) (day)	FLOW (m3) (12.5hr)	S.SOLIDS (105 oC) kg/day	S.SOLIDS (105 oC) kg/12.5hr	S.SOLIDS (500 oC) kg/day	S.SOLIDS (500 oC) kg/12.5hr	NH4 kg/day	NH4 kg/12.5hr	POx kg/day	POx kg/12.5hr	TON kg/day	TON kg/12.5hr	BOD kg/day	BOD kg/12.5hr	TOT COLI No./day	E COLI No./day	E COLI No./12.5hr	F STREPS No./day
03-JAN-1990	10.30	32510	0.437500	830045	432315	12450.7	6484.7	8300.4	4323.2	166.0	86.5			5782.1	3011.5	1328.1	691.7				
03-JAN-1990	10.31	32510	0.438194	830045	432315													5.6e+13	4.1e+13	2.1e+13	9.9e+12
11-JAN-1990	10.55*	32518		512266	266805													1.2e+13	4.1e+12	2.1e+12	5.1e+11
11-JAN-1990	11.00	32518	0.458333	512266	266805	4610.4	2401.2	3585.9	1867.6	46.1	24.0			3414.3	1778.3	665.9	346.8				
23-JAN-1990	10.20	32530	0.430556	1036714	539955													8.6e+14	3.6e+14	1.9e+14	4.9e+13
23-JAN-1990	10.21	32530	0.431250	1036714	539955	63239.5	32937.3	49762.3	25917.8	114.0	59.4			7533.8	3923.9	4354.2	2267.8				
21-FEB-1990	9.30	32559	0.395833	704851	367110	14097.0	7342.2	10572.8	5506.7	119.8	62.4			3646.9	1899.4	1339.2	697.5				
26-FEB-1990	12.35	32564	0.524306	759974	395820	22799.2	11874.6	16719.4	8708.0	114.0	59.4			3624.3	1887.7	2431.9	1266.6				
26-FEB-1990	12.40	32564	0.527778	768960	400500													2.7e+14	9.5e+13	4.9e+13	4.2e+12
16-MAR-1990	12.40	32582	0.527778	312422	162720	937.3	488.2	624.8	325.4	3.1	1.6			1473.4	767.4	499.9	260.4				
16-MAR-1990	12.41	32582	0.528472	312422	162720													3.0e+13	3.0e+13	1.6e+13	5.9e+11
22-MAR-1990	11.45*	32588		320112	166725													2.9e+13	3.5e+12	1.8e+12	1.3e+11
22-MAR-1990	11.50	32588	0.493056	320112	166725	1280.4	666.9	640.2	333.5	3.2	1.7			1479.9	770.8	544.2	283.4				
28-MAR-1990	12.20	32594	0.513889	265507	138285													1.9e+13	5.6e+12	2.9e+12	3.2e+11
28-MAR-1990	12.30	32594	0.520833	265507	138285	1062.0	553.1	796.5	414.9	< 2.7	< 1.4			1252.4	652.3	637.2	331.9				
19-APR-1990	12.25	32616	0.517361	228182	118845	1369.1	713.1	912.7	475.4	2.3	1.2			851.1	443.3	707.4	368.4				
19-APR-1990	12.27	32616	0.518750	228182	118845													4.8e+12	6.8e+11	3.6e+11	9.1e+10
14-MAY-1990	9.35	32641	0.399306	162086	84420	486.3	253.3	324.2	168.8	3.2	1.7			671.5	349.8	291.8	152.0				
14-MAY-1990	9.36	32641	0.400000	162086	84420													2.1e+12	6.5e+11	3.4e+11	1.6e+10
31-MAY-1990	11.30	32658	0.479167	138845	72315	555.4	289.3	416.5	216.9	9.7	5.1			565.2	294.4	180.5	94.0				
08-JUN-1990	12.35	32666	0.524306	140746	73305	985.2	513.1	703.7	366.5	8.4	4.4			530.9	276.5	197.0	102.6				
08-JUN-1990	12.40	32666	0.527778	140746	73305													2.0e+12	7.0e+11	3.7e+11	5.6e+10
13-JUN-1990	10.15	32671	0.427083	125971	65610	1007.8	524.9	755.8	393.7	7.6	3.9			524.7	273.3	226.7	118.1				
14-JUN-1990	10.15	32672	0.427083	126835	66060													2.9e+12	1.1e+12	5.9e+11	5.1e+10
14-JUN-1990	10.16	32672	0.427778	126835	66060	761.0	396.4	507.3	264.2	7.6	4.0			477.8	248.8	152.2	79.3				
15-JUN-1990	15.50	32673	0.659722	126835	66060	507.3	264.2	380.5	198.2	2.5	1.3			464.1	241.7	279.0	145.3				
21-JUN-1990	14.15	32679	0.593750	184550	96120	2768.3	1441.8	1845.5	961.2	9.2	4.8			638.2	332.4	442.9	230.7				
26-JUN-1990	16.00	32684	0.666667	137894	71820	1930.5	1005.5	1792.6	933.7	6.9	3.6			153.6	80.0	206.8	107.7				
27-JUN-1990	12.40	32685	0.527778	134179	69885													2.0e+12	1.6e+12	8.4e+11	5.4e+10
27-JUN-1990	12.45	32685	0.531250	134179	69885	939.3	489.2	536.7	279.5	6.7	3.5			597.0	310.9	201.3	104.8				
28-JUN-1990	14.40	32686	0.611111	125971	65610	1385.7	721.7	1007.8	524.9	6.3	3.3			282.9	147.4	189.0	98.4				
06-JUL-1990	12.20	32694	0.513889	147398	76770													1.6e+13	2.4e+12	1.2e+12	1.9e+11
06-JUL-1990	12.25	32694	0.517361	147398	76770	1179.2	614.2	737.0	383.9	11.8	6.1			511.3	266.3	339.0	176.6				
20-JUL-1990	10.25	32708	0.434028	89251	46485	357.0	185.9	267.8	139.5	4.5	2.3			252.1	131.3	151.7	79.0				
20-JUL-1990	12.15	32708	0.468750	90029	46890	180.1	93.8	180.1	93.8	9.0	4.7			255.5	133.1	162.1	84.4				
24-JUL-1990	12.30	32712	0.520833	85363	44460	512.2	266.8	341.5	177.8	1.7	0.9					128.0	66.7				
24-JUL-1990	12.31	32712	0.521528	85363	44460	512.2	266.8	426.8	222.3	1.7	0.9					59.8	31.1				
24-JUL-1990	14.30	32712	0.604167	84499	44010	422.5	220.1	253.5	132.0	1.7	0.9					143.6	74.8				
24-JUL-1990	15.30	32712	0.645833	83722	43605	418.6	218.0	334.9	174.4	1.7	0.9					159.1	82.8				
24-JUL-1990	16.50	32712	0.701389	84499	44010	422.5	220.1	169.0	88.0	0.8	0.4					160.5	83.6				
24-JUL-1990	17.30	32712	0.729167	86141	44865	344.6	179.5	172.3	89.7	1.7	0.9					155.1	80.8				
24-JUL-1990	18.30	32712	0.770833	86141	44865	430.7	224.3	258.4	134.6	3.4	1.8					137.8	71.8				
24-JUL-1990	19.50	32712	0.826389	87696	45675	613.9	319.7	526.2	274.1	2.6	1.4					219.2	114.2				
24-JUL-1990	20.30	32712	0.854167	88474	46080	707.8	368.6	707.8	368.6	2.7	1.4					168.1	87.6				
24-JUL-1990	21.30	32712	0.895833	88474	46080	796.3	414.7	619.3	322.6	2.7	1.4					150.4	78.3				
24-JUL-1990	22.30	32712	0.937500	87696	45675	1753.9	913.5	1403.1	730.8	2.6	1.4					245.5	127.9				
24-JUL-1990	23.30	32712	0.979167	86918	45270	173.8	90.5	< 86.9	< 45.3	3.5	1.8					139.1	72.4				

DROUGHT MONITORING 1990: LOADINGS TO AXE ESTUARY FROM R.AXE

WHITFORD BRIDGE

DATE	TIME	JULIAN DATE	JULIAN TIME	FLOW (m3) (day)	FLOW (m3) (12.5hr)	S.SOLIDS (105 oC) kg/day	S.SOLIDS (105 oC) kg/12.5hr	S.SOLIDS (500 oC) kg/day	S.SOLIDS (500 oC) kg/12.5hr	NH4 kg/day	NH4 kg/12.5hr	POx kg/day	POx kg/12.5hr	TON kg/day	TON kg/12.5hr	BOD kg/day	BOD kg/12.5hr	TOT COLI No./day	E COLI No./day	E COLI No./12.5hr	F STREPS No./day
25-JUL-1990	0.30	32713	0.020833	86918	45270	260.8	135.8	86.9	45.3	2.6	1.4					147.8	77.0				
25-JUL-1990	1.30	32713	0.062500	86141	44865	344.6	179.5	172.3	89.7	2.6	1.3					129.2	67.3				
25-JUL-1990	2.30	32713	0.104167	86141	44865	430.7	224.3	430.7	224.3	2.6	1.3					120.6	62.8				
25-JUL-1990	3.30	32713	0.145833	85363	44460	426.8	222.3	85.4	44.5	2.6	1.3					68.3	35.6				
25-JUL-1990	4.30	32713	0.187500	83722	43605	502.3	261.6	167.4	87.2	3.3	1.7					142.3	74.1				
25-JUL-1990	5.30	32713	0.229167	82944	43200	331.8	172.8	165.9	86.4	2.5	1.3					124.4	64.8				
25-JUL-1990	6.30	32713	0.270833	82944	43200	746.5	388.8	248.8	129.6	4.1	2.2					190.8	99.4				
25-JUL-1990	7.30	32713	0.312500	85363	44460	597.5	311.2	426.8	222.3	2.6	1.3					119.5	62.2				
25-JUL-1990	8.30	32713	0.354167	82944	43200	248.8	129.6	165.9	86.4	2.5	1.3					149.3	77.8				
25-JUL-1990	9.30	32713	0.395833	82166	42795	328.7	171.2	328.7	171.2	2.5	1.3					65.7	34.2				
25-JUL-1990	10.30	32713	0.437500	82166	42795	246.5	128.4	246.5	128.4	2.5	1.3					156.1	81.3				
25-JUL-1990	10.40	32713	0.444444	82944	43200	331.8	172.8	248.8	129.6	1.7	0.9			251.2	130.8	157.6	82.1				
25-JUL-1990	11.30	32713	0.479167	84499	44010	253.5	132.0	84.5	44.0	1.7	0.9					160.5	83.6				
25-JUL-1990	12.30	32713	0.520833	85363	44468	256.1	133.4	256.1	133.4	1.7	0.9					145.1	75.6				
30-JUL-1990	12.15	32718	0.510417	241920	126000	1451.5	756.0	1451.5	756.0	21.8	11.3			929.0	483.8	508.0	264.6				
14-AUG-1990	11.30	32733	0.479167	89251	46485	178.5	93.0	< 89.3	< 46.5	1.8	0.9					116.0	60.4				
17-AUG-1990	12.18	32736	0.506944	93312	48600													4.7e+11	< 9.3e+10	< 4.9e+10	3.7e+10
17-AUG-1990	12.11	32736	0.507639	93312	48600	186.6	97.2	93.3	48.6	1.9	1.0			309.3	161.1	102.6	53.5				
22-AUG-1990	10.07	32741	0.421528	98237	51165													1.1e+12	5.9e+11	3.1e+11	3.9e+10
22-AUG-1990	10.25	32741	0.434028	98237	51165	196.5	102.3	98.2	51.2	2.9	1.5			316.5	164.9	78.6	40.9				
28-AUG-1990	10.05	32747	0.420139	95731	49860													5.7e+11	4.8e+11	2.5e+11	1.1e+11
28-AUG-1990	10.10	32747	0.423611	95731	49860	382.9	199.4	< 95.7	< 49.9	1.9	1.0			< 297.2	< 154.8	105.3	54.8				
31-AUG-1990	10.00	32750	0.416667	102384	53325													2.5e+12	1.2e+12	6.8e+11	1.0e+11
31-AUG-1990	10.05	32750	0.420139	102384	53325	409.5	213.3	< 102.4	< 53.3	1.0	0.5			339.9	177.0	122.9	64.0				
13-SEP-1990	11.25	32763	0.475694	85363	44460	170.7	88.9	85.4	44.5	1.7	0.9	51.2	26.7			196.3	102.3				
17-SEP-1990	10.00	32767	0.416667	82944	43200													6.6e+11	1.7e+11	8.6e+10	5.0e+10
17-SEP-1990	10.01	32767	0.417361	82944	43200	248.8	129.6	82.9	43.2	0.8	0.4			283.6	147.7	107.8	56.2				
03-OCT-1990	11.30	32783	0.479167	130464	67950													7.2e+12	1.2e+12	6.1e+11	3.1e+11
03-OCT-1990	11.40	32783	0.486111	131414	68445	394.2	205.3	262.8	136.9	6.6	3.4			572.4	298.1	276.0	143.7				
11-OCT-1990	11.45	32791	0.489583	114394	59580													1.9e+12	8.0e+11	4.2e+11	8.0e+10
11-OCT-1990	11.46	32791	0.490278	114394	59580	343.2	178.7	228.8	119.2	3.4	1.8			426.2	222.0	171.6	89.4				
26-OCT-1990	9.40	32806	0.402778	635818	331155													2.9e+14	2.1e+14	1.1e+14	1.0e+13
26-OCT-1990	9.41	32806	0.403472	635818	331155	54680.3	28479.3	41964.0	21856.2	57.2	29.8			2513.4	1309.1	3687.7	1920.7				
06-NOV-1990	9.15	32817	0.385417	122342	63720													4.3e+12	1.6e+12	8.3e+11	1.1e+11
06-NOV-1990	9.20	32817	0.388889	122342	63720	1101.1	573.5	856.4	446.0	2.4	1.3			492.2	256.3	195.7	102.0				
13-NOV-1990	10.30	32824	0.437500	272678	142020	2999.5	1562.2	1908.7	994.1	19.1	9.9			1330.7	693.1	463.6	241.4				
13-NOV-1990	10.32	32824	0.438889	272678	142020													2.9e+13	1.6e+13	8.8e+12	2.0e+12
06-DEC-1990	9.35	32847	0.399306	148435	77310													4.6e+12	1.8e+12	9.3e+11	2.7e+11
06-DEC-1990	9.36	32847	0.400000	148435	77310	445.3	231.9	296.9	154.6	10.4	5.4			791.2	412.1	282.0	146.9				
03-JAN-1991	9.15	32875	0.385417	1270339	661635	35669.5	18525.8	26677.1	13894.3	216.0	112.5			12784.7	6658.7	2159.6	1124.8	2.3e+14	8.4e+13	4.4e+13	1.6e+13
18-JAN-1991	10.25	32890	0.434028	484358	252270	3874.9	2018.2	2421.8	1261.4	106.6	55.5			3332.4	1735.6	387.5	201.8	2.0e+13	6.8e+12	3.5e+12	1.9e+12
04-FEB-1991	11.45	32907	0.489583	215827	112410	647.5	337.2	431.7	224.8	15.1	7.9			1173.2	611.1	453.2	236.1	1.5e+13	4.1e+12	2.1e+12	9.5e+11
12-FEB-1991	14.05	32915	0.586806	182477	95040	912.4	475.2	547.4	285.1	34.7	18.1			1189.7	619.7	346.7	180.6	2.4e+13	6.9e+12	3.6e+12	1.0e+12
20-FEB-1991	10.40	32923	0.444444	204854	106695	1024.3	533.5	409.7	213.4	10.2	5.3			1069.7	557.2	430.2	224.1	7.0e+12	4.1e+12	2.1e+12	8.2e+10