

**DEVON AREA
INTERNAL REPORT**



**ENVIRONMENT
AGENCY**

**URBAN WASTE WATER
TREATMENT DIRECTIVE.
TAW ESTUARY SENSITIVE AREA
(EUTROPHIC).**

SUBMISSION

FEBRUARY 1997

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Ref Code ..SW.....

EC URBAN WASTE WATER TREATMENT & NITRATE DIRECTIVES**Candidate Sensitive Area [Eutrophic] / Polluted Waters [Eutrophic]****FORM A: COVER SHEET***(use for all types of SA/EI/PW/EI)*

- 1) Name of regulator: Environment Agency, South West Region, Devon Area
(see note 1 on guidance sheet)
- 2) Candidate name: Taw Estuary
- 3) Main river catchment: River Taw
(see note 2 on guidance sheet)
- 4) Location & extent of candidate: **From** the top of the estuary at:
NGR: SS 5695 2832 River Taw at Newbridge

To the mouth of the Taw estuary at:
NGR: SS 4700 3200 Off Crow Point
(map should be included, see note 3 on guidance sheet)
- 5) Type of candidate *(tick box)*:
- | | |
|--------------------|-------------------------------------|
| Still freshwater | ☐ |
| Running freshwater | ☐ |
| Estuary | ☒ |
| Coastal | ☐ |
- 6) Is the candidate:
- | | |
|----------------------------|-------------------------------------|
| Sensitive Area [Eutrophic] | ☒ |
| Polluted Water [Eutrophic] | ☐ |
| Both | ☐ |
- (see note 4 on the guidance sheet for definitions)*
- 7) Is the candidate:
- | | |
|---------------|-------------------------------------|
| Eutrophic now | ☒ |
|---------------|-------------------------------------|

At risk of becoming eutrophic ☐

(see note 5 on guidance sheet for definitions)

8) In May 1994, was the candidate :

Designated as an SA[E] ☐

Withdrawn/not designated due to insufficient evidence ☐

Not proposed ☒

9) Summary of qualifying discharges (ie greater than p.e 10,000 - see note 6 on guidance sheet)

Name of discharge	Direct/Indirect	NGR	Population Equivalent	Current level of treatment
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Barnstaple (Ashford)	Direct	SS5325 3406	64500 (DWF 10314 m ³ / day)	Primary Settlement Baff Plant Discharge to estuary
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*

* UV treatment due to be installed mid 1997.

Now progress to the relevant form for the Sensitive Area, also submitting a form F for each qualifying discharge

Form B - Running Freshwaters

Form C - Still Waters

Form D - Estuarine

Form E - Coastal

Form F - Effects of nutrient removal at qualifying discharge

EC URBAN WASTE WATER TREATMENT & NITRATE DIRECTIVES
Candidate Sensitive Area [Eutrophic] / Polluted Waters [Eutrophic]

FORM D: ESTUARINE WATERS - Information & Data

- 1) Candidate name Taw Estuary
- 2) Extent of SA[E]/PW[E]

Start point	Newbridge on River Taw	Start NGR	SS 5695 2832
End point	Off Crow Point	End NGR	SS 4700 3200
Length	23 km		
- 3) Attach map showing SA[E]/PW[E] and locations of chemical sample points, biological sample points, any qualifying discharges and any other significant discharges.
- 4) Approximate retention/ flushing time days
 Order of 2/3 days, but can be highly variable depending on river flow.
- 5) Brief description of geomorphological nature of estuary (*eg. broad and flat, deep and fjord-like, salinity regime, stratification etc*)

The Upper reaches of the estuary occupy a narrow winding channel with a typically muddy substrate. The middle and lower reaches are broad, although at low tide the water occupies narrow channels, bordered by intertidal mud and sand banks. The bottom end which is joined by the Torridge estuary is short and broad, having extensive sand and gravel banks. A substantial sand bar across much of the mouth is exposed at low water (see detailed map).

Above Barnstaple, the estuary is semi riverine, ie. it experiences tides while being predominantly freshwater with surface salinity typically below 5 practical salinity units (PSU), for most of the tidal cycle. The extent of this low salinity area within the estuary is sensitive to river flow, with high river flows causing freshwater to move further down the estuary. Within this vicinity, particularly following sudden increases in river flow, the water can become stratified with lower salinity water overlying higher salinity water with limited vertical mixing of the water bodies. These features are not permanent in part due to the very shallow channels present at low water. By contrast, the bottom end of the estuary which includes the Torridge estuary is dominated by the influx of coastal water and is vertically well mixed showing no significant differences in salinity through the water column (see detailed map).

The Taw estuary provides a recreational area for a wide range of activities for both local people and tourists. There is a well developed system of public footpaths and cycling routes around the entire estuary. This is better known as the Tarka Trail and provides reasonable access to the estuary and coastal surrounds for bird watchers. Angling takes place throughout the estuary both from the shore and boats. Boating incorporates a

variety of leisure activities and is largely concentrated at the lower end of the estuary around Appledore, Crow Point and Instow.

Mussels, oysters, cockles and winkles all grow naturally on the many areas of shellfish beds within the Taw estuary. Commercial exploitation of shellfisheries within the estuary was a valuable industry however, shellfish harvesting for commercial purposes is restricted under the EC Shellfish Hygiene Directive(91/492/EEC) due to microbiological contamination of shellfish flesh. Under the EC Shellfish Hygiene Directive, shellfish harvesting in the estuary has been identified as either Class C, where shellfish require long periods of relaying prior to marketing, or Class D where shellfish harvesting is prohibited.

The estuary has runs of salmon and sea trout from May to September en route to the main spawning beds within the R.Taw catchment.

6) Summary of main uses and designations (*tick boxes*)

Amenity	☒	Boating	☒
Watersports	☒	PARCOM potential problem area	☒
EC Bathing Water	☒	Angling	☒
Passage of migratory fish	☒	Designated EC Shellfish Water	☐
Designated EC Shellfish Harvesting Area	☒	Non - designated shellfish harvesting area	☒

Other designations and uses (*specify - see guidance note 22*)

7) If watercourse has conservation status provide details (*see guidance note 23*) :

The estuary was renotified as a SSSI in 1988. There is a RSPB reserve at Isley Marsh. South of the estuary mouth is an area of sandy beach, pebble ridge and the sand dunes of Northam Burrows which has been notified as a SSSI and an AONB. North of the estuary, Braunton Burrows, an extensive area of sand dunes have been identified as a NNR and a United Nations Educational, Scientific and Cultural Organisation (UNESCO) Biosphere Reserve (see detailed map).

8) What chemical data are available ?
(*tick boxes if evidence is supplied - see guidance note 24*)

Dissolved available inorganic phosphorus ☐

Dissolved available inorganic nitrogen ☐

Chlorophyll a ☒ see Appendix A

Cell counts ☒ see Appendix B

- 9) What biological / observational data are available ?
(tick boxes if evidence is supplied - see guidance note 25)

Macroalgae ☒ see Appendix C

Planktonic algal blooms ☒ see Appendix B

Sh'fish/inverteb./fish mort. ☒ see Appendix D

Appearance of scum/foam ☒ see Appendix E

Photographs ☒

- 10) Which of the DoE numeric criteria are exceeded?

Chlorophyll a ☒

Cell counts ☒

- 11) Other evidence of adverse effects (see guidance note 26)

No adverse effects have been reported concerning the uses identified under Q6. Within the estuary samples are collected under the Dangerous Substances Directive as well as the UWWTD. Under the Dangerous Substances Directive there are no exceedences of standards. PARCOM sampling was undertaken from Barnstaple (Ashford) STW between 1991 and 1993 with no adverse effects noted, however the STW does receive industrial effluent so the potential exists. A number of complaints have been received by members of the public concerning bloom sightings. These are detailed under Appendix F. Photographic evidence of bloom conditions are included as Appendix E.

- 12) Executive summary of the chemical, biological and other evidence illustrating eutrophication in the SA[E]/PW[E] (see note 27 in the guidance sheet).

Evidence of eutrophication as follows: spot sample chemical data - elevated DO% readings during summer daytime sampling; enhanced winter nitrogen concentrations to background - see Appendix A. Continuous chemical data - diurnal fluctuations during summer months - see Appendix G. Biological data - Chlorophyll A values exceeding 10ug/l - these values have been graphically illustrated and clearly show very high Chlorophyll A levels associated with summer months; bloom densities in excess of 5x10⁵ cells/l - see Appendices A and B. In addition there is photographic evidence of algal scum - see Appendix E. The sequence of

photographs shown indicates a algal scum slick covering a distance of approximately 7 km i.e from sampling site E30A8 to just above sampling site E30A6 - see enclosed map. Slicks of this nature are common in the estuary as indicated by the complaints enclosed under Appendix F and are clearly visible from the banks of the estuary.

- 13) Summary of eutrophication control measures (already in progress and/or already planned) if any, for the candidate area. *(see note 28 on the guidance sheet).*

N/A

- 14) If the SA[E]/PW[E] has previously been designated, is there any evidence to suggest that its status has changed (eg. it is no longer eutrophic) or that the control measures have been effective?

N/A

EC URBAN WASTE WATER TREATMENT & NITRATE DIRECTIVES

Candidate Sensitive Area [Eutrophic] / Polluted Waters [Eutrophic]

FORM F: EFFECTS OF NUTRIENT REMOVAL AT QUALIFYING DISCHARGE

Name of qualifying discharge (> 10,000 PE)	Direct/Indirect (see guidance note 29)	NGR	Population Equivalent	Current level of treatment
Barnstaple (Ashford)	Direct	SS 5325 3406	64,500	Primary Settlement Baff Plant Discharge to Estuary *

*UV Treatment due to be installed mid 1997.

1) Name of Candidate Sensitive Area [Eutrophic] Taw Estuary

2) Type of candidate (tick box):

- Still freshwater ☐
- Running freshwater ☒
- Estuary ☐
- Coastal ☐

3) Summarise the evidence of the impact of the discharge (eg compare chemical and biological data upstream and downstream of the sewage discharge - *see guidance note 30*)

Summary details of biological and chemical surveys carried out are as follows:

Chemical - Spot samples were collected from eight sites, four from within the estuary and four from freshwater inputs - estuarine:- E30A8, E30A7, E30A6, E30A5; freshwater:-

R30A002, R30A006, R30A004, R30B005 (see detailed map). Of the four sites within the estuary, two were continuously monitored - samples were collected between 1994 and 1996. Biological - Macrobenthic surveys were carried out within the estuary during 1992 from subtidal and intertidal sand areas. Phytoplankton samples were collected from the same sites used for chemical monitoring within the estuary. Macroflora aerial surveys were carried out over the entire length of the estuary during 1995 and 1996. There was no significant difference between upstream and downstream data.

- 4) Summarise the results of any nutrient removal modelling or other impact assessments carried out for this discharge or, if relevant, for the whole catchment. (see guidance note 31)

Nutrients involved for modelling purposes were nitrogen in the form of TIN (Total Inorganic Nitrogen) and TON (Total Oxidised Nitrogen). The model used was EcoS, a 1-D model developed by Plymouth Marine Laboratory. Data covered the period from the 1st Jan 1994 to the 31st October 1996. For part of the report, only data for 1995 was used as this was the only complete calendar year available. Although there are three effluent discharges into the estuary - Velator, Yelland and Ashford (see detailed map and Appendix H) only the impact of nutrient removal at Ashford was modelled. Velator will be connected to Ashford within 18 months and it is planned to connect Yelland to a new STW at Cornborough with a marine outfall by 2000.

Modelling results for 1995 show:- a) the four sites within the estuary showed elevated nitrogen levels during the winter months - see Appendix I; b) the same sites during the summer months showed decreased levels of nitrogen when the nutrient loadings from Ashford were suppressed - see Appendix J; c) a similar situation arose from two modelled sites located 500m upstream and downstream of the Ashford discharge except this covered the whole of 1995 - see Appendix K.

- 5) Do the benefits of nutrient removal at the qualifying discharge depend on nutrient removal at other discharges? (see guidance note 32)

Although there is loading from other discharges i.e. Yelland and Velator, their impact was not considered since, as indicated in 4) above, the nature of the current discharge regime will change. These changes will increase the loading from Ashford but reduce the overall loading to the Taw estuary.

From the detailed map it is clear that the Taw estuary is influenced by the Torridge estuary. There is one significant discharge that enters the lower end of this estuary, Bideford Fine Screening (see detailed map) and there is therefore the possibility that the effects of this discharge could contribute to the eutrophic conditions observed in the Taw estuary (it should be noted that the algal blooms observed (Appendix E) are not seen in the Torridge estuary). This discharge is due to be connected to Cornborough by 2000.

From the results shown in Appendix L, there is evidence suggesting higher TON levels associated with lower saline levels. This would indicate that the freshwater input into the estuary from the main R.Taw and smaller freshwater discharges contribute to the

nutrient loading. The entire Taw catchment is an area of intensive dairy farming, livestock rearing and fish farming.

6) Conclusions on impact of discharge and predicted effects of nutrient removal (*see guidance note 33*).

The modelling carried out shows that when the discharge from Ashford STW is suppressed there is a reduction in the mean nitrogen levels within the estuary at locations upstream and downstream. If nutrients are removed from the discharge, it is probable that the eutrophic conditions will be reduced. In view of the planned changes to the sewage discharge regime (see 4, 5 above) the reduced load of nutrients into the Taw estuary could reduce eutrophication. The proposed removal of the discharge into the lower Torridge estuary could have a similar beneficial effect. Taking these factors into account along with the effects of freshwater inputs, it is difficult to gauge the benefits of nutrient removal for Ashford STW. My conclusion is that there is no clear case either way. The estuary should be given a protective status with the view to examining the effects of the proposals for Velator, Yelland and Bideford after a period of eighteen months.

Biological monitoring sites

Qualifying discharge

Other discharges

Scale: 2cm = 1km

BARNSTAPLE

OR

BIDEFORD BAY



R30A002
Spot

Velator STW

RAF Chivenor
E30A8
Spot/
Continuous

Ashford STW
E30A7
Spot

Ashford STW

Barnstaple
E30A6
Spot

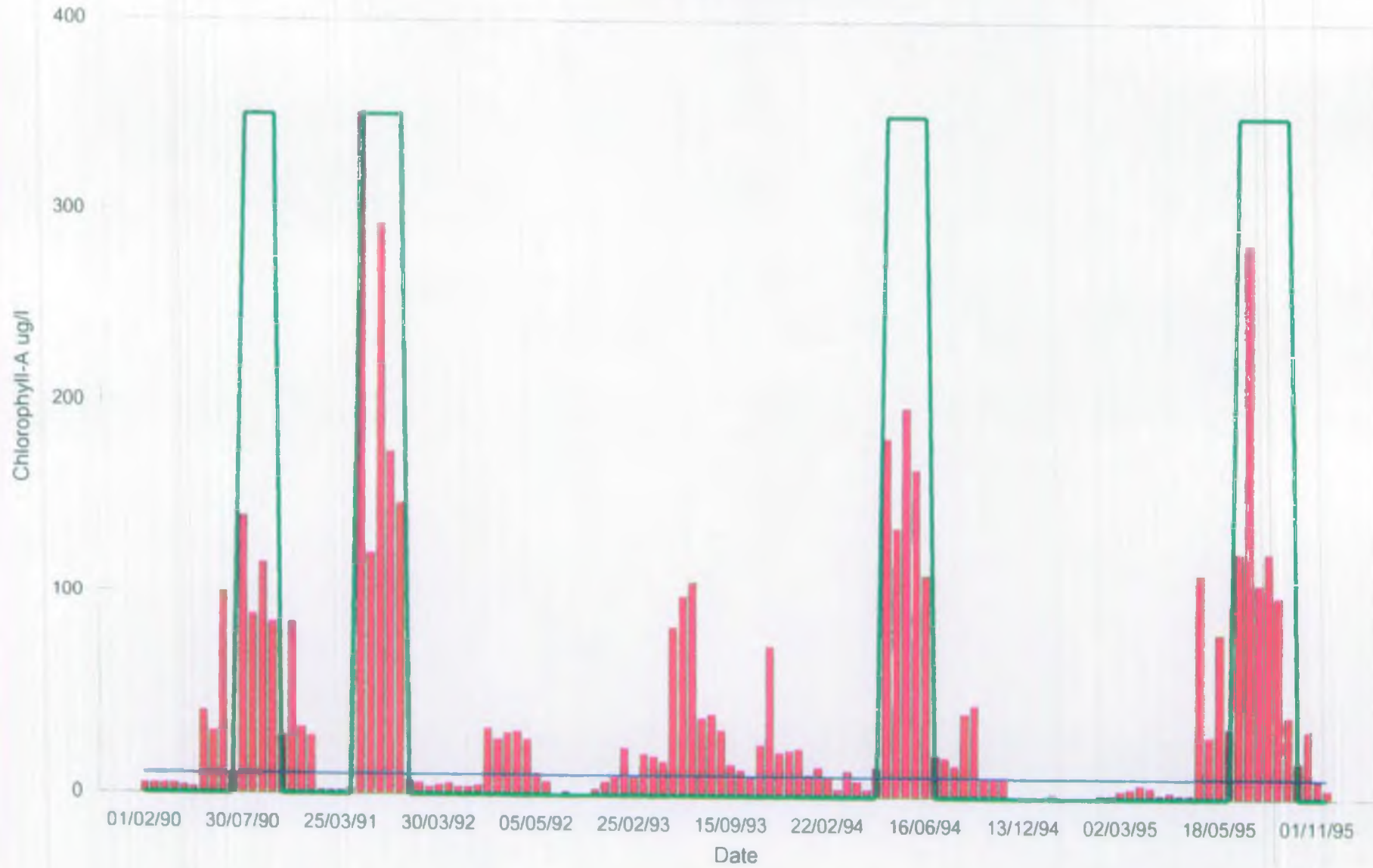
By Little Pill
E30A5
Spot/
Continuous

R30A004
Spot

R30B005
Spot

River Taw - Little Pill

Chlorophyll-A (1990 - 1995)



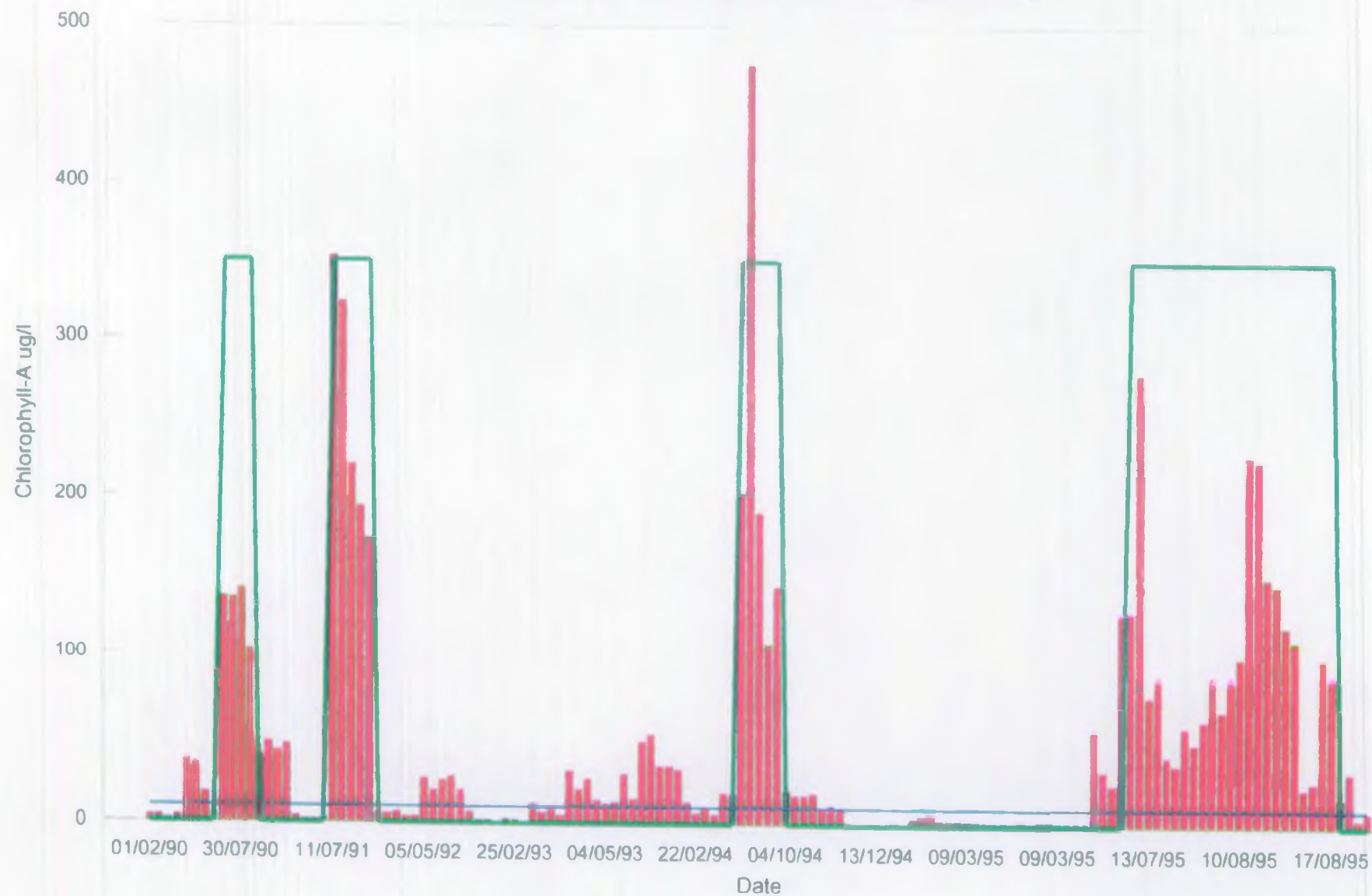
■ Chlorophyll-A

— Summer months

— 10 ug/l D.O.E. Guidance Level

River Taw - Barnstaple Quay

Chlorophyll-A (1990 - 1995)



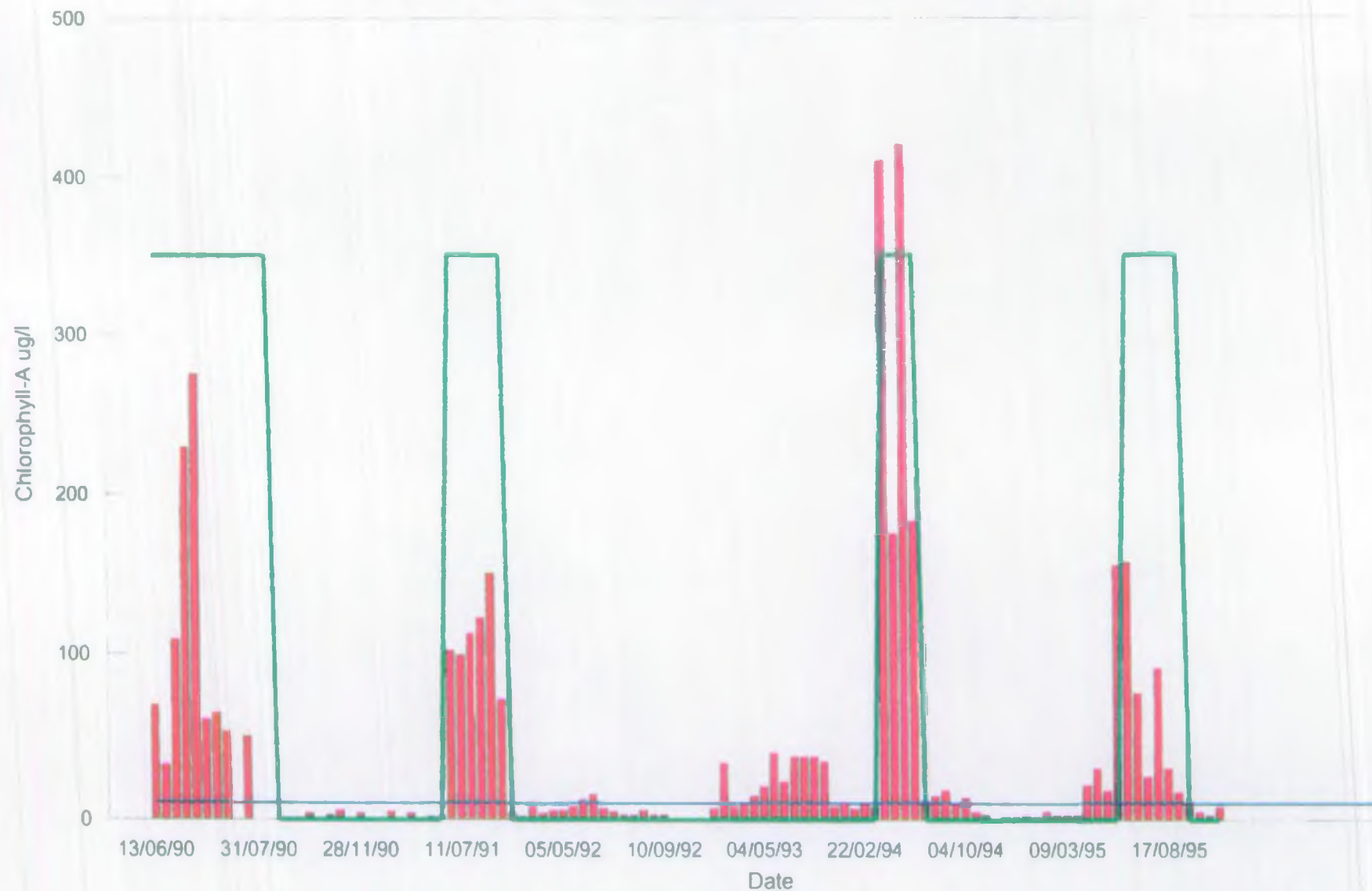
■ Chlorophyll-A

— Summer months

— 10 ug/l D.O.E. Guidance Level

River Taw - Off Ashford S.T.W.

Chlorophyll-A (1990 - 1995)



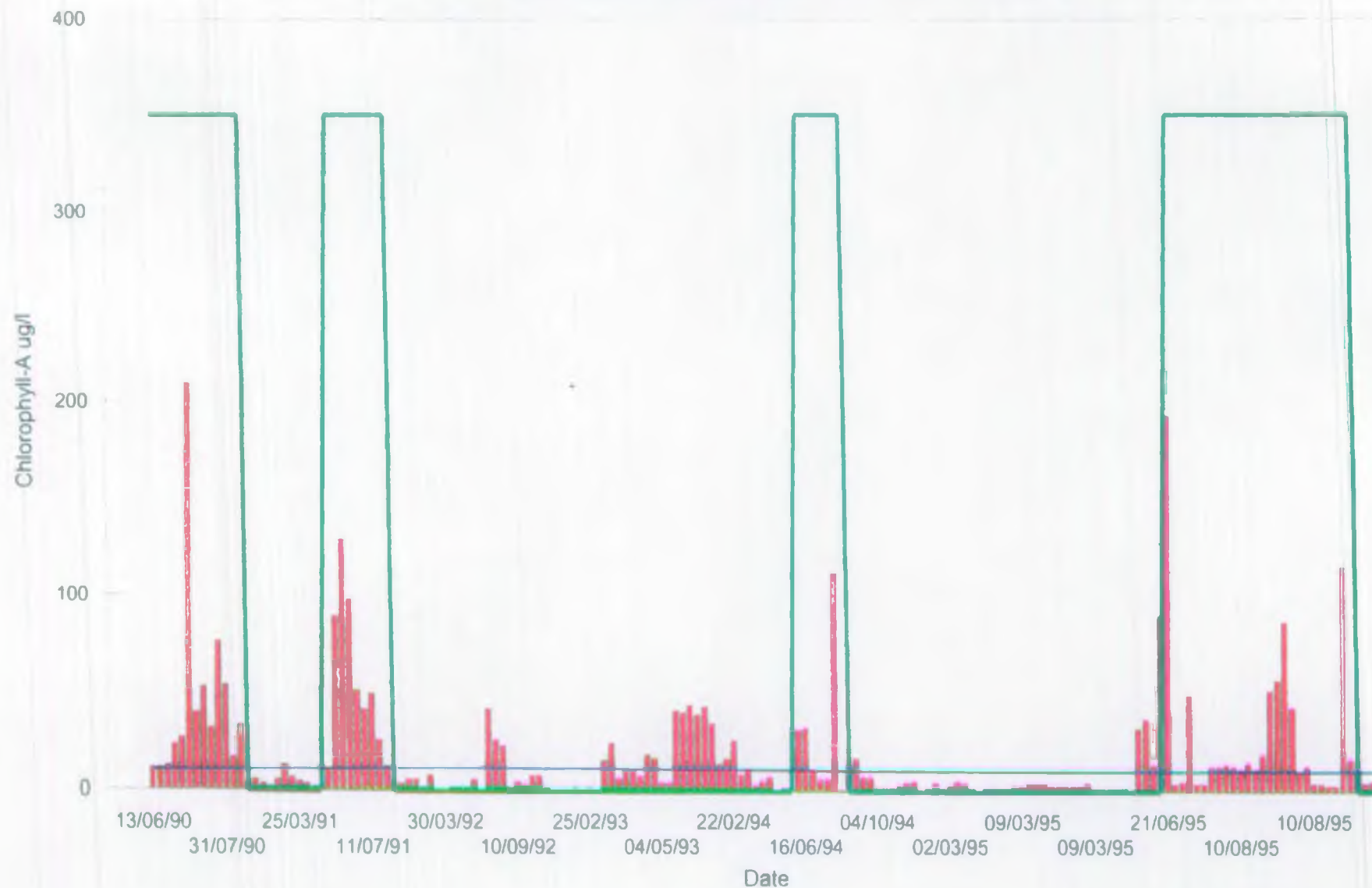
■ Chlorophyll-A

— Summer months

— 10 ug/l D.O.E. Guidance Level

River Taw - Off R.A.F. Chivenor

Chlorophyll-A (1990 - 1995)



■ Chlorophyll-A

— Summer months

— 10 ug/l D.O.E. Guidance Level

TURN	NAME	DATE	TIME	DEPTH m	PH	TEMP OF WATER Deg C	DISSOLVD OXYGEN % Sat	AMMONIA FILTERED µg/l	NITRATE FILTERED mg/l	NITRITE FILTERED µg/l	TION FILTERED mg/l	SUSPEND SOLIDS mg/l	ORTHO PHOSPHT µg/l filtered	SALINITY PPT	CHLORO PHYLLA µg/l
E30A5	TAW ESTUARY - BY LITTLE PILL	22/02/94	0625		7.7	5.1	94	169			2.3	160	51	0	11.00
			0630	2	7.7	5	94	167			2.3	146	51	0	15.00
			0815		7.7	5.5	93	170			2.1	218	53	0	10.00
			0816	1.5		5.5	93							0	
		23/02/94	1540		7.4	6.4	92	167			1.4	291	51	0	4.00
			1545	2.5	7.4	6.4	92	165			1.4	309	50	0	13.00
			1630		7.5	6.1	92	164			1.4	303	50	0	8.00
			1635	1.6	7.5	6	92	163			1.4	247	50	0	4.00
			1640	3.2	7.5	6	90	165			1.4	355	50	0	15.00
		16/06/94	1035	1.3	8.5	17	116	22			1.2	50	27	5	182.00
			1130		8.6	17.3	130	40			1.1	43	22	6.5	135.00
			1133	2.2	8.6	17.2	134	46			1.1	51	23	6.8	198.00
			1330	1.3	8.1	18.4	95	36			1.4	49	48	0.8	166.00
			1550	0.8	8.1	19.6	105	99			1.4	18	54	0.1	110.00
		04/10/94	0840		7.9	11	87	41			2	64	66	0	21.00
			0841	1		10.9	87							0	
			0842	2		10.9	88							0.1	
			0843	2.2	7.8	10.9	88	38			2	70	66	0.1	20.00
			1020		7.8	11.4	91	49			1.9	43	70	0	16.00
			1021	1.2		11.3	91							0	
			1730		7.9	12.1	99	66			2.2	135	70	0.2	42.00
			1731	1		12	97							0.2	
			1732	2.4	8	11.9	97	54			2	370	70	0.2	46.00
			1830		7.9	13.2	86	230			1.3	51	75	15.5	10.00
			1831	1		13.2	86							15.5	
			1832	2	7.9	13.2	86	226			1.3	25	74	15.6	10.00
			1833	3		13.2	86							15.6	
			1834	4	7.9	13.2	86	229			1.3	22	75	15.8	10.00
		13/12/94	0827	1	7.6	11.2		20			3.4		31	0	1.00
			0840	0.6	7.6	11		27			3.5	5	31	0	1.00
			1400	1.4	7.6	11.1		24			3.5	4	27	0	
			1415		7.6	11.2		23			3.4	5	27	0	
			1520		7.6	11.2		27			3.4	8	28	0	2.00
			1525	2.5	7.6	11.2		25			3.4	5	28	0	
			1713	1.3	7.6	11.1		25			3.4	8	28	0	
		03/02/95	0850		7.5	8.4	101	33	3	10	3.6	15	35	0	1.00
			0859	5.3	7.5	8.3	98	33	3	11	3.6	12	23	0	1.00
			1230		7.5	8.7	100	32	3	11	3.7	16	21	0	2.00
			1231	2.3	7.5	8.6	98	31	3	11	3.7	16	22	0	2.00
		02/03/95	0640		7.6	6.1	90	72	2	24	2.5	17	35	0	4.00
			0650	4.6	7.7	6.1	91	67	2	24	2.5	47	36	0.1	5.00
			1140		7.7	5.6	91	90	2	24	2.5	66	34	0	7.00
			1150	1.6	7.7	5.6	91	89	2	25	2.5	49	34	0	6.00
		09/03/95	1040		7.6	5.4	95	66	2	21	2.7	11	26	0	2.00
			1050	5.4	7.6	5.4	94	63	2	21	2.8	11	28	0	3.00
			1640		7.6	6	96	35	2	17	2.9	8	23	0	2.00
			1650	2	7.6	6	96	39	2	18	2.9	11	22	0	2.00
		24/04/95	0900												111.00
			1620												31.00
		18/05/95	0915		8	9.6	92	47	1	18	1.1	73	34	4.2	80.00
			1600		8	12.6	100	110	1	35	2	47	97	0.3	35.00
		21/06/95	0720												123.00

URN	NAME	DATE	TIME	DEPTH m	PH	TEMP OF WATER Deg C	DISSOLVD OXYGEN % Sat	AMMONIA FILTERED µg/l	NITRATE FILTERED mg/l	NITRITE FILTERED µg/l	TOTAL FILTERED mg/l	SUSPEND SOLIDS mg/l	ORTHO PHOSPH µg/l filtered	SALINITY PPT	CHLORO PHYLLA µg/l
			1320												284.00
		13/07/95	0815												106.00
			1205												123.00
		10/08/95	0615		8.1	18.9	84		0			28	24	31.5	
			1010		8.2	20	89	51	0	11	0.2	68	30	24	
		17/08/95	1100												100.00
			1440												41.00
		04/10/95	0815												18.00
			1430												34.00
		01/11/95	0800												9.00
			1345												5.00
		17/11/95	0700		7.5	7.8	91	43	4	11	4.2	11	56	0.1	
			1305		7.7	7.9	95	26	4	11	4.2	24	54	0.1	
		04/02/96	0710		7.4	5	96	23	5	12	5.9	11	21	0.1	2.00
			1325		7.6	5.4	94	21	5	12	5.9	8	20	0.1	1.00
			1327	1.9	7.5	5.4	94	19	5	12	6	8	21	0.1	1.00
		22/02/96	0745		7.9	4.5	99	128	2	11	2.9	24	38	17.4	2.00
			0800	5.5	8	4.5	96	112	2	9	2.5	46	37	18.2	3.00
			1350	1.7	8.1	3.7	104	19	4	13	5	867	22	0.1	8.00
			1410		7.8	3.7	104	21	4	12	5	60	23	0.1	3.00
		29/02/96	0745		7.6	3.7	93	12	5	10	5.5		22	0.2	1.00
			1345		7.8	5.4	106	11	5	11	5.6	21	24	0.1	2.00
		26/04/96	0625		7.8	11.1	93	38	4	13	4.7	83	27	0	9.00
			1315		7.5	12.2	101	14	4	12	4.7	20	27	0	6.00
		22/05/96	1035												14.00
			1500												13.00
		24/06/96	1310		8.4	17	111		2	32	2.2	42	93	2.3	
			1315												14.00
			1705		8.3	17.3	110	55	2	25	2.5	3	145	0.1	
			1710												128.00
		29/07/96	1420												97.00
			1800												98.00
		13/08/96	1200												98.00
			1745												86.00
		20/09/96	0700												22.00
			1240												115.00
		12/11/96	1230		7.7	8	91	25	6	11	6.3	14	24	0.1	2.00
			1850		7.9	8.1	90	102	4	14	4.7	49	36	8.8	6.00

[illegible]

URN	NAME	DATE	TIME	DEPTH m	PH	TEMP OF WATER DEG C	DISSOLVED OXYGEN % SAT	AMMONIA FILTERED µg/l	NITRATE FILTERED mg/l	NITRITE FILTERED µg/l	TOTAL FILTERED mg/l	SUSPENDED SOLIDS mg/l	ORTHO PHOSPHATE µg/l filtered	SALINITY PPT	CHLOROPHYLL A µg/l
E30A6	TAW ESTUARY - BARNSTAPLE	22/02/94	0655		7.8	5.1	93	160			2.3	144	50	0	13.00
			0656	1		5.1	93							0	
			0840		7.7	5.4	92	172			2.1	221	52	0	7.00
			0841	0.8		5.4	92							0	
		23/02/94	1510		7.5	6.5	92	177			1.5	258	52	0	10.00
			1511	1		6.5	92							0	
			1512	2		6.7	92							0	
			1513	2.2	7.5	6.7	92	186			1.5	252	52	0	6.00
			1700		7.5	6.5	93	187			1.3	135	50	0	19.00
			1701	1		6.5	93							0	
			1702	2		6.5	93							0	
			1703	2.8	7.5	6.5	93	163			1.4	371	50	0	18.00
		16/06/94	1020		8.6	17.1	127	80			1	88	28	7.7	203.00
			1021	1		17	128							8	
			1110		8.9	17	157				0.33	66		14.7	476.00
			1111	1		17	159							14.8	
			1112	2	8.9	17	160				0.35	69	14	14.8	191.00
			1345		8.7	18.9	131				1.1	28	21	5.8	107.00
			1346	1.1		18.8	134							5.9	
			1610		8.6	19.8	122	16			1.3	52	30	2.5	143.00
			1611	0.7		19.8	122							2.5	
		04/10/94	0900		7.8	11.5	83	131			1.8	83	64	3.5	20.00
			0901	1.2		11.5	83							3.6	
			1035		7.8	11.6	90	50			2	31	69	0.4	18.00
			1036	0.5		11.6	90							0.4	
			1700		7.9	13.6	88	201			1.1	86	61	17.9	18.00
			1702	2		13.6	88							18.1	
			1703	2.2	7.9	13.6	88	201			1.1	95	61	18.1	19.00
			1707	1		13.6	88							18	
			1800		8	13.6	88	157			0.99	31	53	19.8	10.00
			1801	1		13.6	88							20.4	
			1802	1.9	8	13.6	88	160			0.99	39	54	21.3	11.00
			1803	3		13.6	88							21.5	
			1804	3.8	7.9	13.6	90	161			0.99	25	53	21.5	9.00
		13/12/94	1420	2	7.8	11.2		22			3.4	13	27	0	
			1500		7.6	11.2		33			3.3	5	30	0	1.00
			1507	2.9	7.6	11.1		31			3.2	4	29	0	
			1650	1.4	7.6	11.1		25			3.5	10	29	0	1.00
		03/02/95	0810		7.6	8.3	97	49	3	11	3.5	16	23	0.1	1.00
			0815	3.6	7.6	8.2	98	41	3	10	3.5	22	21	0.2	2.00
			1250		7.5	8.5	98	40	3	12	3.7	18	23	0	1.00
		02/03/95	0715		7.8	6.1	91	73	2	24	2.5	41	37	0.42	4.00
			0720	4.5	7.8	6.1	91	71	2	23	2.5	63	35	2.28	6.00
			1120		7.7	5.9	91	78	2	24	2.5	79	34	0.24	7.00
		09/03/95	1105		7.6	5.5	97	69	2	21	2.7	12	26	0.1	3.00
			1110	1.7	7.6	5.5	95	66	2	22	2.8	11	26	0	3.00
			1200	1.2	7.6	5.6	97	65	2	21	2.8	14	27	0	3.00
			1210		7.7	5.6	95	69	2	22	2.8	11	27	0.1	3.00
			1300		7.6	5.7	96	62	2	21	2.8	15	27	0	3.00
			1400		7.6	5.8	97	61	2	21	2.9	14	25	0.1	2.00
			1500		7.6	5.9	97	44	2	20	2.9	15	26	0.1	2.00
			1555		7.7	6	96	43	2	19	2.9	16	25	0.1	2.00
			1710		7.6	6.1	96	36	2	18	3	22	23	0.1	2.00
			1800		7.7	6.7	96	34	2	17	2.9	23	24	0.1	3.00

URN	NAME	DATE	TIME	DEPTH m	PH	TEMP OF WATER DEG C	DISSOLVD OXYGEN % SAT	AMMONIA FILTERED µg/l	NITRATE FILTERED mg/l	NITRITE FILTERED µg/l	TON FILTERED mg/l	SUSPEND SOLIDS mg/l	ORTHO PHOSPH µg/l filtered	SALINITY PPT	CHLORO PHYLL A µg/l
			1900		7.7	6.1	97	35	2	17	3	15	25	0.1	2.00
			2000		7.6	6.2	97	33	2	16	3	14	23	0.1	3.00
			2100		7.6	6.2	96	40	2	15	3	12	22	0.1	3.00
			2200		7.6	6.2	97	29	2	15	3	7	22	0.1	2.00
			2201	1.5	7.6	6.2	96	27	2	15	3	10	22	0.1	2.00
			2300		7.6	6.2	96	31	2	16	3	7	22	0	2.00
			2301	2	7.6	6.2	98	29	2	15	2.9	7	22	0	2.00
		24/04/95	0915												58.00
			1550												33.00
		18/05/95	0900		8.1	10.2	97	20	0	10	0.47	18	20	25.7	25.00
			1505		8.5	1.8	111	13	1	30	1.9	44	73	0.5	128.00
		21/06/95	0730												129.00
			1340												279.00
		13/07/95	0820												78.00
			1235												88.00
		10/08/95	0625	3.3	8.1	18.4	92		0			34	20	33	42.00
			0630		8.2	18.8	91		0			35	21	32.5	37.00
			0725	2.5	8.1	18.5	94		0			70	23	32.4	60.00
			0730		8.2	18.8	90		0			56	22	32.3	50.00
			0825	1.6	8.1	19	90		0			71	20	31.7	64.00
			0830		8.2	19	87		0			56	21	31.6	88.00
			0925		8.2	19.6	84	38	0	10	0.15	56	29	25.3	70.00
			1025		8.2	20.5	95	53	0	11	0.18	62	29	23.6	88.00
			1125		8.3	20.6	115	75	0	15	0.24	41	33	21.7	99.00
			1225		8.5	21.6	149	43	0	16	0.27	72	26	18.5	228.00
			1325		8.6	22.7	170	28	0	17	0.29	73	30	17.8	225.00
			1425		8.7	24.2	171	37	0	18	0.3	62	30	17.4	150.00
			1525		8.7	24.4	171	51	0	19	0.32	64	33	16.8	145.00
			1625		8.8	24.3	126	70	0	19	0.33	56	33	16.6	120.00
			1725		8.5	23.3	122	179	0	10	0.15	109	64	24.6	110.00
			1825		8.2	20.4	88		0			111	21	33	23.00
			1830	3.4	8.2	20.4	90		0			29	18	33.4	27.00
		17/08/95	1115												99.00
			1430												89.00
		04/10/95	0830												17.00
			1440												33.00
		01/11/95	0720												5.00
			1335												9.00
		17/11/95	0710		7.6	8	92	34	4	13	4.2	16	57	0.1	
			1300		7.7	8	92	99	3	15	3.9	13	65	0.2	
		14/02/96	0725		7.5	4.9	93	33	5	12	5.9	13	23	0.1	2.00
			1335		7.5	5.4	95	22	5	12	5.9	8	21	0.1	1.00
		22/02/96	0815		8	4.8	99	96	2	8	2.2	12	34	20.9	1.00
			0825	3.8	8	5	100	87	1	8	2	16	33	23.1	1.00
			0915		8	4.1	97	110	3	11	3.3	16	35	11	2.00
			0925	3	8	4.7	96	105	2	10	2.8	18	34	19.9	2.00
			1015		7.9	3.6	102	57	4	12	4.3	32	28	5.5	3.00
			1016		7.9	3.5	98	61	4	12	4.3	18	28	5.66	2.00
			1025	2.1	7.9	4.1	97	70	4	12	4.1	17	30	16.4	2.00
			1210		7.8	3.5	97	31	4	11	4.8	50	24	2.2	5.00
			1310		7.9	4.2	100	28	4	12	5	55	25	0	5.00

URN	NAME	DATE	TIME	DEPTH m	PH	TEMP OF WATER DEG C	DISSOLVD OXYGEN % SAT	AMMONIA FILTERED µg/l	NITRATE FILTERED mg/l	NITRITE FILTERED µg/l	TOTAL FILTERED mg/l	SUSPEND SOLIDS mg/l	ORTHO PHOSPH µg/l filtered	SALINITY PPT	CHLORO PHYLL A µg/l
			1411		7.8	4.4	96	29	4	12	4.9	48	23	0.1	3.00
			1510		7.8	4.2	98	29	4	13	5	49	23	0.1	3.00
			1610		7.8	4.3	98	29	4	13	5	33	22	0.1	3.00
			1710		7.8	4.3	101	30	4	13	5	24	24	0.1	2.00
			1810		7.6	4.2	102	45	4	13	5	18	27	0.1	2.00
			1910		7.9	4.4	100	29	4	14	5	119	27		3.00
			1915	1.8	8	4.5	100	32	4	14	4.8	121	29		3.00
			2010	4.3	8	5.5	99	96	2	8	2.2	40	35		3.00
			2015		8	5.5	100	102	2	8	2.3	22	36		1.00
		29/02/96	0800		7.6	3.5	95	14	5	11	5.5	3	22	0.1	1.00
			1330		7.7	6.1	104	15	5	11	5.5	4	23	0.1	1.00
		26/04/96	0640		7.7	11.2	94	17	4	14	4.7	38	26	0	7.00
			1305		7.7	12	94	20	4	14	4.7	19	28	0	6.00
		22/05/96	1025												14.00
			1445												13.00
		24/06/96	0030		8.7	17.4	144	93	1	37	1.3	90	69	11.6	79.00
			0031	2.1	8.7	17.6	152	84	1	34	1.2	58	57	14.9	221.00
			1230		8.7	17.5	150	20	0	36	0.96	33	43	3.7	119.00
			1232												185.00
			1235	2	8.8	17.1	157		0	36	0.98	38	28	15.4	189.00
			1330		8.9	17.7	154		1	42	1.8	39	56	1.8	209.00
			1340	1.5	8.8	17.7	159		1	42	1.7	66	54	5.2	198.00
			1430		9	17.6	142		1	40	1.9	39	59	1.5	378.00
			1530		8.9	17.6	142		1	37	2	24	64	3.1	155.00
			1630		9	17.8	136		2	34	2.2		82	0.6	86.00
			1730		9	16.7	129		2	32	2.3		102	0	157.00
			1830		8.9	16	116		2	31	2.4	13	116	0	104.00
			1835												107.00
			1930		9	17.5	115		2	35	2.3	11	111	0.4	78.00
			2030		8.8	17.2	114		2	32	2.4	9	127	0.3	111.00
			2130		8.4	17	110	30	2	29	2.5	5	138	0.3	38.00
			2230		8.2	16.6	108	44	2	29	2.5	4	142	0.3	28.00
			2330		8.2	16.6	103	53	2	33	2.4	5	144	0.5	31.00
		28/07/96	1405												88.00
			1735												39.00
		13/08/96	1215												96.00
			1800												67.00
		20/09/96	0710												15.00
			1230												94.00
		12/11/96	1250		7.8	8	91	35	6	12	6.4	18	26	0.1	3.00
			1830		7.9	8.4	90	106	4	14	4.7	55	35	8.8	6.00

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URN	NAME	DATE	TIME	DEPTH m	PH	TEMP OF WATER Deg C	OXYGEN DISSOLV % Sat	AMMONIA FILTERED µg/l	NITRATE FILTERED mg/l	NITRITE FILTERED µg/l	TON FILTERED mg/l	SUSPEND SOLIDS mg/l	ORTHO PHOSPHT µg/l filtered	SALINITY PPT	CHLORO PHYLLA µg/l
E30A7	TAW ESTUARY - ASHFORD STW	13/01/94	0915									113			
		22/02/94	0745		7.9	5	96	147			2.5	165	44	0.8	8.00
			0748	1		5	96							0.8	
			0900		7.1	6.4	91	257			2.5	144	69	0	10.00
			0901	0.6		6.4	91							0	
			1435		7.6	8.5	91	852			2.1	83	163		7.00
			1436	1		8.5	91							0.1	
			1545		8.1	6.4		226			1.8	108	55	0.2	9.00
			1546	1		6.3								0.2	
			1547	2		6.3								0.2	
			1548	2.6	8	6.3		223			1.8	79	54	2.6	8.00
		28/02/94	1255									106			
		14/03/94	1045									634			
		29/04/94	1050									213			
		31/05/94	1355									29			
		16/06/94	0859		9	16.6	168					57		21.7	410.00
			0900	0.5		16.6	168							21.7	
			1040		8.8	16.4	164					35		27.8	175.00
			1041	1		16.4	164							27.6	
			1042	1.4		16.4	164							27.6	
			1430		9	19.1	192	106			0.33	65	28	17.4	420.00
			1431	1.1		19	195							18	
			1645		9	19.2	178				0.77	38	10	12	183.00
			1646	0.6		19.2	178							12	
		26/07/94	1300									89			
		10/08/94	1250									133			
		16/09/94	1000									84			
		04/10/94	0930		7.7	12.1	82	816			1.3	31	200	13.7	11.00
			0931	1		12.1	82							13.7	
			1110		7.1	13.2	74	6409			1.2	80	1491	6.7	14.00
			1111	0.7		13.2	74							6.7	
			1620		7.9	13.5	89	262			1.5	73	72	9.9	18.00
			1621	1.1		13.5	88							10.1	
			1700		8	13.8	88	136			0.89	56	46	18.7	9.00
			1701	1		13.9	88							22	
			1702	2		13.8	88							25.4	
			1703	2.5	8	13.8	88	116			0.79	51	44	25.4	13.00
		07/11/94	1150									43			
		08/12/94	1120									21			
		12/12/94	0825		8	10.8	90	62			3.3	44	38	0.3	5.00
			0826	0.6		10.8	90							0.3	
			1158		7.9	10.9	97	75			3.4	43	41	0.7	3.00
			1159	1		10.9	95							0.7	
		22/12/94	1255									26			
		29/12/94	0910									98			
		03/02/95	0845		7.9	8	112	62	3	11	3.2	17	29	3.6	1.00
			0846	3	8	9.3	100	18	0	5	0.77	34	26	28.6	2.00
			1330		7.7	9.4	97	47	3	12	3.8	41	25	0.5	2.00
		02/03/95	0645		8	6.3	102	80	1	17	1.8	23	35	9	3.00
			0646	3.2	8	7.6	98	26	0	7	0.64	39	24	32.9	2.00
			1130		7.7	6.2	90	89	2	22	2.7	65	34	6.79	5.00
		09/03/95	1130		7.7	5.5	84	135	2	22	2.8	16	43	0.2	3.00

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			1132	2	7.8	5.5	50	123	2	22	2.7	15	40	0.2	3.00
			1615		7.7	6.9	96	58	3	19	3.3	17	26	0	3.00
		24/04/95	0930												21.00
			1605												31.00
		18/05/95	0915		8.1	10.4	97	91	0	11	0.36	15	36	27.4	18.00
			1540		8.7	12.5	135		1	27	1.3	47	17	10.8	154.00
		21/06/95	0750												156.00
			1355												74.00
		13/07/95	0830												26.00
			1255												90.00
		10/08/95	0700		8.2	18.1	100		0			14	15	34.3	
			1010		8.2	20	106		0	5	0.12	47	23	28.1	
		17/08/95	1130												31.00
			1455												17.00
		04/10/95	0845												11.00
			1450												5.00
		01/11/95	0730												3.00
			1250												8.00
		17/11/95	0730		7.7	6.5	69	59	3	22	3.9	8	62	0.4	
			1245		7.8	8.5	85	234	3	27	3.7	14	81	3.7	
		14/02/96	0740		7.3	4.5	91	72	5	20	5.4	13	30	0.1	2.00
			1345		7.9	5.1	92	75	5	15	5.6	14	32	0.4	2.00
		22/02/96	0755		8	5.6	93	42	0		0.87	20	27	29.5	1.00
			0800	4.1	8	6	93	33	0		0.71	19	26	34	1.00
			1455		7.9	5.4	100	54	4	16	4.9	44	27	0.1	3.00
		29/02/96	0820		7.6	3.8	94	50	5	16	5.5	7	27	0.1	2.00
			1420		7.9	5.7	96	131	5	12	5.3	14	43	0.4	1.00
		26/04/96	0655		7.8	10.7	98	38	4	29	4.8		31	0.4	5.00
			1240		8	11.3	87	97	4	17	4.5	36	44	0.4	5.00
		22/05/96	1010												10.00
			1420												14.00
		24/06/96	1315		8.5	16.9	133	69	0	15	0.45	25	40	24	
			1316												21.00
			1830		9.2	18.8	154		2	50	2.1	25	29	4.2	
			1831												326.00
		29/07/96	1350												131.00
			1720												79.00
		13/08/96	1235												90.00
			1815												52.00
		20/09/96	0725												40.00
			1135												42.00
		12/11/96	1315		7.9	8.7	91	83	6	24	6.2	116	31	1	15.00
			1720		7.9	8	90	231	4	16	4.9	83	35	7.1	8.00

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URN	NAME	DATE	TIME	DEPTH m	PH	TEMP OF WATER Deg C	OXYGEN DISSOLV % Sat	AMMONIA FILTERED µg/l	NITRATE FILTERED mg/l N	NITRITE FILTERED µg/l	TON FILTERED mg/l	SUSPEND SOLIDS mg/l	ORTHO PHOSPH µg/l filtered	SALINITY PPT	CHLORO PHYLLA µg/l
E30A8	TAW ESTUARY - RAF CHIVENOR	22/02/94	0720		7.9	5.1	95	148			2.6	152	44	0.8	24.00
			0721	1		5.1	95							0.9	
			0722	2		5.1	95							0.9	
			0723	2.9	7.9	5.1	95	149			2.5	166	44	1	8.00
			0945		7.7	5.2	96	170			2.5	150	48	0.2	10.00
			0946	1		5.2	96							0.3	
			0947	1.4		5.2	96							0.3	
			1345		7.9	5.9		167			2.2	62	47	3.2	3.00
			1346	1		5.8								3.7	
			1347	1.6	7.9	5.8		160			2.3	65	47	4	5.00
			1348	2		5.8								4.2	
			1349	3.2	7.9	5.8		167			2.3	109	47	4.6	7.00
			1615		8	6.9		50			0.75	28	30	26.9	1.00
			1616	1		7.1								29.9	
			1617	2.2	8	7.1		29			0.43	47	27	31.1	2.00
			1618	3		7.1								31.1	
			1619	4.4	8	7.1		40			0.43	29	27	31.1	2.00
		16/06/94	0835		8.4	15.8	128					36	13	30.8	30.00
			0836	1		15.8	127							30.9	
			0837	2		15.7	125							31.3	
			0840	2.5	8.4	15.8	123					25	13	31.6	31.00
			1055		8.2	15.2	112					12	13	33.9	10.00
			1056	1		14.9	110							34.2	
			1057	1.75	8.2	14.8	110					6	13	34.4	6.00
			1058	2		14.8	110							34.4	
			1059	3		14.6	108							34.6	
			1100	3.5	8.2	14.6	108					4	13	34.6	6.00
			1500		8.8	17.7	202				0.11	23	13	27.9	111.00
			1502	1		17.7	204							28	
			1505	1.4		17.7	204							28	
			1630		9	18.4					0.1	50	10	25.2	1.00
			1635	0.8		18.4								25.2	
		04/10/94	0945		8	12.9	85	134			0.85	41	48	12.6	12.00
			0946	1		12.9	86							21.6	
			0947	1.3		12.9	86							21.6	
			1130		7.9	12.8	87	155			0.99	56	53	19.2	15.00
			1131	0.7		12.8	85							19.9	
			1543		8	14.3	91	46			0.4	30	30	7.7	7.00
			1546	1		14.4	92							30.7	
			1547	2		14.4	92							30.9	
			1548	2.3	8	14.4	92	50			0.43	33	31	30.9	7.00
			1730		8	14.8	94				0.15	15	21	32.8	2.00
			1731	1		14.8	93							33	
			1732	2		14.8	93							33.2	
			1733	2.5	8	14.8	93				0.15	15	20	33.2	2.00
			1734	3		14.8	92							33.1	
			1735	4		14.8	92							33.2	
			1736	5	8	14.8	92				0.15	17	20	33.2	2.00
		13/12/94	0832		8	10.8	95	58			3.3	46	39	0.3	3.00
			0833	1.1		10.8	95							0.4	
			1147		7.9	10.8	91	79			3.3	44	41	0.4	4.00
			1148	1		10.8	91							0.7	
			1149	2		10.7	90							0.3	
			1150	2.9	7.9	10.7	91	85			3.2	62	42	0.9	5.00

URN	NAME	DATE	TIME	DEPTH m	PH	TEMP OF WATER Deg C	OXYGEN DISSOLV % Sat	AMMONIA FILTERED µg/l	NITRATE FILTERED mg/l N	NITRITE FILTERED µg/l	TON FILTERED mg/l	SUSPEND SOLIDS mg/l	ORTHO PHOSPHT µg/l filtered	SALINITY PPT	CHLORO PHYLLA µg/l
		03/02/95	0825		8	8.9	115	22	0	5	1	21	25	30.5	1.00
			0827	4.3	8	8.7	113		0		0.26	59	21	34	2.00
			1310		7.9	8.5	102	53	2	10	2.8	89	27	7.8	4.00
		02/03/95	0710		8	7.4	110	22	0	5	0.5	49	23	34.4	2.00
			0711	6	8	7.7	105	24	0	5	0.46	84	23	34.7	3.00
			1155		8	6.6	98	70	1	18	1.7	109	34	13.5	5.00
			1200	1.6	8	6.6	98	69	1	17	1.7	82	34	14	4.00
		09/03/95	1100		7.9	6.1	90	79	1	14	1.5	14	31	14.1	2.00
			1102	4.8	8	6.9	91	32	0	7	0.69	15	27	27.9	1.00
			1200		7.9	5.8	84	101	1	18	2	8	34	7.3	2.00
			1202	4	8	6.7	88	57	1	10	1.1	17	28	24.2	2.00
			1300		7.9	5.7	83	91	1	17	2	11	33	7.5	2.00
			1302	3.3	8	6	83	77	1	12	1.4	18	30	14.9	2.00
			1400		7.9	5.7	82	104	2	18	2.4	40	35	4.1	3.00
			1402	2.5	7.9	5.7	77	97	2	18	2.4	18	34	4.4	3.00
			1500		7.8	5.9	68	108	2	21	2.7	28	38	0.2	4.00
			1502	2	7.8	5.9	62	119	2	21	2.7	29	41	0.2	4.00
			1600		7.8	6	83	79	2	21	2.7	27	33	0.2	4.00
			1602	1.6	7.8	6	81	88	2	21	2.8	26	33	0.2	3.00
			1700		7.8	6.1	87	76	2	21	2.8	26	31	0.2	3.00
			1800		7.8	6	86	82	2	21	2.7	19	32	0.3	3.00
			1900		7.8	6.2	85	79	2	20	2.8	24	32	0.5	3.00
			2000		7.8	6.1	81	104	2	20	2.8	23	38	5	3.00
			2005	2.6	7.8	6.1	78	108	2	20	2.5	22	38	5.3	4.00
			2100		7.9	6.4	87	91	1	18	1.9	8	32	10.8	2.00
			2105	3.5	7.9	6.4	84	88	1	15	1.8	22	31	13.9	2.00
			2200		8	6.4		60	1	11	1.2	7	28		2.00
			2205	3.8	8	6.4		62	1	11	1.2	7	28		2.00
			2300		8			74	1	13	1.8		29		2.00
			2305	3.8	8			38	0	7	0.83	7	26		1.00
		24/04/95	1015												30.00
			1515												35.00
		18/05/95	0925		8.1	10.4	97	11	0	6	0.19	13	14	10.7	13.00
			1445		8.4	11.8	112		0	14	0.68	65	13	22	88.00
		21/06/95	0845												193.00
			1410												4.00
		13/07/95	0835												5.00
			1420												47.00
		10/08/95	0625		8.2	18	102		0			8	14	34.4	4.00
			0628	4.5	8.2	18	102		0			7	17	34.5	4.00
			0725		8.2	18.2	98		0			16	14	33.9	12.00
			0728	4.2	8.2	18	99		0			29	15	34.3	12.00
			0825		8.2	18.2	99		0			23	14	34.3	13.00
			0828	3.3	8.2	18.1	100		0			37	15	34.4	12.00
			0925		8.2	18.4	102		0			53	16	34.2	11.00
			0928	2	8.2	18.4	101		0			35	16	34.2	14.00
			1025		8.2	18.6	104		0			20	17	34	11.00
			1125		8.2	19.1	109		0			27	18	33.8	18.00
			1230		8.4	21.2	144		0			88	27	33.2	49.00
			1330		8.4	21	138		0			38	16	31.9	54.00
			1430		8.5	21.8	142		0			153	15	31.7	85.00
			1530		8.4	22.8	149		0			63	19	32.1	41.00

URN	NAME	DATE	TIME	DEPTH m	PH	TEMP OF WATER Deg C	OXYGEN DISSOLV % Sat	AMMONIA FILTERED µg/l	NITRATE FILTERED mg/l N	NITRITE FILTERED µg/l	TON FILTERED mg/l	SUSPENS SOLIDS mg/l	ORTHO PHOSPHT µg/l filtered	SALINITY PPT	CHLORO PHYLLA µg/l
			1630		8.2	19.8	103		0			21	11	34.8	10.00
			1631	4	8.2	19.8	103		0			29	13	34.8	12.00
			1730		8.2	18.4	110		0			16		34.8	4.00
			1731	7.2	8.2	18.4	110		0			22		34.8	4.00
			1830		8.2	18.2	110		0			17	10	34.8	3.00
			1831	7.6	8.2	18.2	107		0			35	10	34.8	3.00
		17/08/95	1150												114.00
			1520												16.00
		04/10/95	0920												11.00
			1505												4.00
		01/11/95	0740												5.00
			1240												2.00
		17/11/95	0750		7.8	8.4	91	145	3	21	3.8	19	70	3.8	
			1235		8.2	10.2	118	19	1	11	1.2	79	39	1.2	
		14/02/96	0755	1	7.9	4.8	91	68	5	14	5.7	40	30	5.7	4.00
			1400		8	6	89	39	1	8	1.4	12	26	16.6	1.00
			1403	3	8	6.7	92	37	1	8	0.38	32	25	31	1.00
		22/02/96	0815		8	8	96	15	0		0.37	14	23	34	
			0820	6.2	8	6.2	94	13	0		0.38	17	23	34.3	1.00
			0910		8	6.1	94	14	0		0.37	17	24	34.1	
			0915	5.5	8	6.1	93	14	0		0.43	22	23	34.3	
			1010		8	6	93	15	0		0.39	19	23	33.9	1.00
			1015	4.1	8	6	92	16	0		0.78	34	24	34.1	2.00
			1110		8	5.9	93	45	0		0.77	21	29	30.8	1.00
			1115	2.6	8	5.9	93	44	0		1.3	27	29	31.2	2.00
			1210		8	5.7	93	67	1	6	1.6	27	32	28.3	1.00
			1310		8	5.5	92	74	1	7	2.9	29	33	28.1	2.00
			1410		8	5	92	98	2	10	3.3	68	33	15	4.00
			1510		8	4.9	91	105	3	11	3.8	83	34	12.4	3.00
			1610		8	5	91	121	3	12	3.8	41	34	8.8	3.00
			1710		8	4.9	91	112	3	12	1.9	40	32	8.7	2.00
			1810		8	5.3	92	80	1	8	1.9	52	30	21.9	2.00
			1811	1.7	8	5.4	91	82	1	8	0.46	43	30	22	1.00
			1910		8	6.2	94	15	0		0.45	32	23	33.3	
			1911	3.8	8	6.2	93	16	0		0.35	29	22	33.3	
			2010		8	6.4	94	11	0		0.37	17	22	34.5	
			2011	5.2	8	6.4	93	10	0		5	17	24	34.5	
		29/02/96	0855		7.8	4.1	91	135	4	13	2.7	9	47	1.1	2.00
			1405		8	6	98	73	2	9	2.4	6	35	18.2	
			1410	4.6	8	5.8	96	66	2	9	4.2	29	33	21.2	2.00
		26/04/96	0710		8	11.4	97	98	4	22	2	25	49	0.6	5.00
			1220		8	11.8	90	81	1	15		21	34	18.8	3.00
		22/05/96	1000												10.00
			1400												13.00
		24/06/96	1250		8.3	15.9	110		0		0.12		12	31.4	3.00
			1251												5.00
			1255	4.2	8.2	15.1	108		0		0.12	3	11	31.1	3.00
			1330		8.3	15.8	113		0		0.13	19	12	31.6	5.00
			1331												5.00
			1335	4.2	8.3	15.4	111		0		0.12	6	17	32.3	6.00
			1430		8.4	16.6	118		0	7	0.24		18	28.9	10.00
			1435	3.9	8.3	16.3	117		0	7	0.22	4	19	29.7	9.00

URN	NAME	DATE	TIME	DEPTH m	PH	TEMP OF WATER Deg C	OXYGEN DISSOLV % Sat	AMMONIA FILTERED µg/l	NITRATE FILTERED mg/l N	NITRITE FILTERED µg/l	TON FILTERED mg/l	SUSPEND SOLIDS mg/l	ORTHO PHOSPHT µg/l filtered	SALINITY PPT	CHLORO PHYLLA µg/l
			1530		8.5	17.2	136	31	0	15	0.43	6	28	24.8	16.00
			1535	2.8	8.5	17.1	133	20	0	14	0.41	22	26	25	16.00
			1630		8.6	17.9	150	17	0	19	0.52	13	28	22.6	18.00
			1635	2.3	8.5	17.8	140	23	0	18	0.5	24	31	23.9	19.00
			1730		8.7	18.6	173	22	0	24	0.59	28	28	20.5	31.00
			1830		8.9	18.8			0	30	0.82	33	26	17.1	165.00
			1930		8.9	18.7	198		0	30	0.77	26	22	17	73.00
			2030		8.7	18.3	175	18	0	23	0.61	17	25	19.1	142.00
			2035	2.2	8.6	18.4	157	20	0	20	0.54	14	25	21.7	25.00
			2130		8.6	18	150	17	0	20	0.51	8	27	21.2	23.00
			2135	3.2	8.4	17.6	132	14	0	12	0.38	5	19	25.1	15.00
			2230		8.3	16.9	123		0	6	0.19	11	11	29	10.00
			2235	4	8.3	16.9	122		0	6	0.17	7	12	29	10.00
			2330		8.3	16	113		0		0.11	3		31.9	4.00
			2335	4.8	8.3	15.9	111		0				10	32.2	4.00
		25/06/96	0030		8.2	15.3	109		0					33.6	2.00
			0035	5.5	8.2	14.8	110		0		0.1			33.8	2.00
		29/07/96	1330												105.00
			1700												3.00
		13/08/96	1310												191.00
			1835												4.00
		20/09/96	0740												18.00
			1150												3.00
		12/11/96	1345		8	8.5	95	81	4	17	4.9	85	34	6.7	10.00
			1730		8	11.5	94		0		0.36	83	22	33.7	5.00

[illegible]

TAW ESTUARY

URN	NAME	DATE	TIME	DEPTH m	PH	TEMP OF WATER Deg C	OXYGEN DISSOLV % Sat	AMMONIA mg/l N	AMMONIA non ionised mg/l	NITRATE mg/l N	NITRITE mg/l N	TIN mg/l	TON mg/l N	SUSPEND SOLIDS mg/l	ORTHO PHOSPH mg/l	SILICATE mg/l	CHLORO PHYLLA µg/l
IR30A002	RIVER CAEN AT VELATOR BRIDGE	100194	1410		7.7	8.8	99	0.04	0.0003	5.5	0.022		5.8	26	0.04	4.5	
		40294	1120		7.8	8	99	0.04	0.0004	5.2	0.017		5.3	16	0.04	4.5	
		180294	1050		7.7	8.2	97	0.09	0.0007	5.3	0.04		5.4	17	0.06	4.4	
		280394	1420		7.8	10	99	0.12	0.0014	4.2	0.044		4.3	39	0.07	3.8	
		200494	1340		7.9	10.4	102	<0.02	0.0003	5.1	0.015		5.2	5	<0.02	4.4	
		250594	1030		7.9	12.2	115	0.02	0.0003	4.4	0.029		4.5	4	0.06	4.6	
		10794	1240		7.9	15.6	100	0.02	0.0004	4.8	0.021		4.9	2	0.08	4.8	
		170894	1125		7.7	14.2	88	0.03	0.0004	3.8	0.028		3.7	7	0.18	4.8	
		101094	1015		7.7	10.1	95	<0.02	0.0002	4.1	0.008		4.2	5	0.05	5.1	
		281094	1020		7.7	9.9	100	<0.02	0.0002	3.5	0.013		3.8	4	0.05	5.1	
		171194	1105		7.7	10.7	99	0.03	0.0003	4.7	0.1		4.8	14	0.03	4.8	
		181294	1230		7.7	9.8	93	0.03	0.0003	5.3	0.026		5.4	18	0.04	5	
		230195	0945		7.8	7.8	103	0.04	0.0002	5.1	0.015	5.2	5.2	27	0.04		2.00
		230295	1050		7.7	7.7	101	0.04	0.0003	5.2	0.017	5.3	5.3	13	0.04		2.00
		220395	0915		7.8	8.5	103	0.03<	0.0003	5.1	0.018	5.2	5.2	3	0.03		2.00
		280495	1140		8.1	10.8	110	0.03<	0.0007	4.6	0.014	4.7	4.7	4	0.05	4	7.00
		250595	1040			14											11.00
		120695	1015		7.8	12	102	0.03<	0.0005	4.8	0.020	4.9	4.9	<3	0.10	5.3	3.00
		00795	1155		7.9	18.3	101	0.03<	0.0007	5.0	0.017	5.1	5.1	4	0.13	4.8	2.00
		260795	0945		7.4	17	92	0.07	0.0008	4.7	0.035	4.8	4.8	17	0.14	3.7	4.00
		230895	1130		7.5	17.8	96	0.07	0.0007	4.6	0.032	4.7	4.7	4	0.17	4.2	2.00
		50995	1255		7.8	13.3	103	0.03<	0.0004	4.1	0.015	4.2	4.2	3	0.17	5.7	3.00
		41095	1045		7.7	14.4	99	0.03<	0.0004	4.1	0.010	4.2	4.2	<3	0.13	5.8	2.00
		21195	1050		7.8	9.5	93	0.03<	0.0002	3.7	0.008	3.8	3.8	<3	0.08	5.4	2.00
		181195	1115		7.8	10.6	103	0.03<	0.0002	3.5	0.013	3.6	3.6	6	0.07	4.9	4.00
		110196	0930		7.8	10.8	103	0.03<	0.0002	6.7	0.014	6.8	6.8	30	0.04	4.4	4.00
		260196	1420		7.7	3.4	100	0.03	0.0002	6.5	0.011	6.6	6.6	7	0.03	4.9	2.00
		260296	1120		7.7	8.7	101	0.03	0.0002	5.8	0.017	5.7	5.7	7	0.04	4	4.00
		210396	1050		7.8	8	100	0.04	0.0004	5.3	0.019	5.4	5.4	3	0.06	3.6	2.00
		120496	1800		7.4	8.9	99	0.28	0.0014	4.0	0.058	4.3	4.1	141	0.15	3.1	49.00
		140596	1100		8.1	9.8	107	0.03<	0.0008	5.6	0.009	5.7	5.7	<3	0.03	3.8	4.00
		120696	1405		7.9	14.3	94	0.03	0.0006	5.5	0.023	5.6	5.6	6	0.07	4.8	6.00
		310796	1005		7.8	15.6	94	<0.03	0.0005	4.8	0.025	4.9	4.9	4	0.13	5.6	2.00
		200896	1430		7.7	18.5	82	0.27	0.0041	4.6	0.079	4.9	4.7	11	0.23	4.9	8.00
		110996	1040		7.9	14.4	104	<0.03	0.0006	5.1	0.018	5.2	5.2	3	0.17	4.7	4.00
		181096	1215		7.7	10.9	99	0.07	0.0007	3.7	0.034	3.8	3.8	8	0.2	5.7	7.00
		81196	0945		7.5	8.2	92	<0.03	0.0008	6.8	0.013	6.9	6.9	15	0.04	4.5	5.00

RIVER CAEN AT VELATOR BRIDGE
No of Samples

pH	Temp	D.O. %	Ammonia	Amon(non l)	Nitrate	Nitrite	TIN	TON	S.Solids	Ortho phos	Silicate	chlorophyl
0.16	3.320226	5.86598	0.050265	0.000663	2.431663	0.022431	0.8835	0.8194	23.46977	0.061621	0.637762	9.123883
7.74	11.16486	99.08333	0.021111	0.000581	2.241667	0.014722	5.0625	4.9444	13.05556	0.040278	4.651515	5.72
8.1	17.6	115	0.27	0.0041	8.8	0.1	6.9	6.9	141	0.23	5.8	49
7.4	3.4	82	0	0.0002	0	0	3.6	3.6	0	0	3.1	2

TAW ESTUARY

URN	NAME	DATE	TIME	DEPTH m	PH	TEMP OF WATER Deg C	OXYGEN DISSOLV % Sat	AMMONIA mg/l N	AMMONIA non ionised mg/l	NITRATE mg/l N	NITRITE mg/l N	TIN mg/l	TON mg/l N	SUSPEND SOLIDS mg/l	ORTHO PHOSPH mg/l	SILICATE mg/l	CHLORO PHYLLA µg/l
R30A004	RIVER VERN AT BISHOPS TAWTON	190194	1525		7.6	8.6	100	0.06	0.0003	3.4	0.018		3.5	22	0.04	5.4	
		110294	1155		7.7	8	98	0.16	0.0013	2	0.045		2.1	56	0.07	4	
		10394	1135		7.8	7.5	101	0.06	0.0006	3.6	0.017		3.7	14	0.02	5.6	
		316394	1225		7.8	8.4	100	0.1	0.001	3.3	0.032		3.4	23	0.05	5.2	
		270494	1505		7.9	12.2	99	<0.02	0.0003	2.3	0.017		2.4	11	0.03	5.1	
		140694	1140		8	13.9	104	<0.02	0.0005	1.9	0.02		2	3	0.02	3.8	
		50794	1305		8	15.1	112	<0.02	0.0005	1.5	0.008		1.6	3	<0.02	5.4	
		190894	1020		7.8	14.9	97	0.02	0.0003	1.2	0.02		1.3	13	0.05	5.6	
		90994	1120		7.8	12.8	84	0.05	0.0007	1.8	0.031		1.7	59	0.08	6.8	
		251094	1455		7.7	11	90	0.15	0.0015	2	0.025		2.1	48	0.06	6.3	
		151194	1045		7.6	11.6	96	0.03	0.0002	3.4	0.012		3.5	12	0.03	5.9	
		141294	1145		7.7	9.1	94	0.03	0.0003	3.6	0.01		3.7	6	0.03	6.2	
		300195	1135		7.5	8.1	97	0.04	0.0002	4.1	0.012	4.2	4.2	25	0.04		2.00
		220295	1245		7.5	8.6	99	<0.03	0.0002	3.8	0.011	3.9	3.9	15	0.03		2.00
		180395	1120		7.6	6.9	101	0.12	0.0007	3.1	0.017	3.3	3.2	27	<0.02		6.00
		30595	1055		8	12.7	107	<0.03	0.0007	2	0.018	2.1	2.1	7	<0.02	2.6	9.00
		120695	1255		8	12.7	103	0.03	0.0008	1.9	0.028	2	2	3	0.04	6.3	5.00
		60795	1130		7.9	16.3	100	<0.03	0.0008	1.2	0.006	1.3	1.3	5	0.02	6.6	6.00
		30895	1200		7.9	16.8	90	<0.03	0.001	1	0.007	1.1	1.1	6	0.04	6.6	6.00
		110995	1800		7.7	15	89	<0.03	0.0005	1.7	0.028	1.8	1.6	14	0.07	7.5	6.00
		280995	1035		7.7	11.3	104	<0.03	0.0003	2.5	0.017	2.6	2.6	5	0.05	7.7	4.00
		251095	1110		7.3	11.9	104	6.18	0.0008	4.5	0.076	4.7	4.6	44	0.08	6.8	17.00
		71195	1430		7.7	7.9	95	<0.03	0.0003	2.6	0.01	2.7	2.7	3	0.03	7.3	1.00
		271195	1210		7.6	9.2	94	0.21	0.0016	4.1	0.029	4.4	4.2	14	0.08	8.1	4.00
		80196	1050		7.8	8.8	97	0.08	0.0006	4.6	0.025	4.8	4.9	38	0.04	5.9	6.00
		230196	1210		7.7	6	105	0.04	0.0003	4.5	0.013	4.6	4.6	6	0.02	6.4	1.00
		220296	1145		7.7	5.4	100	0.13	0.0006	4.4	0.025	4.6	4.5	16	0.03	5.8	2.00
		270396	1125		7.8	5.1	103	<0.63	0.0003	4.7	0.011	4.8	4.8	4	<0.02	5.6	4.00
		90496	1115		7.8	8.6	103	0.03	0.0003	3.8	0.024	3.9	3.8	17	0.03	5	6.00
		290596	1140		7.8	12.7	98	<0.03	0.0005	3.9	0.023	4	4	25	0.03	5.7	11.00
		190696	1338			17.5											6.00
		40796	1020		7.8	13.7	95	<0.03	0.0005	1.9	0.019	2	2	5	0.03	6.4	5.00
		180796	1100		7.8	11.6	96	0.05	0.001	1.6	0.02	1.7	1.7	6	0.04	6.4	5.00
		10396	1300		7.9	16.5	95	0.04	0.0009	1.3	0.01	1.4	1.4	<3	0.04	6.5	3.00
		240996	1355		8	13.2	99	<0.03	0.0007	1.1	<0.004	1.1	1.1	<3	0.02	6.6	2.00
		211096	1315		7.8	12.8	95	0.06	0.0006	2.2	0.036	2.3	2.3	11	0.04	7.5	6.00
		191196	1125		7.8	7.0	96	0.17	0.0012	4	0.024	4.2	4.1	63	0.02	5.9	7.00

RIVER VENN AT BISHOPS TAWTON
No of Samples

	pH	Temp	D.O.%	Ammonia	mon(non I)	Nitrate	Nitrite	TIN	TON	S.Solids	Ortho phos	Silicate	Chloropyhl A
STD	0.16	3.57358	5.362478	0.059393	0.000362	1.186586	0.013144	1.3174	1.1907	17.04811	0.0204728	1.053369	3.392698
MEAN	7.75	11.10811	98.27778	0.050556	0.000642	2.791667	0.020694	3.0667	2.8889	17.52778	0.0355556	5.963636	5.36
MAX	8	19.8	112	0.21	0.0016	4.8	0.076	4.9	4.9	63	0.08	7.7	17
MIN	7.3	5.1	84	0	0.0002	1	0	1.1	1.1	0	0	2.8	1

TAW ESTUARY

URN	NAME	DATE	TIME	DEPTH m	PH	TEMP OF WATER Deg C	OXYGEN DISSOLV % Sat	AMMONIA mg/l N	AMMONIA non ionised mg/l	NITRATE mg/l N	NITRITE mg/l N	YIN mg/l	TON mg/l N	SUSPEND SOLIDS mg/l	ORTHO PHOSPHT mg/l	SILICATE mg/l	CHLORO PHYLLA µg/l
R33A008	KNOWL WATER AT OLD	10/01/94	1420		7.7	9	97	0.07	0.0008	0.3	0.031		6.4	25	0.05	6.4	
	RAILWAY BRIDGE, VELATOR	04/02/94	1110		7.8	8.1	100	0.03	0.0003	6	0.027		6.1	17	0.05	6.6	
		10/02/94	1040		7.7	8.3	96	0.07	0.0008	6.8	0.041		6.9	23	0.06	5.3	
		28/03/94	1416		7.9	10.3	99	0.05	0.0007	6.5	0.033		6.6	24	0.06	4.6	
		20/04/94	1350		8	10.4	102	<0.02	0.0004	6.7	0.011		6.8	7	<0.02	6.5	
		23/05/94	1040		8	13	115	0.03	0.0007	4.7	0.033		4.8	7	0.08	6.8	
		01/07/94	1230		8	17.2	98	0.03	0.0006	5	0.028		6.1	4	0.12	4.8	
		07/08/94	1119		7.7	14.6	85	0.08	0.0007	3.1	0.034		3.2	13	0.2	6.4	
		10/10/94	1005		7.9	10.6	95	<0.02	0.0003	5	0.015		5.1	11	0.1	6	
		26/10/94	1016		7.9	9.8	100	0.02	0.0003	4.2	0.016		4.3	4	0.1	6.4	
		17/11/94	1055		7.8	10.7	99	0.03	0.0004	6.4	0.013		6.6	15	0.04	6.4	
		18/12/94	1240		7.8	9.6	93	<0.02	0.0002	6.8	0.033		6.9	16	0.05	5.9	
		23/01/95	0935		7.7	7.8	101	0.04	0.0003	0	0.025	6.1	0.1	38	0.05		6.00
		23/02/95	1030		7.7	7.8	100	0.04	0.0003	0.1	0.027	6.2	0.2	21	0.05		4.00
		22/03/95	0906		7.9	8.2	103	<0.03	0.0003	5.7	0.016	6.8	6.8	3	0.04		1.00
		26/04/95	1120		8.1	10.8	107	<0.03	0.0007	4.8	0.023	4.8	4.8	8	0.06	4.6	16.00
		25/05/95	1055			14											8.00
		12/06/95	1000		7.0	12.2	98	0.08	0.0016	4.6	0.039	4.6	4.6	9	0.17	6.7	11.00
		06/07/95	1140		8.4	16.6	125	0.04	0.0028	3.9	0.036	4	4	8	0.18	6.3	16.00
		26/07/95	1000		7.5	17	92	0.26	0.0029	3.3	0.051	3.6	3.4	27	0.2	6.2	8.00
		23/08/95	1110		7.7	17.2	97	0.24	0.0038	3.2	0.061	3.6	3.3	12	0.25	6.4	8.00
		15/09/95	1255		7.0	13.6	102	0.04	0.0008	3.4	0.025	3.6	3.6	7	0.23	6.7	4.00
		04/10/95	1030		7.7	14.3	99	0.07	0.0009	3.6	0.034	3.6	3.8	13	0.27	6.8	7.00
		02/11/95	1040		7.8	9.2	94	<0.03	0.0004	4.1	0.012	4.2	4.2	21	0.17	7.2	4.00
		16/11/95	1106		7.7	10.3	85	0.08	0.0008	4	0.033	4.1	4.1	10	0.14	0.7	13.00
		11/01/96	0920		7.0	8.8	99	0.04	0.0003	7.6	0.029	7.7	7.7	36	0.05	6.3	6.00
		26/01/96	1425		7.8	2.7	98	0.03	0.0002	6.6	0.02	6.6	6.6	27	0.05	6.8	4.00
		26/02/96	1106		7.7	6.3	97	0.05	0.0004	6.3	0.032	6.4	6.4	10	0.07	6.1	167.00
		21/03/96	1045		7.8	6.8	99	0.07	0.0006	6.4	0.031	6.6	6.6	8	0.08	4.6	7.00
		12/04/96	1046		7.5	8.8	98	0.48	0.0029	3.6	0.092	4.1	3.7	311	0.22	3.6	83.00
		14/05/96	1140		8.1	9.7	104	<0.03	0.0007	6.6	0.026	6.7	6.7	3	0.07	4.7	6.00
		12/06/96	1420		8	13.6	94	0.03	0.0007	6.6	0.026	6.7	6.7	10	0.1	6.1	6.00
		31/07/96	1020		7.7	16.4	93	0.08	0.0013	4.2	0.019	4.3	4.3	6	0.18	6.4	6.00
		20/08/96	1440		7.9	13	93	0.06	0.0011	3.7	0.042	3.6	3.8	16	0.27	6.6	11.00
		11/09/96	1055		8.4	14.6	122	0.03	0.0021	3.6	0.016	3.7	3.7	12	0.21	6.7	7.00
		16/10/96	1200		7.6	10.6	97	0.06	0.0006	3.4	0.028	3.6	3.6	13	0.24	6.6	8.00
		08/11/96	0930		7.7	8.8	92	0.04	0.0003	8.7	0.027	8.8	8.8	31	0.06	6.7	7.00

KNOWL WATER AT OLD
RAILWAY BRIDGE, VELATOR
No of Samples

	pH	Temp	D.O.%	Ammonia	mon(non i)	Nitrate	Nitrite	TIN	TON	S.Solids	Ortho phos	Silicate	Chlorophyl A
STD	0.2	3.441665	7.994742	0.089135	0.000878	1.293383	0.014725	1.4214	1.2934	49.49656	0.0776745	0.754965	32.471825
MEAN	7.84	11.03784	98.97222	0.062222	0.000922	4.977778	0.030222	4.9958	5.0778	23.08333	0.12	5.581818	16.56
MAX	8.4	17.2	125	0.48	0.0038	8.7	0.092	8.8	8.8	311	0.27	7.2	157
MIN	7.5	2.7	85	0	0.0002	3.1	0.011	3.5	3.2	3	0	3.5	1

TAW ESTUARY

URN	NAME	DATE	TIME	DEPTH m	PH	TEMP OF WATER Deg C	OXYGEN OISSOLV % Sat	AMMONIA mg/l N	AMMONIA non ionised mg/l	NITRATE mg/l N	NITRITE mg/l N	TIN mg/l	TON mg/l N	SUSPEND SOLIDS mg/l	ORTHO PHOSPH mg/l	SILICATE mg/l	CHLORO PHYLLA µg/l
R30B005	RIVER TAWAT NEW BRIDGE	19/01/94	1535		7.6	6	97	0.07	0.0004	3	0.027		3.1	13	0.05	4.8	
		11/02/94	1410		7.7	7.1	95	0.14	0.001	1.5	0.027		1.6	148	0.04	3.3	
		01/03/94	1010		7.7	7	101	0.05	0.0004	3	0.018		3.1	13	0.03	4.8	
		31/03/96	1235		7.6	8	96	0.7	0.0044	2.7	0.039		2.6	271	0.16	3.1	
		27/04/94	1240		8.1	12.8	101	<0.02	0.0008	1.8	0.011		1.6	<2	0.03	3.1	
		14/06/94	1130		7.6	16.4	99	<0.02	0.0004	1.3	0.017		1.4	2	0.04	<0.8	
		05/07/94	1315		8	17.7	107	<0.02	0.0008	1.8	0.02		1.9	3	0.13	2.3	
		19/08/94	1040		8	16.6	99	0.03	0.0008	1.1	0.014		1.2	3	0.13	0.7	
		09/09/94	1135		7.7	13.6	80	0.11	0.0013	1.7	0.039		1.8	40	0.24	6.3	
		25/10/94	1505		7.6	10.7	93	0.04	0.0003	1.6	0.028		1.6	60	0.07	6.2	
		16/11/94	1050		7.6	11.6	96	0.03	0.0002	2.9	0.018		3	19	0.04	5.2	
		14/12/94	1130		7.6	9.8	93	0.02	0.0001	3.4	0.017		3.5	6	0.04	5.6	
		30/01/95	1155		7.6	7.7	96	0.06	0.0003	3.2	0.022	3.3	3.3	30	0.04		2.00
		22/02/95	1255		7.6	7.4	100	0.03	0.0002	3	0.017	3.1	3.1	10	0.03		2.00
		16/03/95	1130		7.7	9.2	99	0.03	0.0002	2.8	0.025	2.9	2.9	4	0.04		2.00
		03/05/95	1040		8.3	14.4	104	<0.03	0.0015	1.3	0.022	1.4	1.4	3	0.05	<0.8	10.00
		12/06/95	1245		7.8	14.6	98	0.04	0.0007	1.7	0.035	1.8	1.8	4	0.19	2.7	7.00
		06/07/95	1110		8.2	18.4	94	<0.03	0.0018	1	0.021	1.1	1.1	4	0.22	2.2	32.00
		03/08/95	1145		7.6	22.3	80	0.07	0.0013	1.7	0.047	1.8	1.8	3	0.24	4	6.00
		11/09/95	1610		7.8	19.4	98	0.11	0.0029	1.8	0.041	2	1.9	14	0.25	4.1	30.00
		28/09/95	1055		7.7	12.3	101	0.07	0.0008	2.2	0.029	2.3	2.3	16	0.31	6.3	10.00
		25/10/95	1125		7.4	12.6	96	0.14	0.0006	2.6	0.067	2.6	2.7	160	0.19	6	79.00
		07/11/95	1445		7.9	6.8	102	<0.03	0.0003	2	0.006	2.1	2.1	<3	0.1	4.6	3.00
		27/11/95	1220		7.6	6.2	95	0.03	0.0002	3.7	0.02	3.6	3.6	12	0.05	5.7	4.00
		08/01/96	1040		7.6	8.2	99	0.06	0.0003	6.2	0.026	6.3	6.3	19	0.04	6.6	3.00
		23/01/96	1045		7.6	6	104	0.03	0.0002	4.7	0.017	4.8	4.8	3	0.04	6.9	<1.00
		22/02/96	1135		7.6	4	99	<0.03	0.0002	6.1	0.013	6.2	6.2	3	0.03	6.3	<1.00
		27/03/96	1140		7.7	6.8	103	<0.03	0.0002	6.6	0.016	6.6	6.6	6	0.03	6	7.00
		19/04/96	1050		7.8	9.1	101	<0.03	0.0004	4.2	0.02	4.3	4.3	6	0.03	3.6	11.00
		29/05/96	1200		7.8	12.7	97	0.03	0.0004	3.2	0.018	3.3	3.3	6	0.05	4.6	6.00
		19/06/96	1348			16.6											3.00
		04/07/96	1030		7.8	15.6	93	0.04	0.0007	2.1	0.021	2.2	2.2	4	0.26	2.6	4.00
		18/07/96	1045		7.8	16	92	0.04	0.001	2.1	0.024	2.2	2.2	4	0.35	2.7	6.00
		01/08/96	1320		8	19.1	100	<0.03	0.0012	1.6	0.02	1.6	1.6	4	0.26	2.2	19.00
		24/09/96	1320		8.1	13.2	100	<0.03	0.0006	1.7	0.017	1.8	1.8	>3	0.15	6.6	4.00
		21/10/96	1300		7.4	13.2	93	0.06	0.0004	1.6	0.027	1.9	1.9	55	0.08	4.8	21.00
		19/11/96	1140		7.6	6.2	98	0.1	0.0003	4.4	0.034	4.6	4.5	46	0.06	5.7	6.00

RIVER TAW AT NEW BRIDGE
No of Samples

	pH	Temp	D.O. %	Ammonia	mon(non l)	Nitrate	Nitrite	TIN	TON	S.Solids	Ortho phos	Silicate	Chlorophyl A
STD	0.21	4.873489	5.425349	0.115286	0.00083	1.286564	0.011332	1.4157	1.2868	54.31705	0.0955503	1.811736	16.211107
MEAN	7.74	11.81351	97.19444	0.059187	0.000781	2.844444	0.024417	3.0083	2.7444	27.36111	0.1141667	3.893939	11
MAX	8.3	22.3	107	0.7	0.0044	6.2	0.067	6.3	6.3	271	0.35	6.3	79
MIN	7.4	4	80	0	0.0001	1	0.006	1.1	1.1	0	0.03	0	0

Taxon	E30A5 - Little Pill												E30A6 - Barnstable												E30A7 - Off Ash/o	
	25th April		18th May		21st June		13th July		17th August		4th October		25th April		18th May		21st June		13th July		17th August		4th October		25th April	
	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW
Phytoplankton Indet.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bacillariophyceae (Diatoms)																										
Centric diatom Indet.	-	-	400	400	-	300	-	-	-	-	-	-	-	-	12 000	3 800	-	-	-	-	-	-	500	667	-	-
Asterionella *	-	-	100	150	1 000	2 800	500	2 300	450	1 700	400	100	-	-	-	400	600	6 800	737	2 200	1 350	1 828	100	333	-	-
Biddulphia	-	-	-	-	-	-	-	200	-	600	-	-	-	-	100	200	-	100	1 000	700	-	826	-	-	-	-
Chaetoceros *	-	-	40	60	100	100	100	-	300	200	60	60	-	-	150	-	100	400	87	400	250	63	-	-	200	-
Coscinodiscus	-	-	-	-	-	-	-	-	-	-	-	-	-	200	-	-	-	-	-	-	-	-	-	-	-	-
Dityum	-	-	-	-	-	-	-	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thalassiosira	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	350	-	-	-
Leptocylindricus *	-	-	-	-	-	-	-	-	-	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Melosira *	-	-	-	-	-	-	-	-	-	-	-	-	-	200	-	1 400	-	-	-	-	-	-	-	-	100	-
Naviculoid	3 000	4 600	2 000	1 150	500	900	4 700	8 200	750	1 550	50	100	3 300	2 150	2 000	-	700	400	737	1 300	2 850	2 500	100	87	1 250	250
Nitzschoid	-	-	1 100	900	200	800	100	100	250	50	-	-	-	50	1 200	600	400	1 100	87	-	300	188	-	87	60	60
Pleurocymoid	100	50	200	-	100	400	-	100	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-
Rhizosolenia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	-	-	-	-	-
Stephanodiscus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thalassionema	300	250	-	-	-	-	-	-	-	-	-	-	-	150	-	-	-	-	-	-	-	-	-	-	300	250
Thalassioira	250	250	7 000	13 000	12 100	33 200	-	-	-	200	700	350	900	800	-	-	13 700	16 200	-	-	100	63	-	-	550	1 850
Dinophyceae (Dinoflagellates)																										
Dinoflagellate Indet.	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	50	-	-	-
sp. cf. Glenodinium	-	-	-	50	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-
Ketodinium	-	-	-	-	-	-	-	200	-	150	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-
Gymnodinium	-	-	-	-	-	-	1 500	600	50	150	-	50	-	-	-	-	-	-	1 600	-	-	-	-	-	-	-
Gyrodinium	-	-	-	-	100	-	-	1 400	-	-	-	-	-	-	-	-	-	-	402	400	100	250	-	-	-	-
Polykrikos *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Protoperidinium	-	-	-	-	-	-	-	-	150	50	-	-	-	-	-	-	-	-	-	-	200	63	-	-	-	-
Other Flagellates																										
Flagellate Indet.	800	1 350	4 300	6 850	13 900	4 200	2 900	9 700	2250	3 250	400	600	500	500	3 200	3 500	2 600	4 600	3 688	6 300	5 350	1 688	450	1 833	1 050	2 900
Scenedesmus	-	-	400	-	-	1 000	300	100	50	-	-	-	-	-	150	200	-	1 000	-	-	-	-	-	-	-	-
Tetrasium *	-	-	200	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-
?Mallomonas	-	-	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uroglena	-	-	500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-
Euglenophyceae	-	-	200	-	100	-	-	-	850	-	-	-	-	-	100	-	-	-	-	-	50	-	-	-	-	-
Chrysoschromulina	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prymnesiophyceae (Haptophyce)	400	200	-	-	-	-	-	-	-	-	-	-	150	250	-	-	-	-	-	-	-	-	-	-	100	1 850
Cyanophyceae (Blue Green Alga)																										
Oscillatoria *	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DoE Bloom criteria met:																										
500 cells ml-1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Chlorophyll	31	111	35	80	123	284	108	123	41	100	34	18	58	33	128	25	129	279	76	88	69	99	17	33	31	21

Notes:

- 1: All counts given as number of cells per ml unless taxon name marked (*) where the count applies to numbers of colonies per ml.
- 2: Values in bold indicate samples where chlorophyll A measurement threshold has been exceeded.
- 3: Where the DoE cell count criterion has been exceeded by a total count they have been identified thus: Y.

d											E30A8 - RAF Chivenor															
Taxon	18th May		21st June		13th July		17th August		4th October		25th April		18th May		21st June		13th July		17th August		4th October					
	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW				
Phytoplankton Indet.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SAMPLES LOST						-	-	-	-
Bacillariophyceae (Diatoms)																										
Centric diatom Indet.	18 000	1 500	-	-	-	-	-	-	-	-	-	-	-	-	18 000	-	-	-	-	-	-	-	-			
Asterionella *	200	-	2 400	2 100	1 800	1 200	250	500	150	-	-	-	150	50	4 900	-	-	-	300	87	333	87				
Biddulphia	100	-	-	300	500	900	100	50	50	-	-	-	100	-	-	-	-	-	50	200	133	-				
Chaetoceros *	-	-	200	200	200	100	100	50	-	-	-	-	600	-	200	-	-	-	150	87	87	-				
Coscinodiscus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Ditylum	100	-	-	-	-	-	-	-	-	-	-	-	-	-	50	-	-	-	-	-	-	-				
?Lauderia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Leptocylindricus *	-	-	-	-	-	-	-	50	50	-	60	-	50	100	-	-	-	-	-	-	-	-				
Melosira *	-	-	-	-	-	-	-	-	-	-	-	900	500	-	-	-	-	-	-	-	-	-				
Naviculoid	700	500	1 500	1 700	4 300	1 500	1 350	400	-	100	700	250	150	150	3 100	100	-	-	850	9 833	87	-				
Nitzschoid	1 800	900	500	100	-	600	500	300	-	-	100	-	550	150	300	50	-	-	-	1 833	87	87				
Pleurosigma	-	-	-	-	-	-	-	-	-	-	-	50	50	-	-	-	-	-	-	-	-	-				
Rhizosolenia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Staphanodiscus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Thalassionema	-	-	-	-	-	-	-	-	-	-	-	100	50	-	-	-	-	-	-	-	-	-				
Thalassiosira	800	400	18 400	100	-	-	-	150	-	-	2 050	2 750	500	100	-	-	-	-	150	133	-	-				
Dinophyceae (Dinoflagellates)																										
Dinoflagellate Indet.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	-	-	-	-	-	-				
sp. cf. Glenodinium	200	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Katodinium	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	50	-	-	-	-	-	-				
Gymnodinium	-	-	-	-	300	-	-	-	-	-	-	-	-	-	-	300	-	-	50	200	-	-				
Gyrodinium	-	-	200	-	300	-	-	100	-	-	50	200	60	-	-	200	-	-	350	-	-	-				
Polykrikos *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Protoperidinium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	-	-	-				
Other Flagellates																										
Flagellate Indet.	4 000	5 300	8 200	2 400	9 000	4 800	1 300	2 850	2 100	1 867	400	4 750	1 650	1 800	7 500	3 250	-	-	1 550	2 887	1 887	1 533				
Scenedesmus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Tetrasium *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
?Mallomonas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Uroglena	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Euglenophyceae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	150	-	-	-				
Chrysoschromulina	-	-	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Prymnesiophyceae (Haptophyceae)	-	-	-	-	-	-	-	-	-	-	-	1 300	-	-	200	100	-	-	-	-	-	-				
Cyanophyceae (Blue Green Algae)																										
Oscillatoria *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
DoE Bloom criteria met:																										
500 cells ml ⁻¹	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	Y	Y	Y	Y				
Chlorophyll	154	18	156	74	90	28	31	17	11	5	30	35	13	88	193	4	47	5	16	114	11	4				

E30A5 - Little Pi														E30A6 - Bembridge													
Taxon	28th April		22nd May		24th June		30th July		13th August		20th September		October		26th April		22nd May		24th June		30th July		13th August		20th September		
	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	
Bacillariophyceae (Diatoms)																											
Centric diatom indet.	-	50	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	
Asterionella *	-	-	-	-	-	-	1 900	1 000	-	200	200	800	-	-	-	-	-	-	-	-	1 400	1 500	40	200	400	2 000	
Biddulphia	-	-	-	-	-	-	100	57	400	40	400	-	-	-	-	-	-	-	-	28	100	80	800	-	400		
Chesteria *	-	-	-	-	-	-	100	28	100	-	40	-	-	-	-	-	-	-	-	-	-	40	200	-	100		
Coelodictyon	-	-	-	-	-	-	-	28	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	
Cylindropsis	-	-	-	-	3 800	129 400	200	400	6 400	2 000	1 800	1 200	-	-	-	-	-	-	60 800	58 000	200	100	4 400	1 200	400	50	
Citylum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Eucampia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200	-	-	-	
Leptocylindricus *	-	-	-	-	-	-	-	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Melosira *	-	50	-	-	-	-	40	100	400	-	-	-	-	-	100	-	-	-	-	-	28	-	-	400	-	-	
Naviculoid	700	200	533	-	1 000	2 000	1 800	2 800	800	800	100	-	-	-	300	400	728	1 100	1 000	800	2 000	700	400	200	100	800	
Nitzschiod	-	-	67	-	-	-	100	200	-	200	300	800	-	-	-	-	-	-	-	100	300	-	200	100	-	-	
Pleurosigma	-	-	-	-	100	200	-	-	200	200	-	-	-	-	-	-	-	-	-	-	-	-	200	-	-	-	
Rhizosolenia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Thalassionema	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	91	-	-	-	-	-	-	-	60	-	-	
Thalassiosira	-	-	-	-	200	-	-	-	200	40	-	-	-	-	-	-	-	-	200	200	-	-	-	-	50	-	
Dinophyceae (Dinoflagellates)																											
Dinoflagellate indet.	-	-	-	-	-	-	100	-	-	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cochlodinium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	
Katodinium	-	-	-	-	-	-	-	200	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Gymnodinium	-	-	-	-	-	100	200	4 800	800	200	-	-	-	-	-	-	-	-	200	-	-	300	6 000	400	-	-	
Gyrodinium	-	-	-	-	600	-	-	-	40	-	-	-	-	-	-	-	-	-	400	-	-	100	-	-	100	-	
Polykrikos *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Prorocentrum	-	-	-	-	-	-	-	-	-	-	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Protoperidinium	-	-	-	-	-	-	100	200	400	40	-	-	-	-	-	-	-	-	-	-	-	28	-	-	200	-	
Other Flagellates																											
Flagellate indet.	4 700	2 550	3 800	-	4 500	2 000	12 300	11 700	6 200	14 400	6 400	6 400	-	-	4 100	2 400	2 273	7 300	1 400	16 800	10 200	9 200	3 400	4 800	-	-	
Actinastrum *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Coelastrum *	-	-	-	-	-	-	-	-	400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Pediastrum *	-	-	-	-	-	-	-	-	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Scenedesmus *	-	-	-	-	-	-	-	-	-	200	-	-	-	-	-	-	-	-	-	-	100	-	400	-	-	-	
Tetrasstrum *	-	-	-	-	-	-	-	-	-	-	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cryptophyceae	-	-	-	-	-	-	2 200	3 200	9 400	4 400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
"Dictyophyceae"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	1 000	1 200	3 200	2 200	-	-	
Euglenophyceae	-	-	-	-	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Chrysochromulins	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Prymnesiophyceae (Haptophyceae)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	182	100	-	-	-	-	-	-	-	-	-	
Cyanophyceae (Blue Green Algae)																											
Oscillatoria *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DoE Bloom criteria met:																											
500 cell ml-1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	(Y)	Y	
Chlorophyll	9	6	13	14	NO CHL	126	97	98	98	86	22	115	NO	8 SAMPLE	7	6	13	14	107	119	88	39	98	67	18	84	

- Notes:
- 1: All counts given as number of cells per ml unless taxon name marked (*) where the count applies to numbers of colonies per ml.
 - 2: Values in bold indicate samples where chlorophyll A measurement threshold has been exceeded.
 - 3: No CHL indicates that no Chlorophyll A data has been provided.
 - 4: No Samples indicates that samples were unable to be taken for analyses.
 - 5: Where the DoE cell count criteria has been exceeded by a total count, but not single taxa count, they have been identified thus: (Y).

[illegible]

Taw Estuary Classification Results - 1995 Survey

Biological Survey Description

The nine estuarine Sensitive Areas/Polluted Waters were flown-over at low water and "photographed" using Compact Aerial Spectrographic Imagery (CASI). This system digitally records the reflected wavelength information from vegetation and physical features and divides the intertidal area into classes based on this spectral information. As this spectral data is digital information, the calculation of the surface area of each class and hence the percentage cover of the seaweeds *Ulva* and *Enteromorpha* is easily generated.

Quality Assurance: The CASI system has been extensively tested in Langstone Harbour ("Langstone Harbour Inter-tidal Vegetation Classification Survey" by R. C. Allen and R. C. Saull, 1996. A report by the National Rivers Authority National Centre for Instrumentation & Marine Surveillance). Ground-truthing field surveys were undertaken by marine biologists to visually identify features, and photographic and video evidence was collected to test the accuracy of the images generated.

Taw Classification Results Table 1995

Percentage cover of the algae *Enteromorpha* and *Ulva*.

Inter-tidal area: 6160600 m²

Land Cover Classes	Square Metres	Percentage	Calculated Algae
Wet Mud	909500	14.76	
Dry Mud/Sand	4427375	71.87	
Wet Mud Channels	439275	7.13	
Algae (50% cover)	249450	4.05	2.025
Unclassified	135000	2.19	
Totals	6160600 m ²	100 %	2.025 %

Taw Estuary Ground-Truthing Site Locations

Site	NGR
1) Behind Crow Point	SS 4655 3225
2) Broad Sands	SS 4670 3260
3) Opposite White House	SS 4700 3300
4) Mouth of River Caen	SS 4830 3360
5) SS Chivenor	SS 4900 3390
6) Yelland Nature Reserve	SS 4900 3325
7) Penthill Point	SS 5230 3415

The Aerial Survey was carried out on 15 August 1995, and the Biological Survey on 30 August 1995.

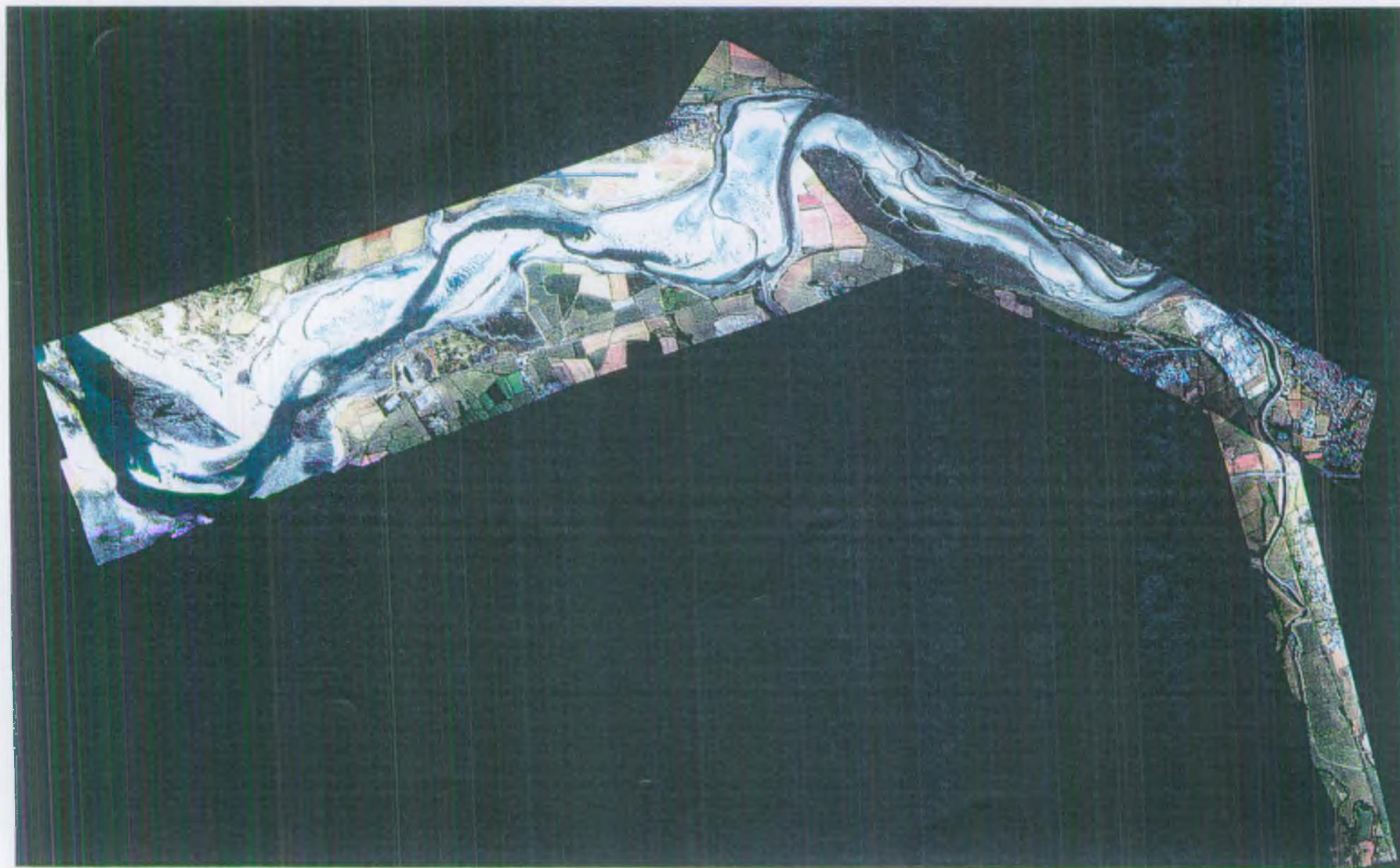
I have no information on the duration of the algae in the estuary.



ENVIRONMENT
AGENCY

CASI True Colour Mosaic of the River Taw

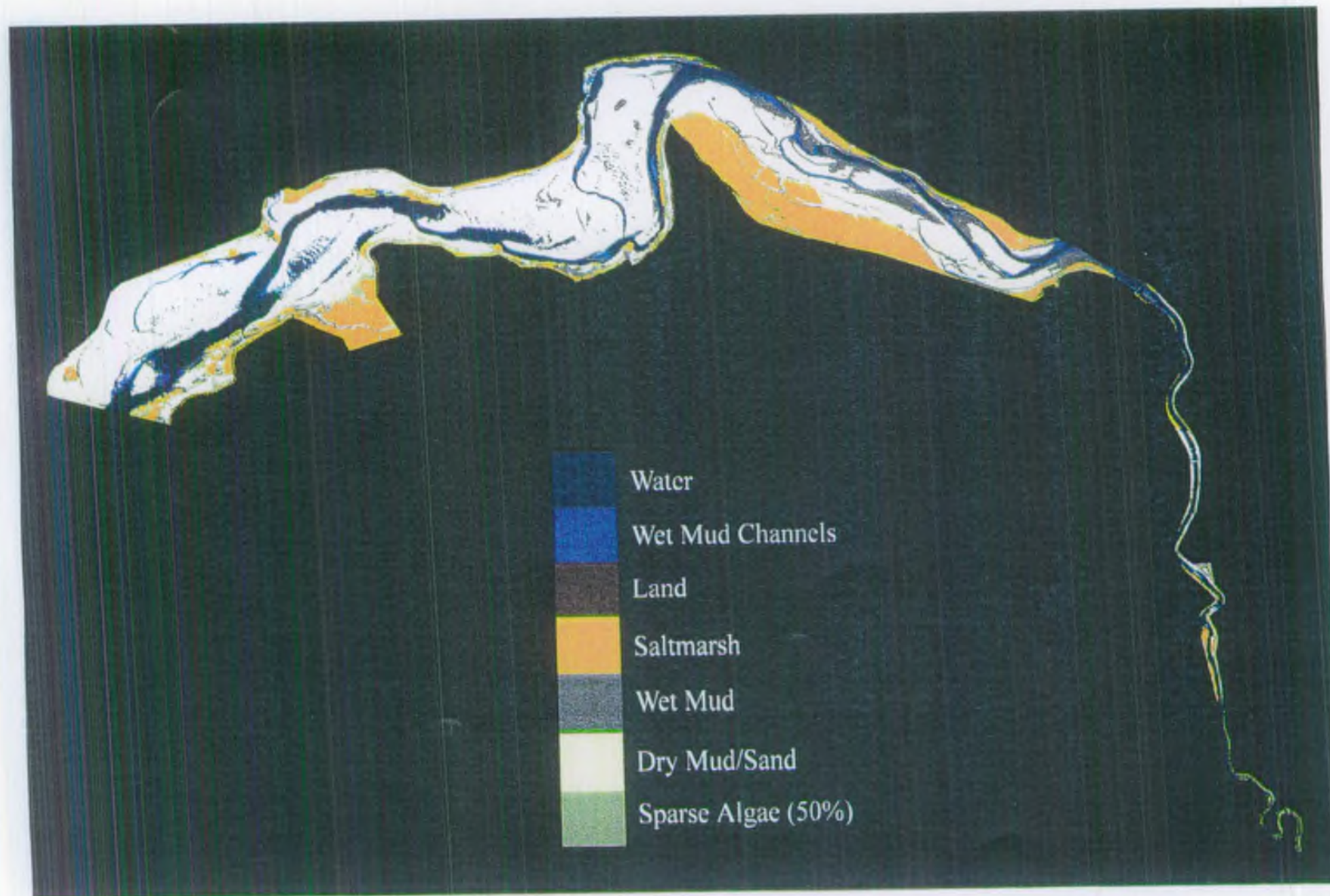
Taken on the 15th August 1995 at 15:40 - 16:30 GMT





ENVIRONMENT
AGENCY

Unsupervised Classification of the River Taw Estuary



Taw Classification Results Table 1996

Percentage cover of the algae *Enteromorpha* and *Ulva*.

Inter-tidal area: 6160600 m²

Land Cover Classes	Area (m ²)	Percentage	Calculated Algae
Mud	4699736	76.29	
Dense green algae	127315	2.07	2.07
Sparse green algae (40%)	751168	12.19	4.88
Furoid algae	90210	1.46	
Unclassified	492171	7.99	
Totals	6160600 m ²	100 %	6.95 %

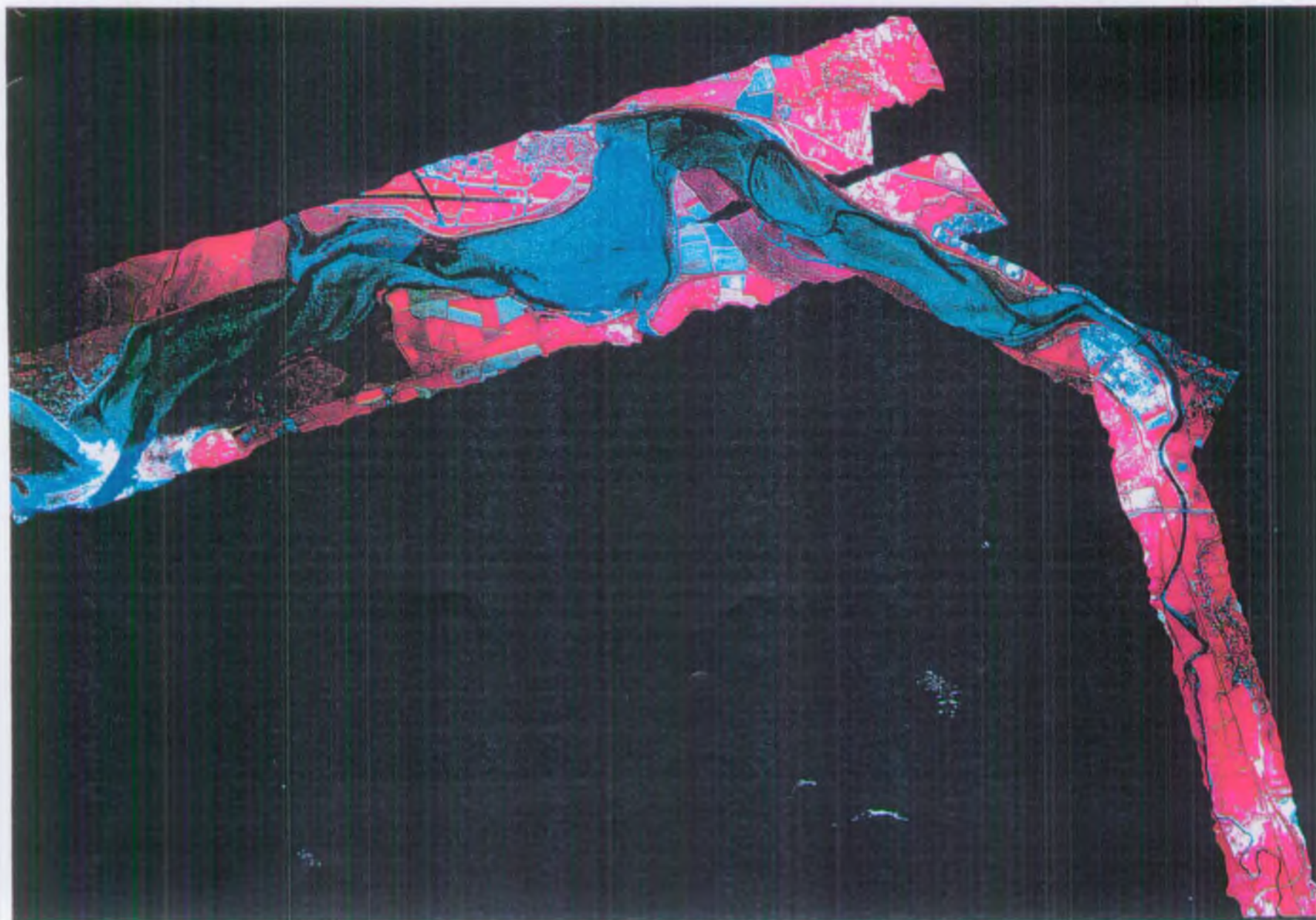
The aerial survey was carried out on the 29th August 1996.

The Taw Estuary - False colour mosaic of five CASI images

Images taken on the 29th August 1996 at 13:15 - 13:40 GMT



ENVIRONMENT
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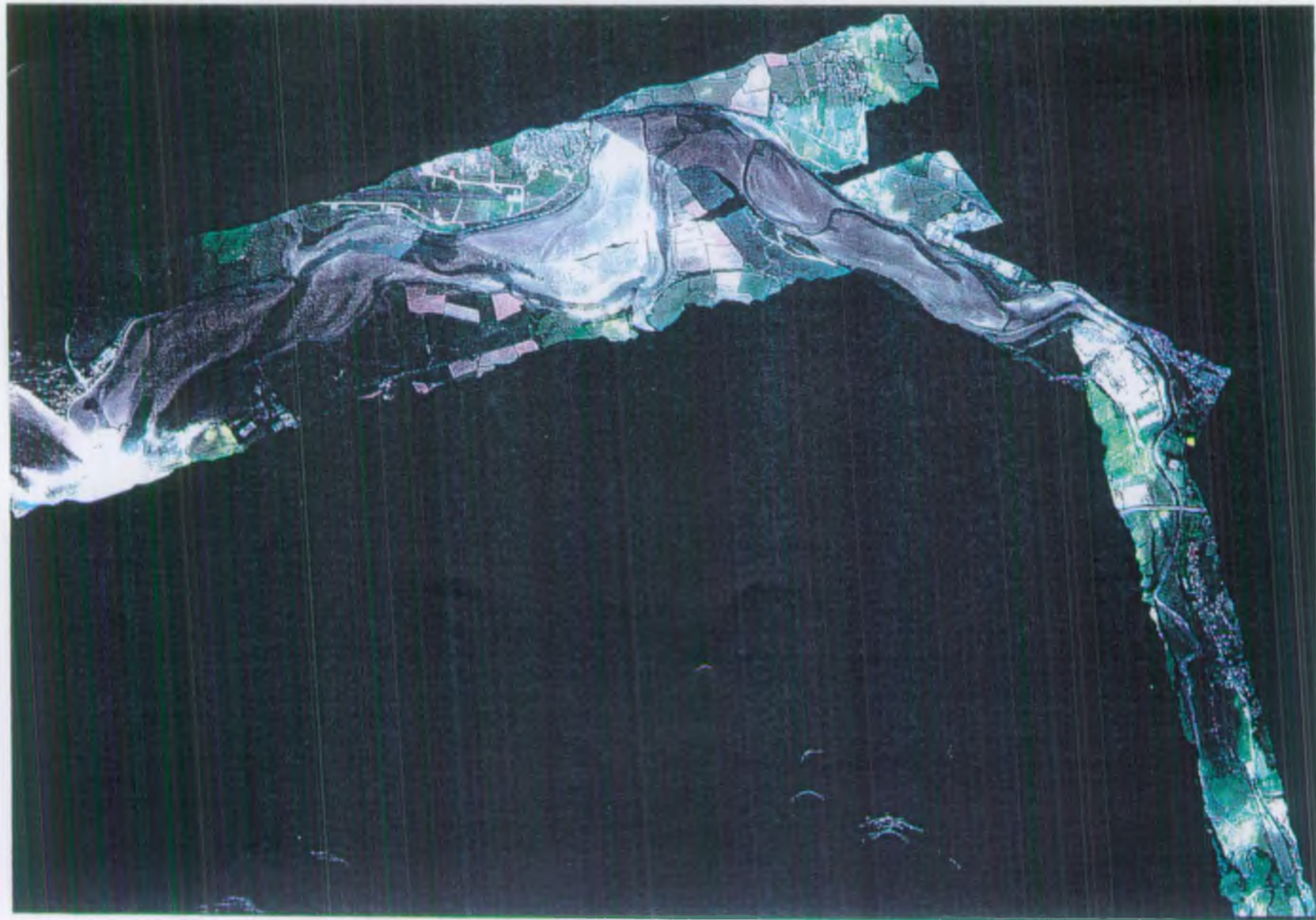


The Taw Estuary - True colour mosaic of five CASI images

Images taken on the 29th August 1996 at 13:15 - 13:40 GMT



ENVIRONMENT
AGENCY

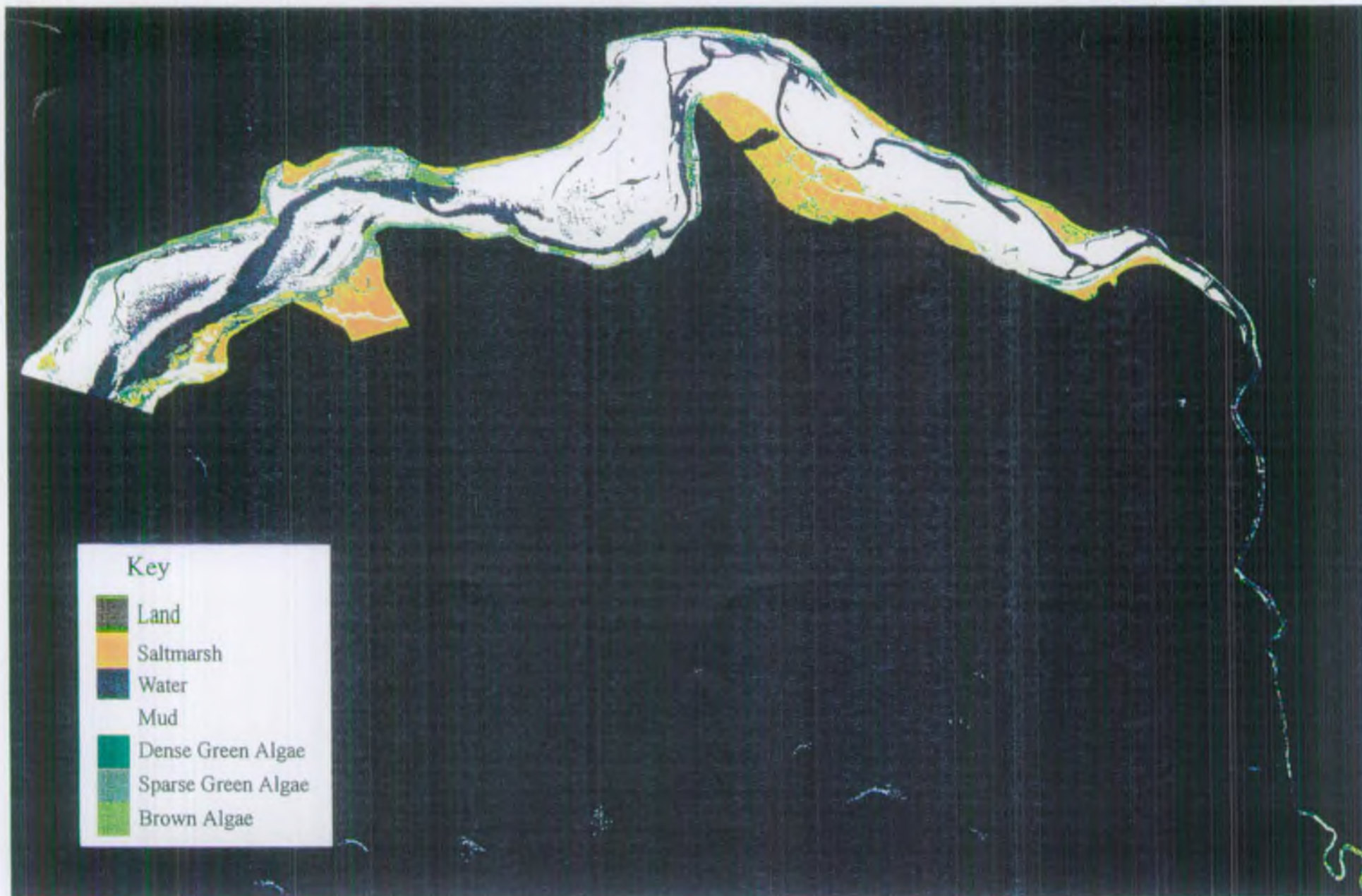


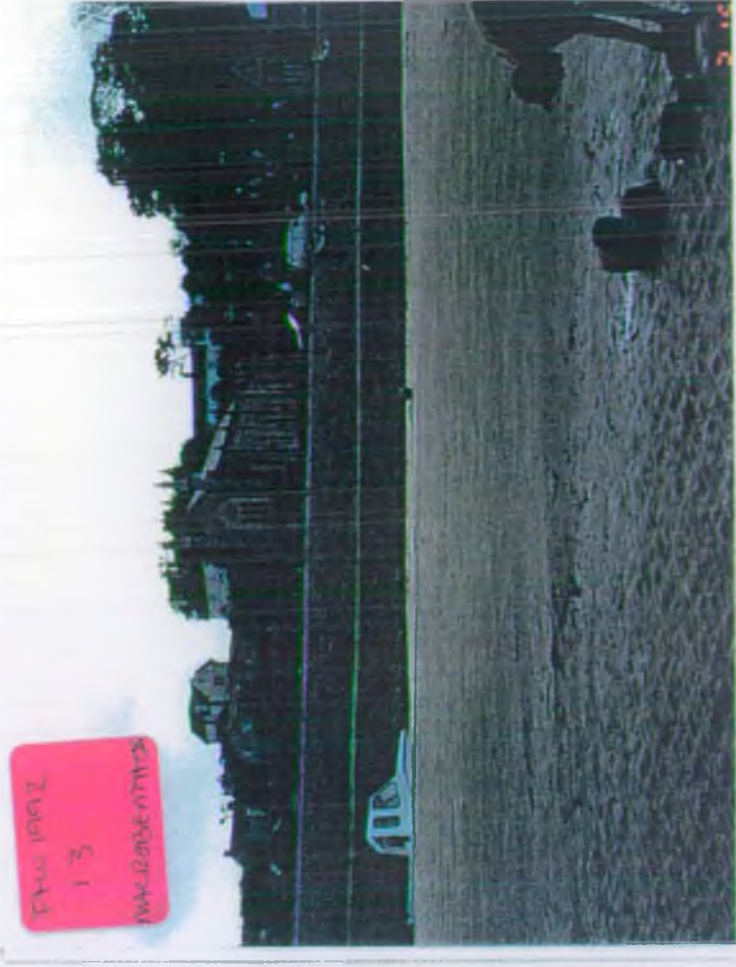
The Taw Estuary - Unsupervised classification

Images taken on the 29th August 1996 at 13:15 - 13:40 GMT



ENVIRONMENT
AGENCY





TACU 1919 Z
3
MAGBENTHUS



TACU 1919 Z
4
MAGBENTHUS



TACU 1919 Z
1
MAGBENTHUS



TACU 1919 Z
2
MAGBENTHUS





Taw estuary sampling method for NWC Classification. August 1992

Each intertidal site consisted of five replicate 0.01m² cores, each to a depth of 150 mm. Collected material was sieved on site by puddling in adjacent water on a 0.5 mm mesh sieve. Samples were then fixed in 10% buffered formalin for subsequent sorting, identification and enumeration.

Shore height for each site was estimated and was maintained for each replicate. Sediment type was also noted along with the RPD layer depth (where the sediment becomes anoxic):

Site	1: Mid Tide Level-Low Water Neaps (MTL-LWN)	Sand/clay	Rpd: >150 mm
	2: MTL-LWN	Sand/clay	?
	3: MTL	Sand	0 mm
	4: LWN	Mud/sand	10 mm
	5: LWN	Sand	40 mm
	6: LWN	Mud/sand	<10mm
	12: Low Water Springs (LWS)	Sand	>150 mm
	13: LWS	Sand	100 mm
	14: LWS	Sand/pebbles	>150 mm

Subtidal samples consisted of five replicate 0.05m² Van Veen Grabs with a bite depth of at least 5 cm. Collected material was treated in the same manner as described for intertidal samples. Depth below chart datum) and sediment type were noted:

Site	A: 1m	Fine clean sand
	B: 4 m	Clean sand
	D: 4.5 m	Sand
	E: 7 m	Clean sand

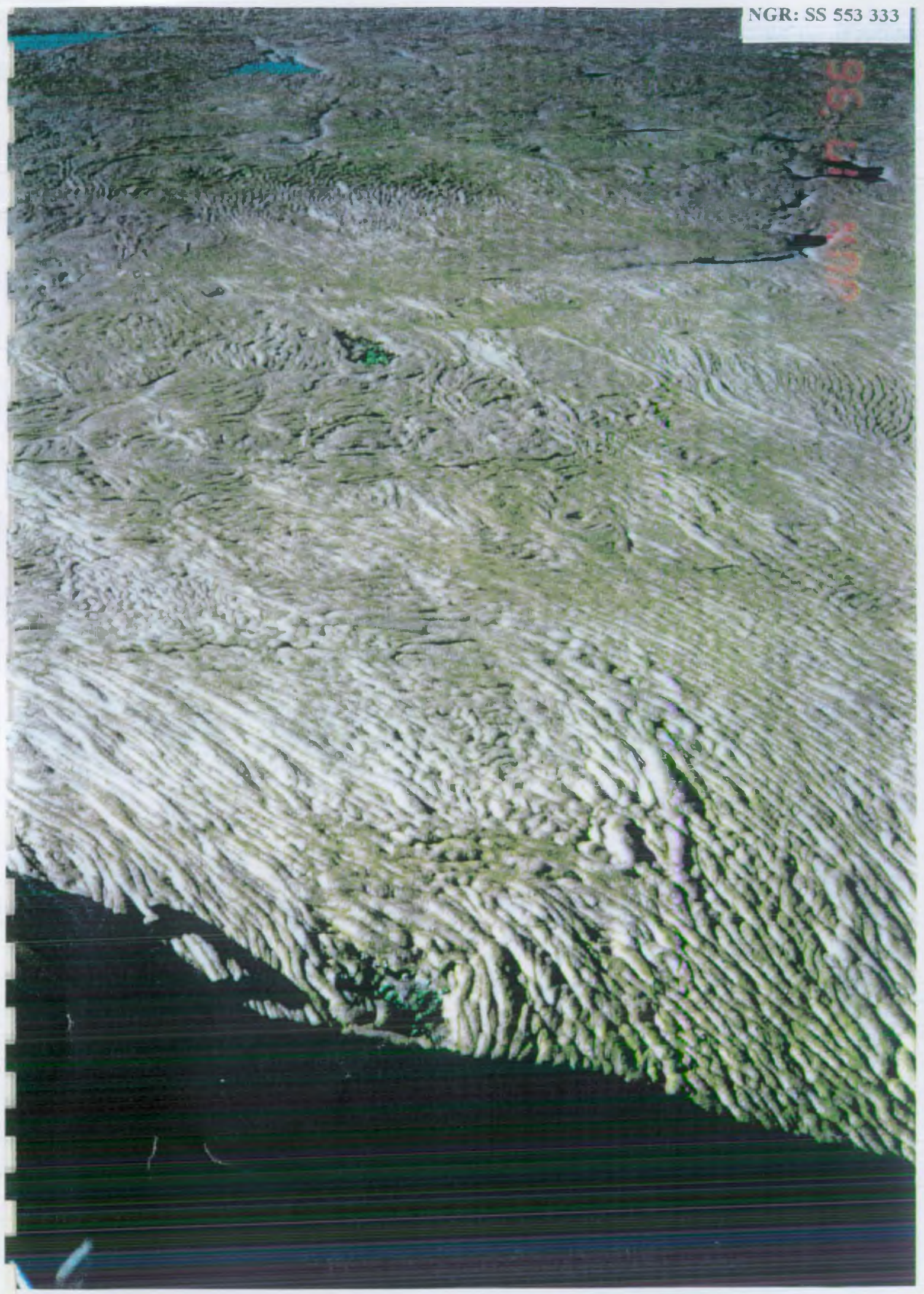
Macrobenthic survey 1992 for estuary classification. Subtidal and intertidal sand areas sparsely inhabited by few taxa, dominated by amphipoda. Mud flats with typical fauna. Sand dwelling fauna may be susceptible to eutrophic related impact, particularly if macroalgal growth increases dramatically. It's sparseness may primarily be due to prevailing hydrography. Increased nutrient input likely to trigger faunal changes which do not appear to have manifested as yet (at least by 1992).

[illegible]

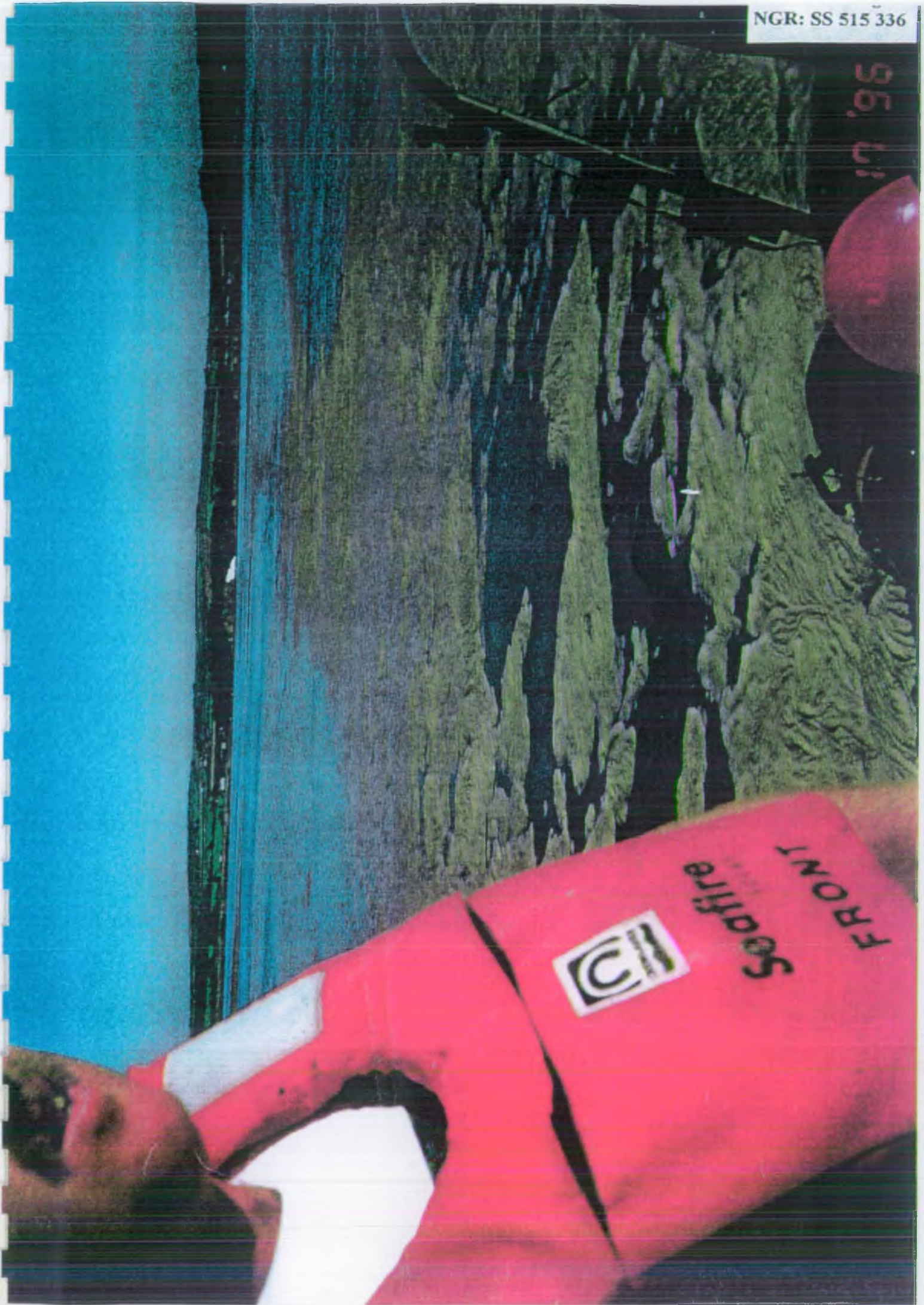
Barnstaple
NGR: SS 558 328



96.41
KMP

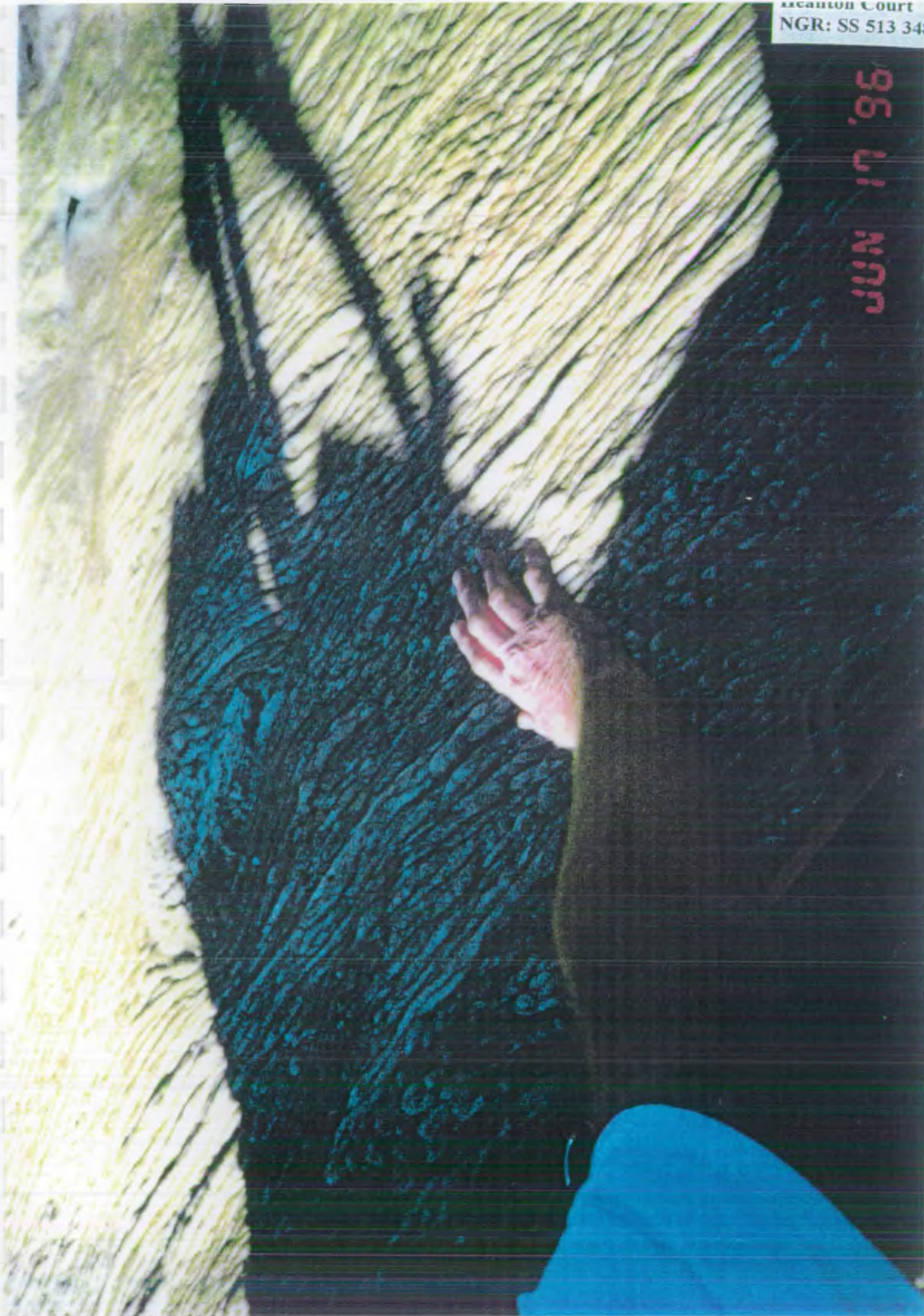


96, 41



Leanton Court
NGR: SS 513 348

96.01 NGR



Details for Incident number : F62012461 Date : 08/06/95 Time : 0900

How Received LETTER
Received By BROWN C C
Investigating Officer BROWN C C
Reported By MRS BAKER Tel.
Address PORT ERIN COPLEY DRIVE BARNSTAPLE
Reported Incident POLLUTION ON RIVER TAW AT CASTLE QUAY BARNSTAPLE

Source Name ALGAL BLOOM
Address
Catchment TAW ESTUARY
Parish ST LEVAN
NGR SS 5550 3320 Samples Taken NO

Primary Incident Code ZX OTHER
D WEATHER
9 NATURAL EVENT
4Q CHINA CLAY

Enter 'N' - Next Screen, 'Q' - Quit, or Incident number {
TYPE ONLINE READY

Details for Incident number : T62012467 Date : 16/06/95 Time : 1035

How Received TELEPHONE

Received By CONTROL ROOM

Investigating Officer BROWN C C

Reported By MR BOOTH Tel.

Address IMPERIAL HOTEL, BARNSTAPLE

Reported Incident THE TIDE IS COMING IN BROWN AND FROTHY LAST NIGHT A MAN
A BOAT TIPPED A BUCKET FULL OF RUBBISH OVER THE SIDE

Source Name ALGAL BLOOM

Address

Catchment TAW ESTUARY

Parish ST LEVAN

NGR SS 5550 3320

Samples Taken NO

Primary Incident Code ZX OTHER

D WEATHER

9 NATURAL EVENT

4Q CHINA CLAY

Enter 'N' - Next Screen, 'Q' - Quit, or Incident number { }

TYPE

ONLINE

READY

South West Region

INCIDENT REPORT

1043 11-Feb-97

Incident Number.... 17510 Priority.... Immediate (2 Hours)
Problem..... POLLUTION RISK - WATER QUALITY (PQ)
.....
Reported by..... MIKE BISHOP (by Telephone) Phone 0831 825864
Reporters Address.. EA
Incident Location.. BY PILL FARM ON RIVER TAW
Place (Gazetteer).. BARNSTAPLE 30A SS558332
Water Stretch ID... 50/30A/000/015 Area..... Devon
Catchment..... TAW ESTUARY
Watercourse..... TAW ESTUARY - SOUTH BANK
Stretch..... LONGBRIDGE - INSTOW
Fish Dead..... 0 Fish Distressed.... 0
.....
Pollution Confirmed None (0)
Pollution Source... MISC PREMISES UNKNOWN (MU)
Pollutant..... MISCELLANEOUS ALGAE (MA)
.....
DETAILS
NARRATIVE PHONE IN TO SAY RIVER IS 'AWFUL GREEN' BY PILL FARM ON RIVER TAW.
APPARENTLY THIS IS ON THE BARNSTAPLE SIDE OF THE NEW BRIDGE OVER THE TAW.
EXCESSIVE ALGAE GROWTH DUE TO LOW FLOWS AND ELEVATED NUTRIENT STATUS IN
ESTUARY. MONITORS IN PLACE DURING SUMMER '96 TO HELP CASE FOR CLASSIFYING
ESTUARY AS "SENSITIVE WATERS".
.....
Occurred at 1555 on 19-AUG-96
Received at 1555 on 19-AUG-96 by Area Environmental (Devon)
FONDED at 1610 on 19-AUG-96 by Area Environmental (Devon)(SEAMANJ)
Set Date 1755 on 19-AUG-96
Completed at 1620 on 30-AUG-96
.....
NOTES
Samples are recorded as being specifically relevant to this incident.

Incident Number.... 17711 Priority.... Immediate (2 Hours)

Problem..... POLLUTION RISK - WATER QUALITY (PQ)

Reported by..... MR J WEIR (by Telephone) Phone 0127173361

Reporters Address.. NORTH DEVON LEISURE CENTRE

Incident Location.. NORTH DEVON LEISURE CENTRE

Place-(Gazetteer).. BARNSTAPLE 30A SS558332

Water Stretch ID... 50/30A/000/01S Area..... Devon

Catchment..... TAW ESTUARY

Watercourse..... TAW ESTUARY - SOUTH BANK

Stretch..... LONGBRIDGE - INSTOW

Fish Dead..... 0 Fish Distressed.... 0

Pollution Confirmed None (0)

Pollution Source... MISC DRAINAGE RIVER (DR)

Pollutant..... MISCELLANEOUS ALGAE (MA)

DETAILS

ELLER REPORTED 'SHIT' FLOATING UP THE RIVER TAW. SEEN FREQUENTLY AND HAS BEEN HAPPENING FOR AGES. IT'S BAD EVERYDAY!

ALGAE SCUM SLICK FORMING AT FRESH / SEA WATER CONFLUENCE. NATURAL OCCURANCE WHICH IS WORSE THIS YEAR. MONITORS IN PLACE TO INVESTIGATE POSSIBLE WATER QUALITY PROBLEMS AS A RESULT AND OBTAIN EVIDENCE TO CLASSIFY ESTUARY AS "SENSITIVE WATERS".

Occurred at 1015 on 02-SEP-96

Received at 1016 on 02-SEP-96 by Area Environmental (Devon)(AMRAOUIP)

Responded at 1017 on 02-SEP-96 by Area Environmental (Devon)(SEAMANJ)

Target Date 1216 on 02-SEP-96

Completed at 0902 on 20-SEP-96

SAMPLES

Samples are recorded as being specifically relevant to this incident.

Incident Number.... 15757 Priority.... Immediate (2 Hours)
Problem..... POLLUTION RISK - WATER QUALITY (PQ)

Reported by..... MR CROWFORD (Y) (by Telephone) Phone 01271 388353
Reporters Address.. NORTH DEVON DC
Incident Location.. BARNSTAPLE
Place (Gazetteer).. BARNSTAPLE 30A SS558332
Water Stretch ID... 50/30A/000/01H Area..... Devon
Catchment..... TAW ESTUARY
Watercourse..... TAW ESTUARY - NORTH BANK
Stretch..... LONGBRIDGE - CROW POINT
Fish Dead..... 0 Fish Distressed.... 0

Pollution Confirmed None (0)
Pollution Source... MISC PREMISES UNKNOWN (MU)
Pollutant..... MISCELLANEOUS ALGAE (MA)

DETAILS

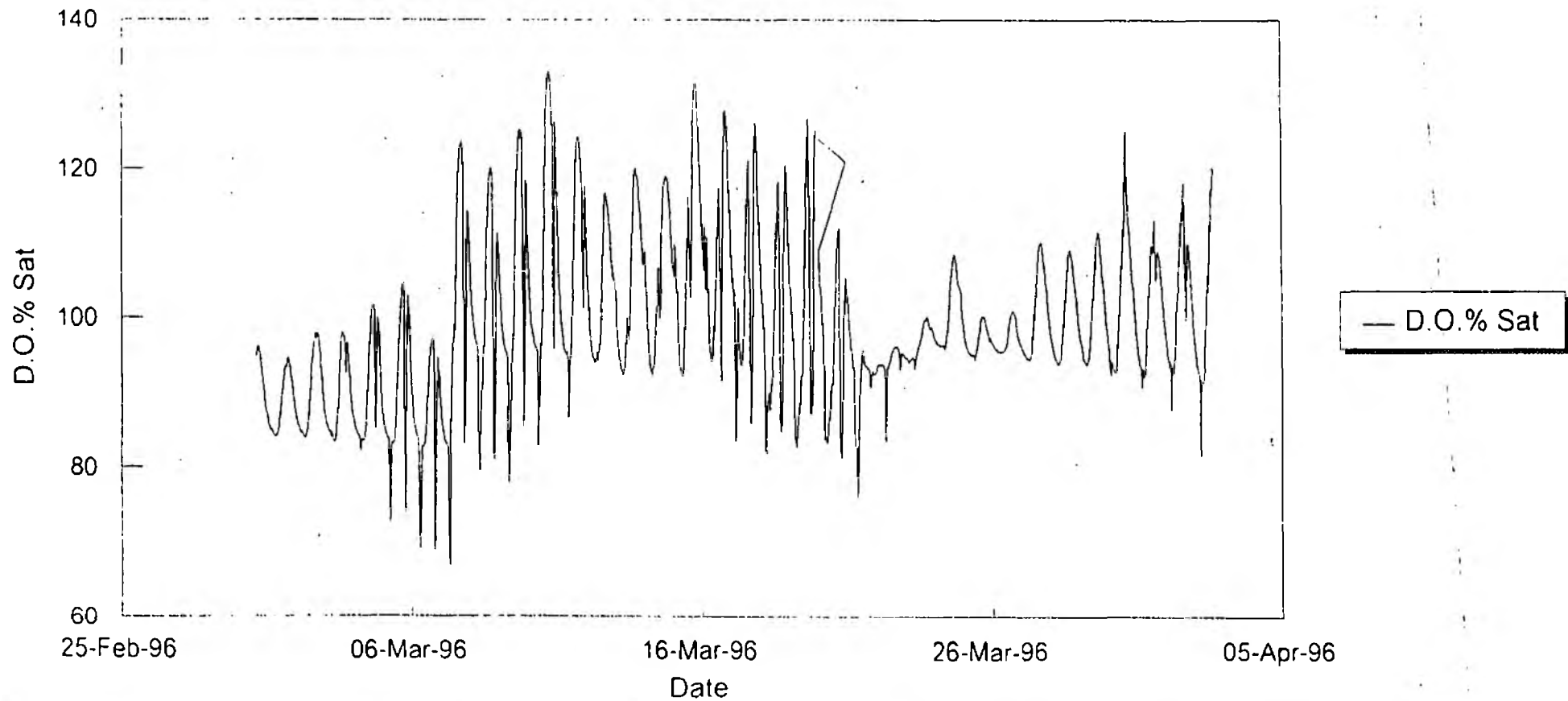
LOG.411/226. CREAMY COLOURED FOAM ON SURFACE OF RIVER YEO, OUTSIDE CIVIC
CENTRE, BARNSTAPLE.
HOME EVAN CRAWFORD NDDC (EMERG. OFFICER) INFORMED OF ALGAE BLOOM AT PRESENT IN
ESTUARY; NATURAL OCCURRENCE AND NOT POLLUTION. J SEAMAN

Occurred at 1644 on 30-MAY-96
Received at 1646 on 30-MAY-96 by Regional Comms Centre
Referred at 1651 on 30-MAY-96 to Area Environmental (Devon)
Responded at 1652 on 30-MAY-96 by Area Environmental (Devon)(SEAMANJ)
Target Date 1846 on 30-MAY-96
Completed at 1511 on 10-JUN-96

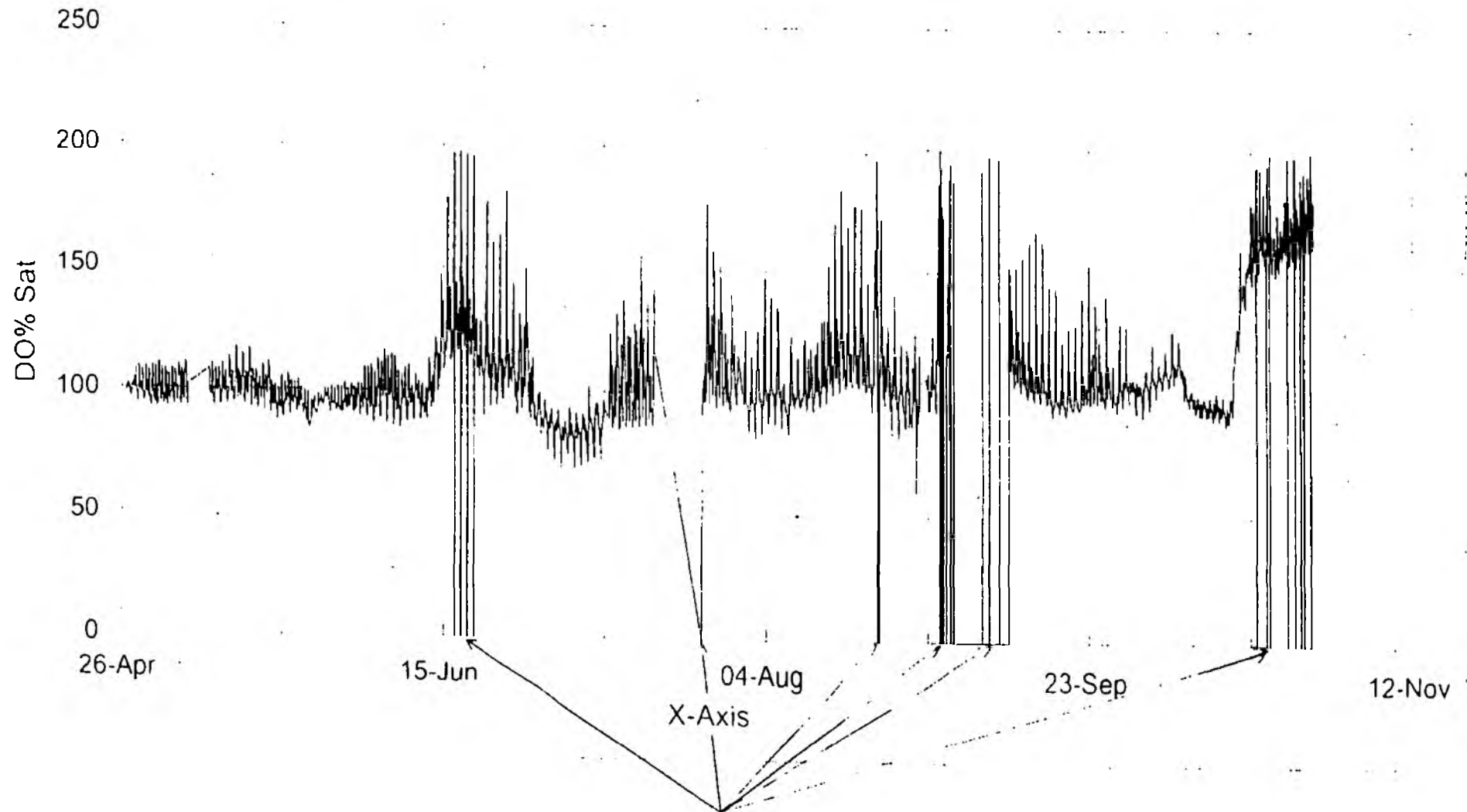
SAMPLES

Samples are recorded as being specifically relevant to this incident.

Taw - Pill 29/02/96 - 02/04/96



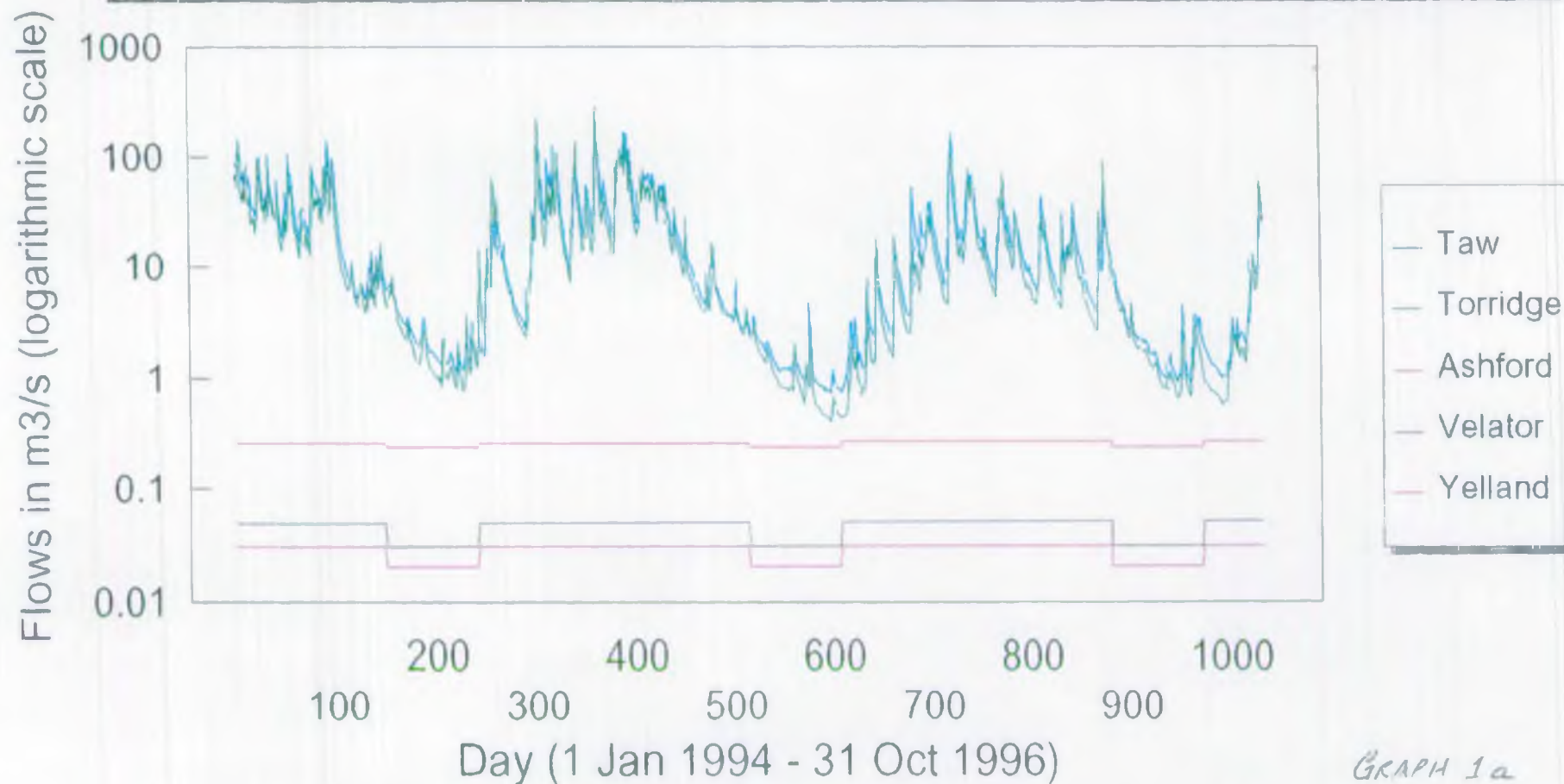
TAW-CHIVENOR 04/04/96 - 28/10/96



Ignore readings - meter requiring recalibration
and debris collection on sonde

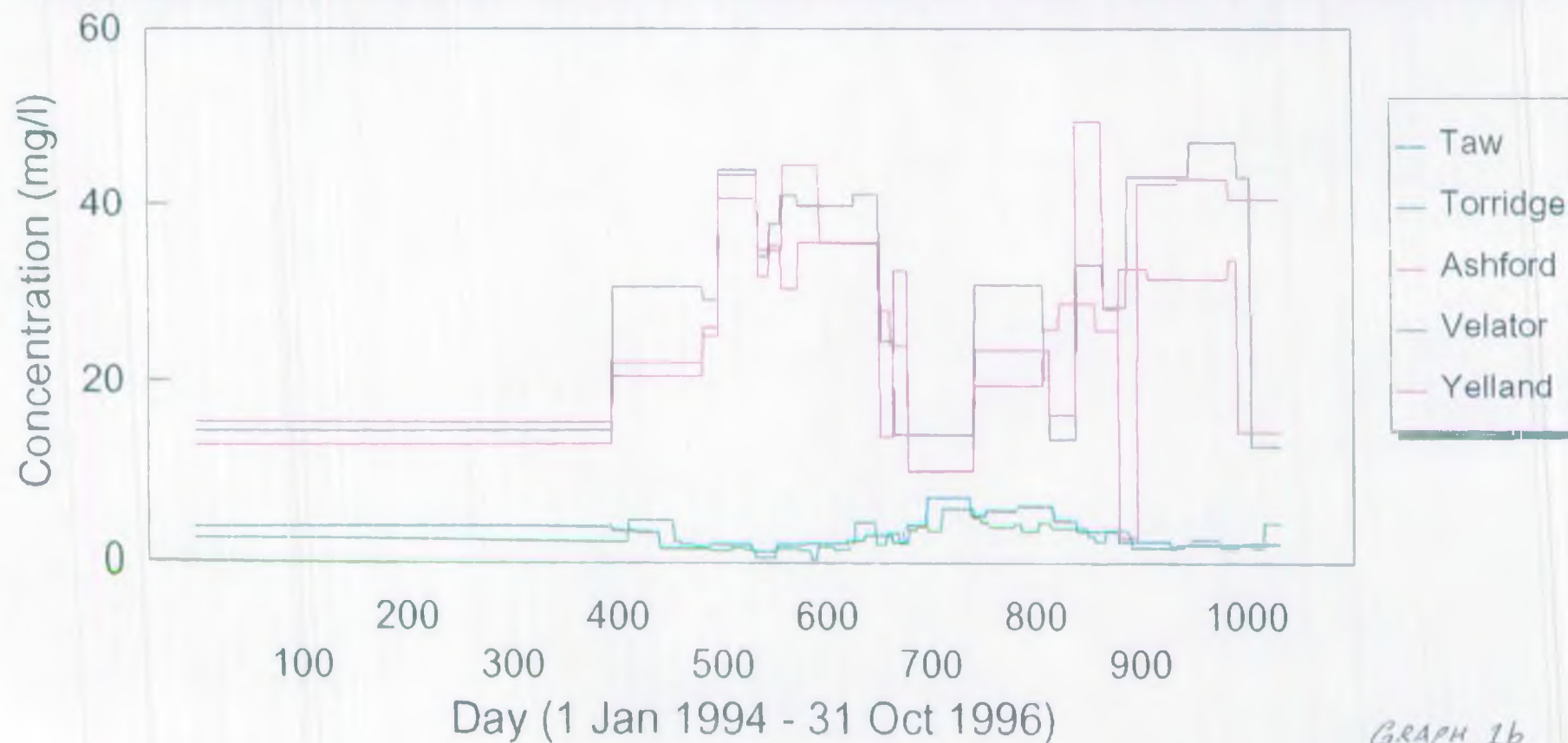
Taw Torridge Estuary - Input Flows - 1994 to 1996

River flows at Tidal Limit from scaled (using MLF) flows at Umberleigh & Torrington GS
All STW flows are DWF



Taw Torridge Estuary - Input Concentrations - 1994 to 1996

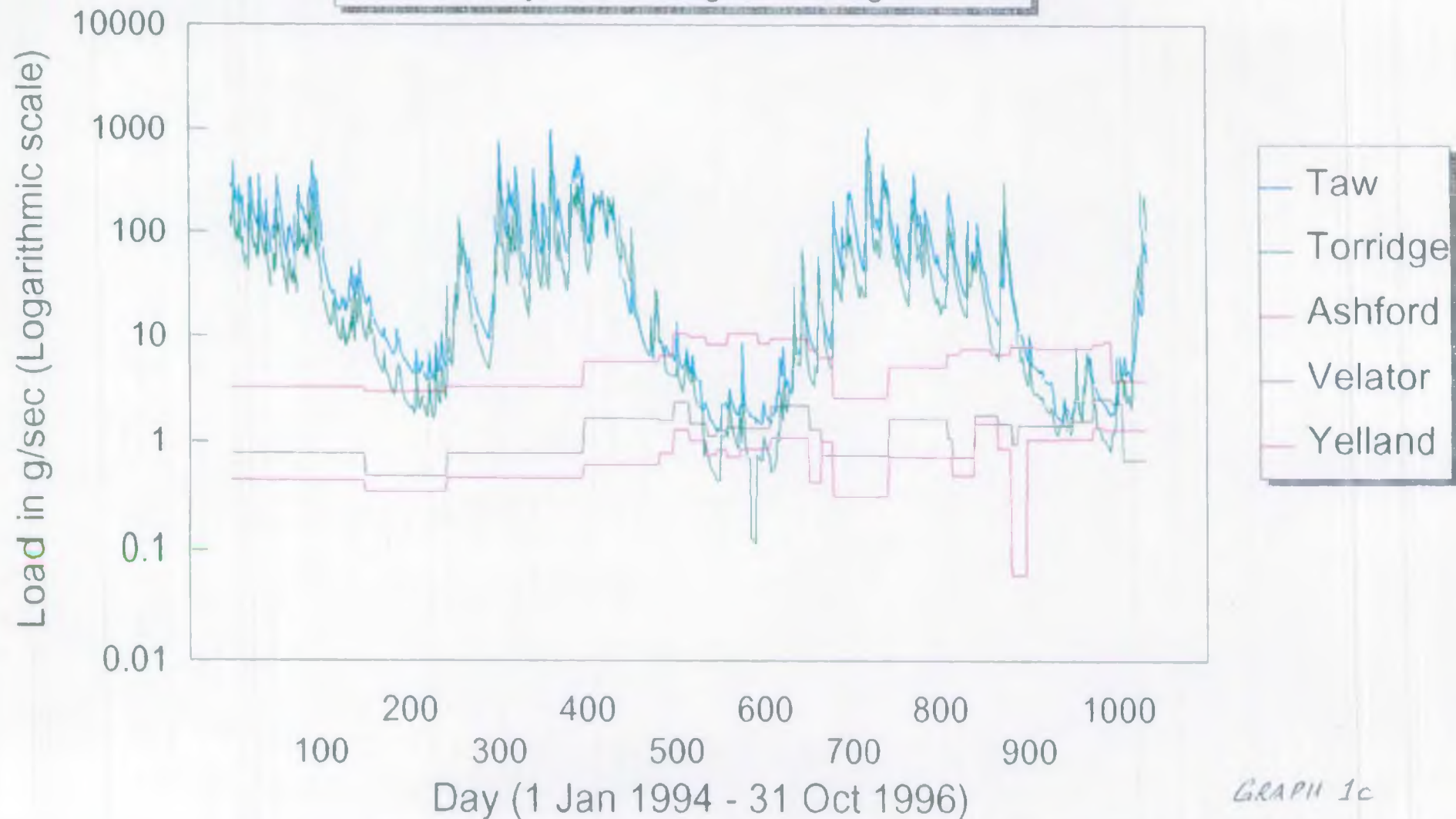
Concentrations are observed values of Total Inorganic Nitrogen
Monitoring points R30B005 , R29B034 , WSTW3013FE , WSTW3038FE , WSTW3340FE



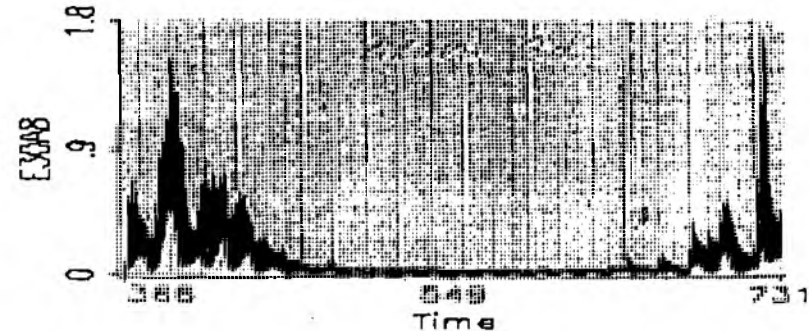
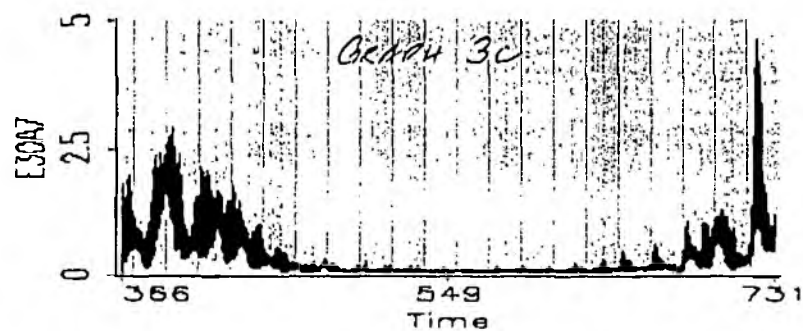
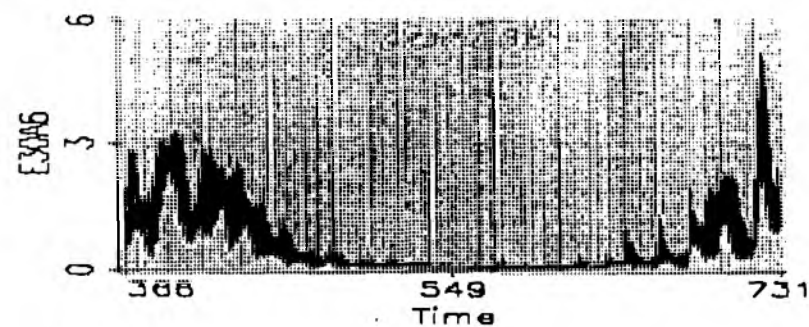
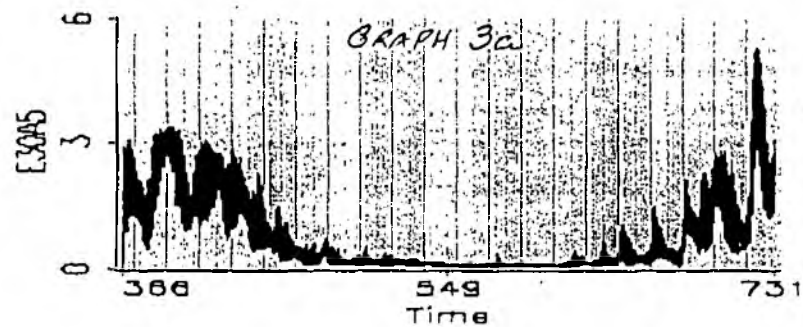
GRAPH 1b

Taw Torridge Estuary - Input Loads - 1994 to 1996

Calculated by: Total Inorganic Nitrogen x Flow

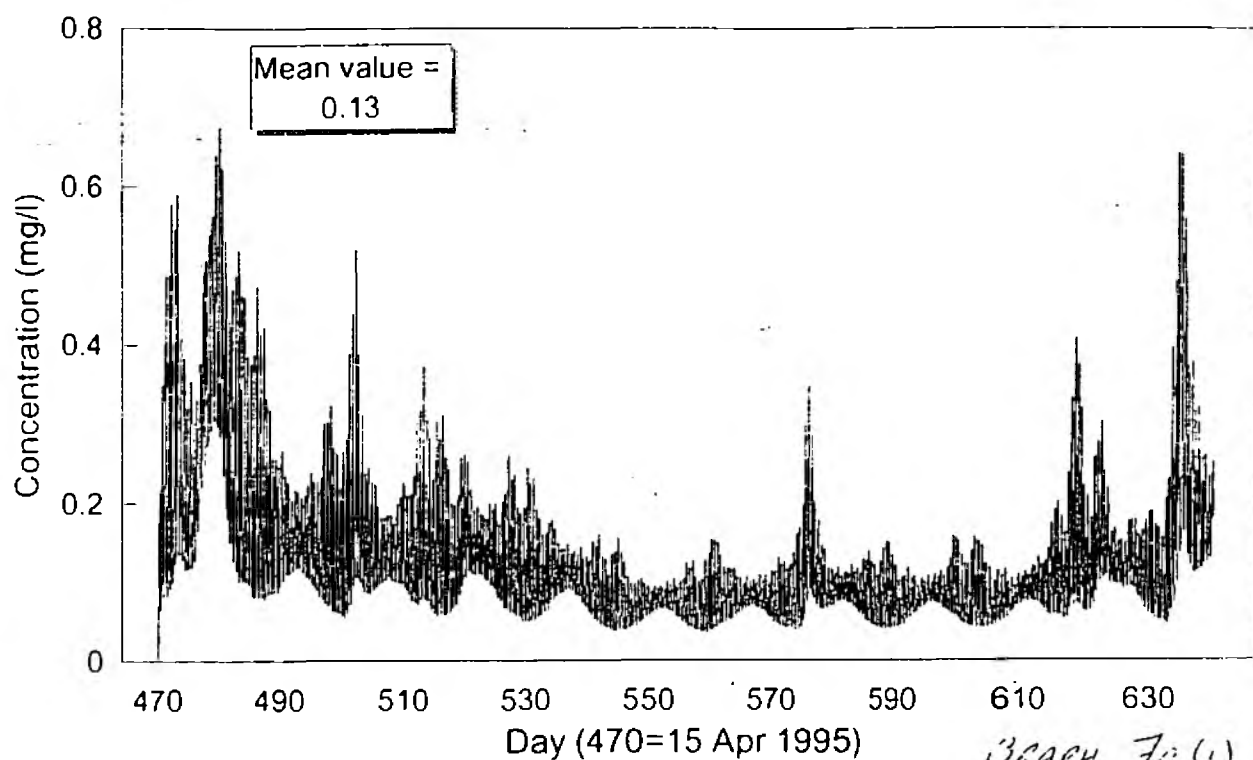


TAW(ESTUARY MONITORING PTS):1995:MODELLED NITROGEN

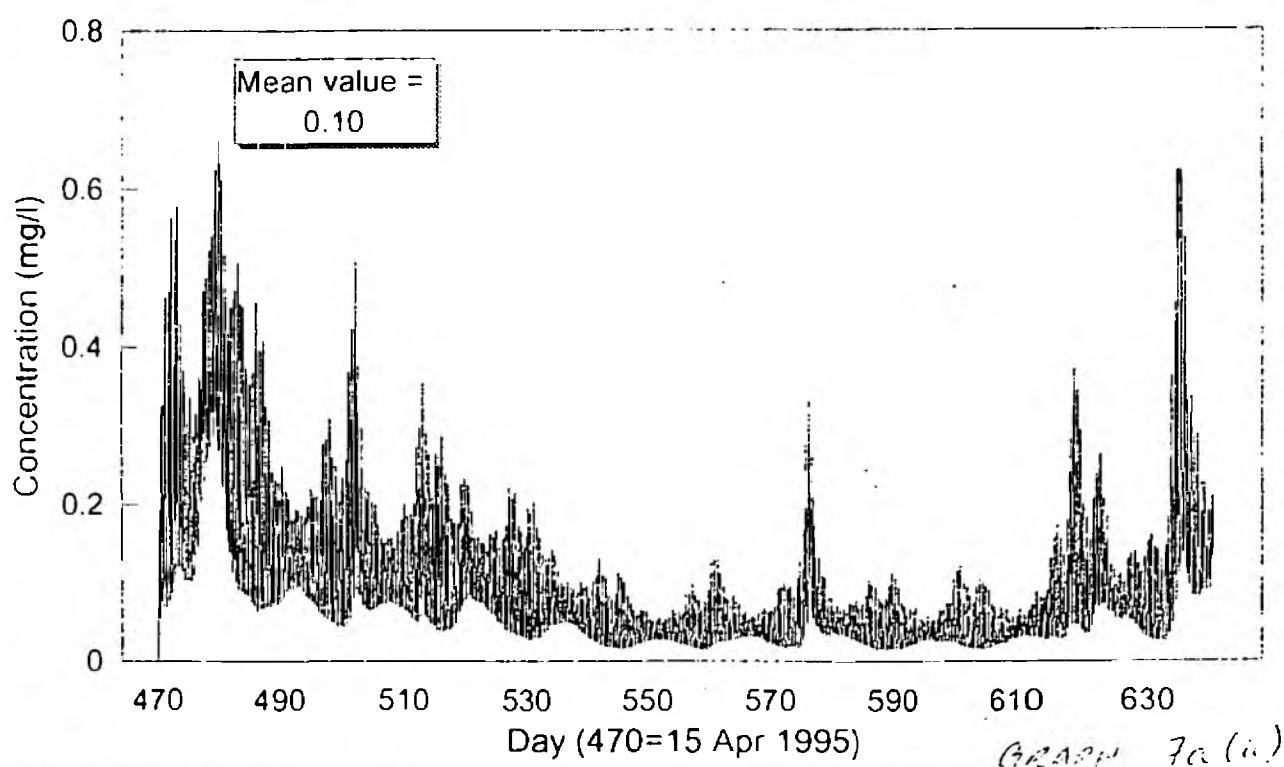


Time 731

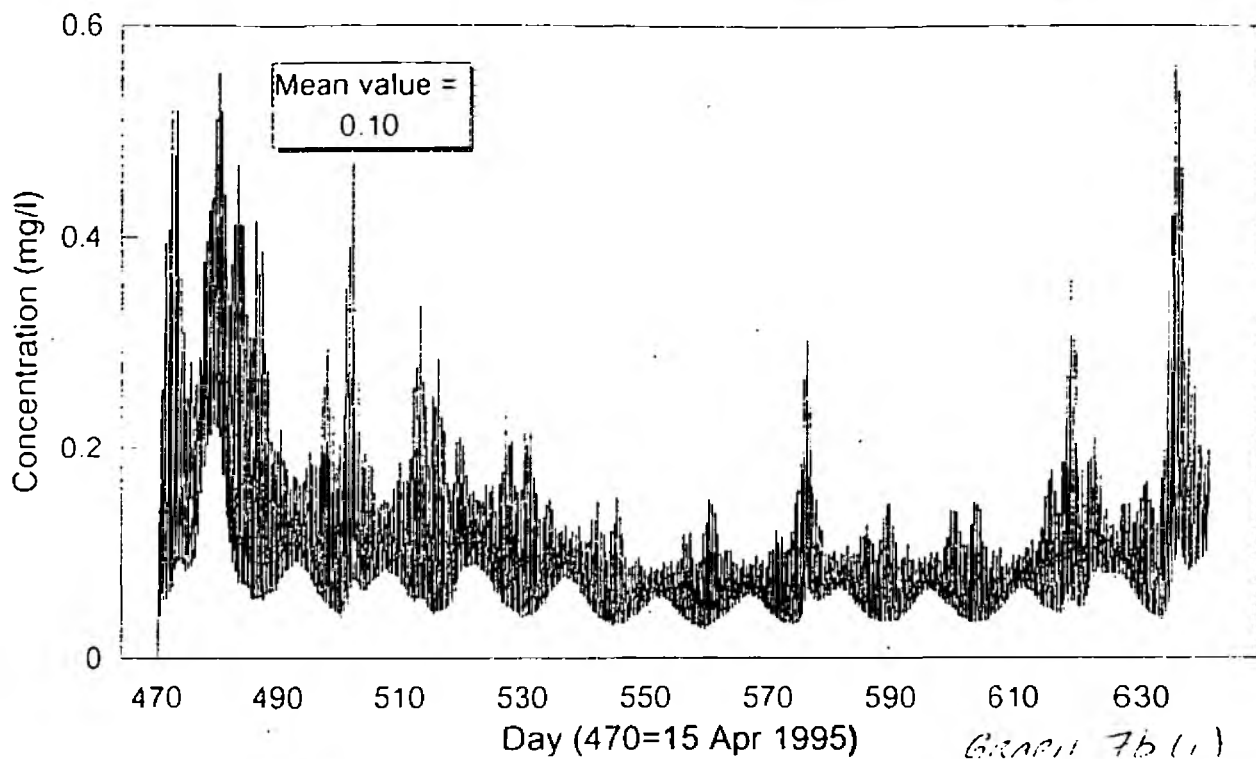
Taw (E30A5) : Summer 1995 : Modelled Nitrogen-All discharges



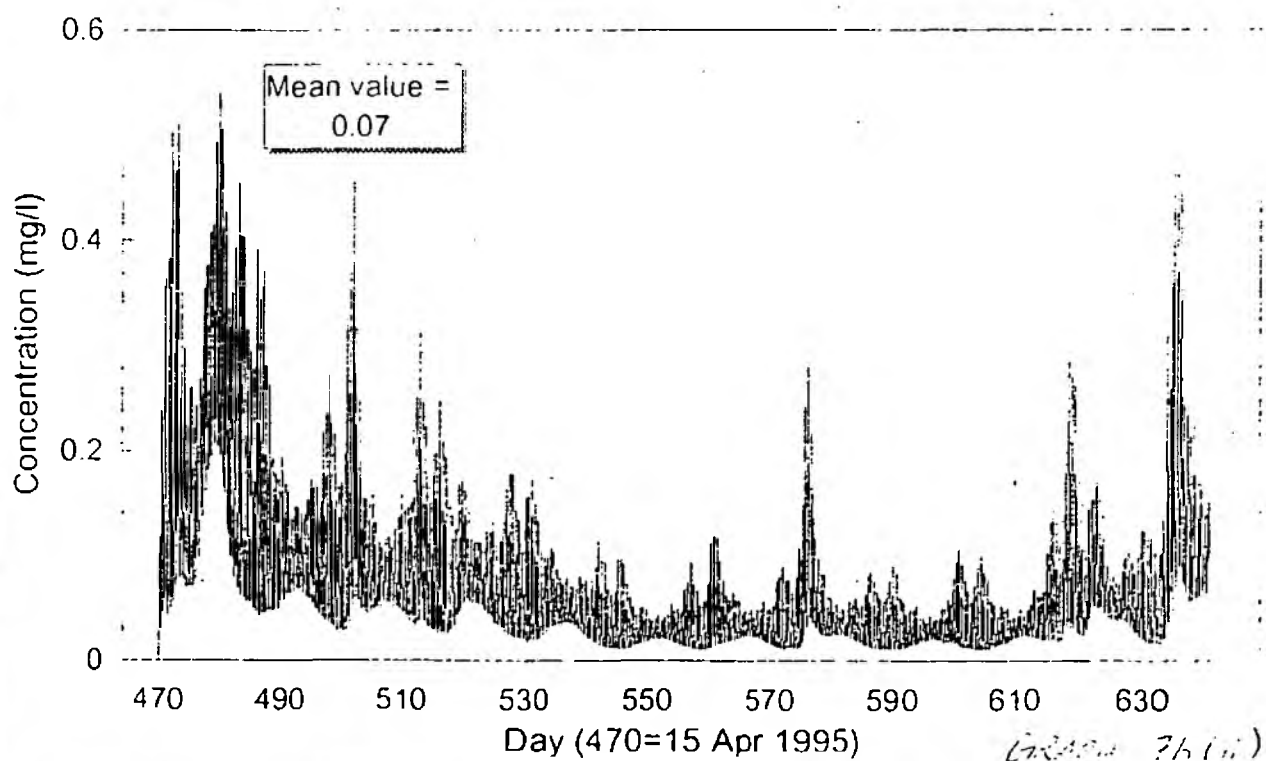
Taw (E30A5) : Summer 1995 : Modelled Nitrogen-No Ashford



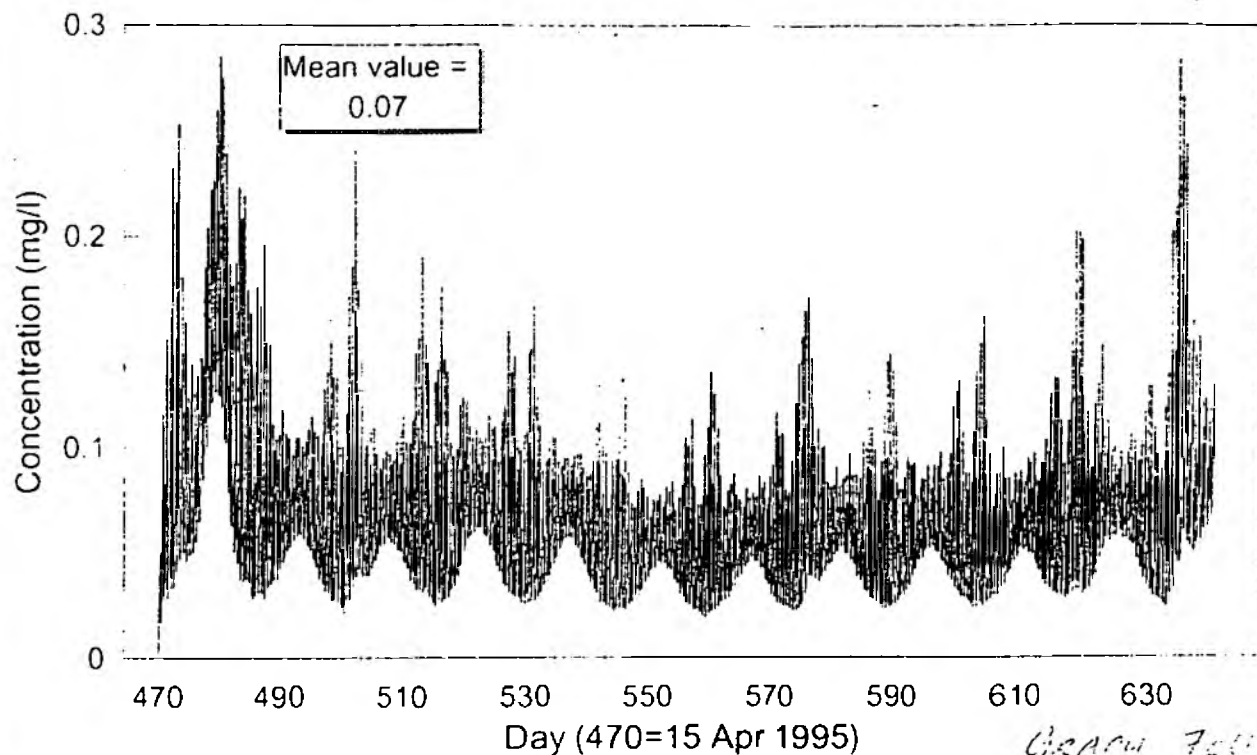
Taw (E30A6) : Summer 1995 : Modelled Nitrogen-All discharges



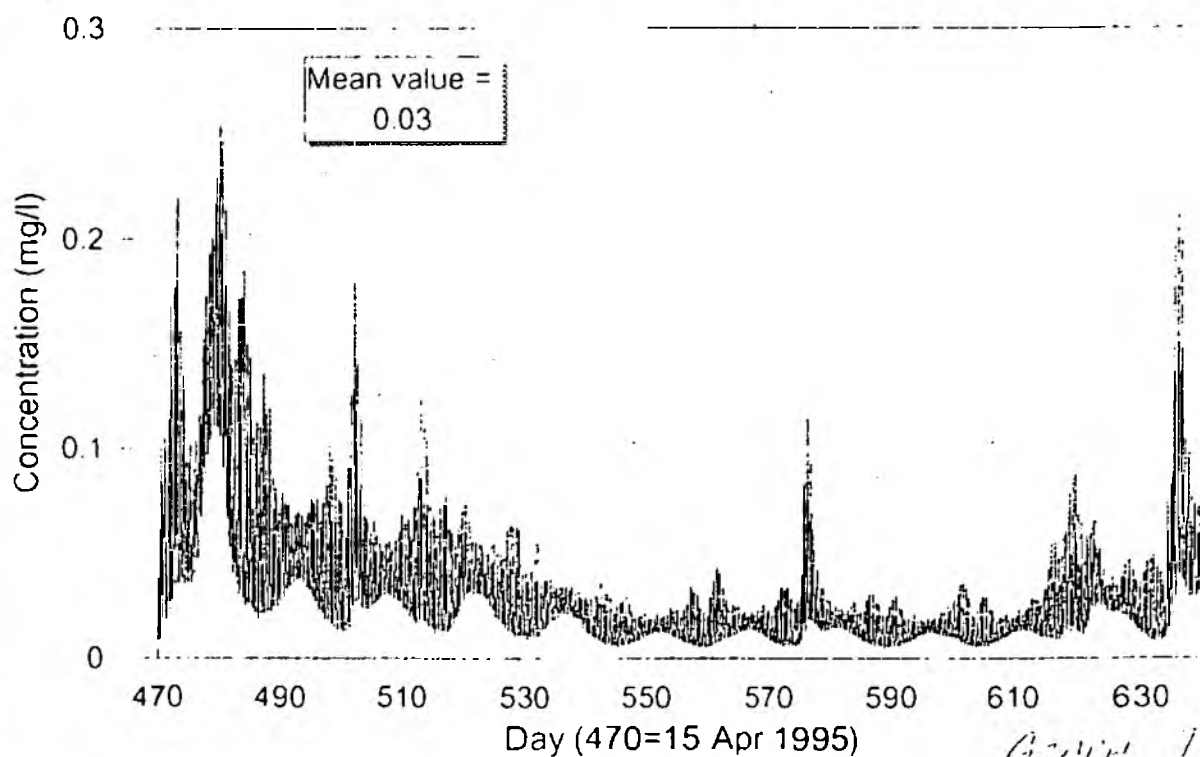
Taw (E30A6) : Summer 1995 : Modelled Nitrogen-No Ashford



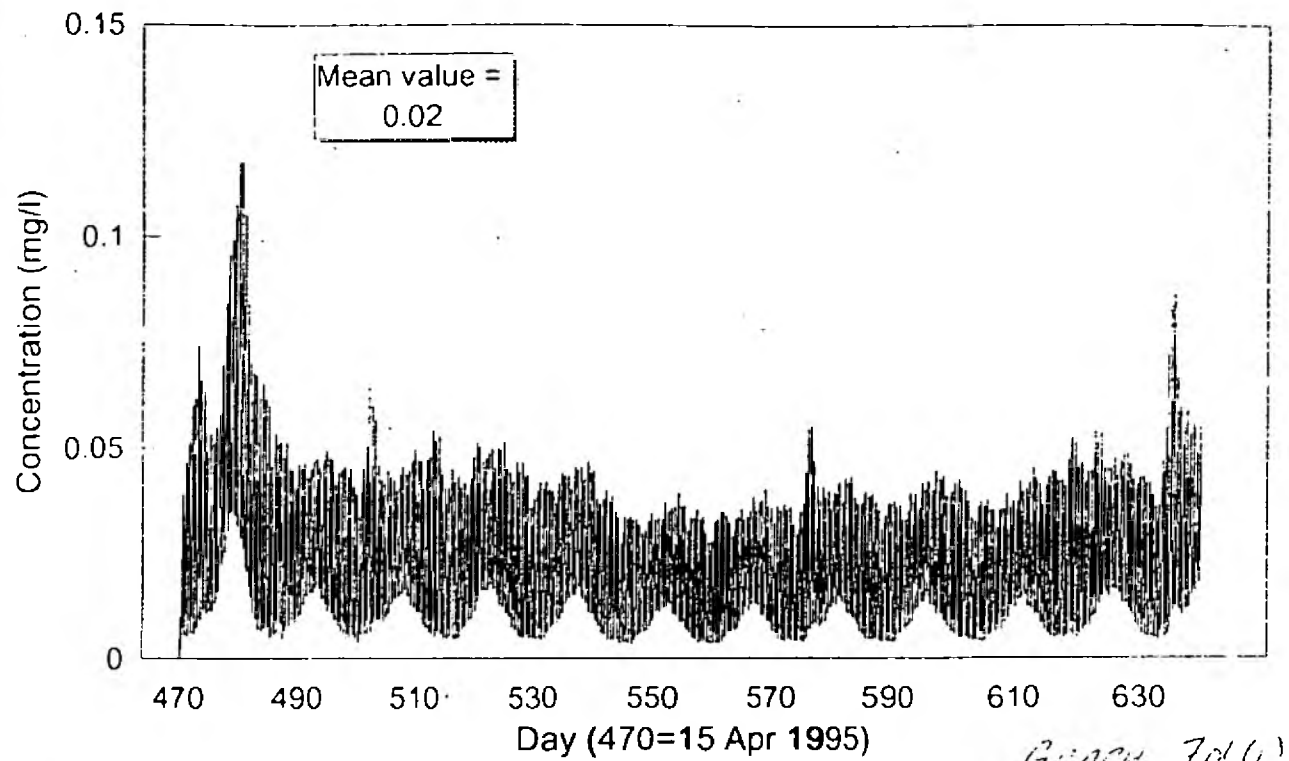
Taw (E30A7) : Summer 1995 : Modelled Nitrogen-All discharges



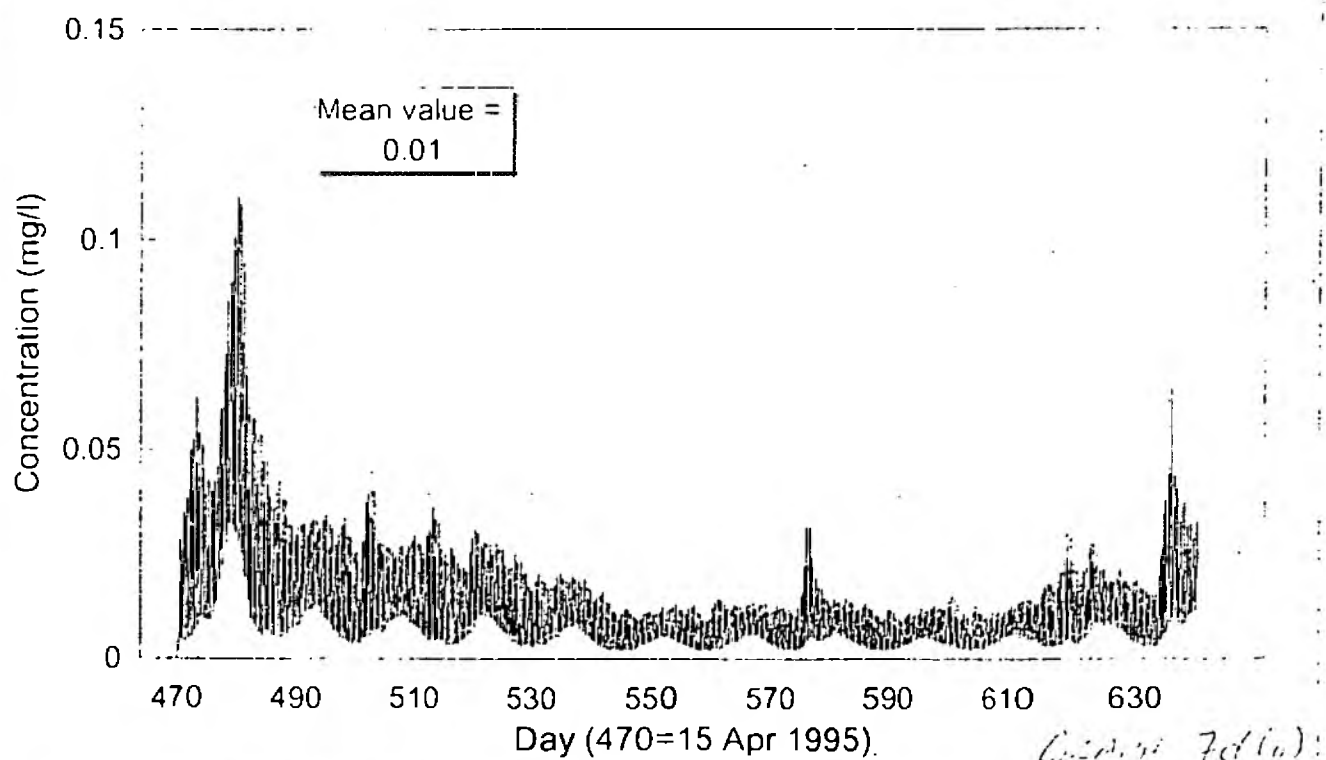
Taw (E30A7) : Summer 1995 : Modelled Nitrogen-No Ashford



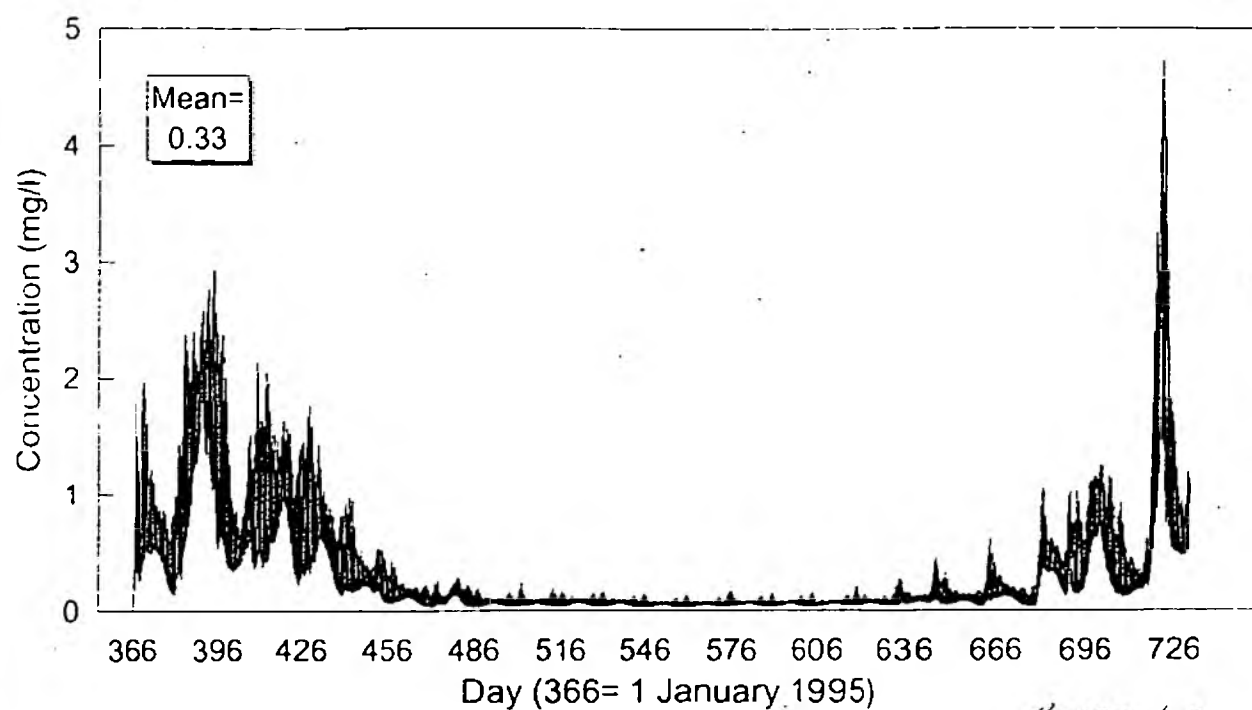
Taw (E30A8) : Summer 1995 : Modelled Nitrogen-All discharges



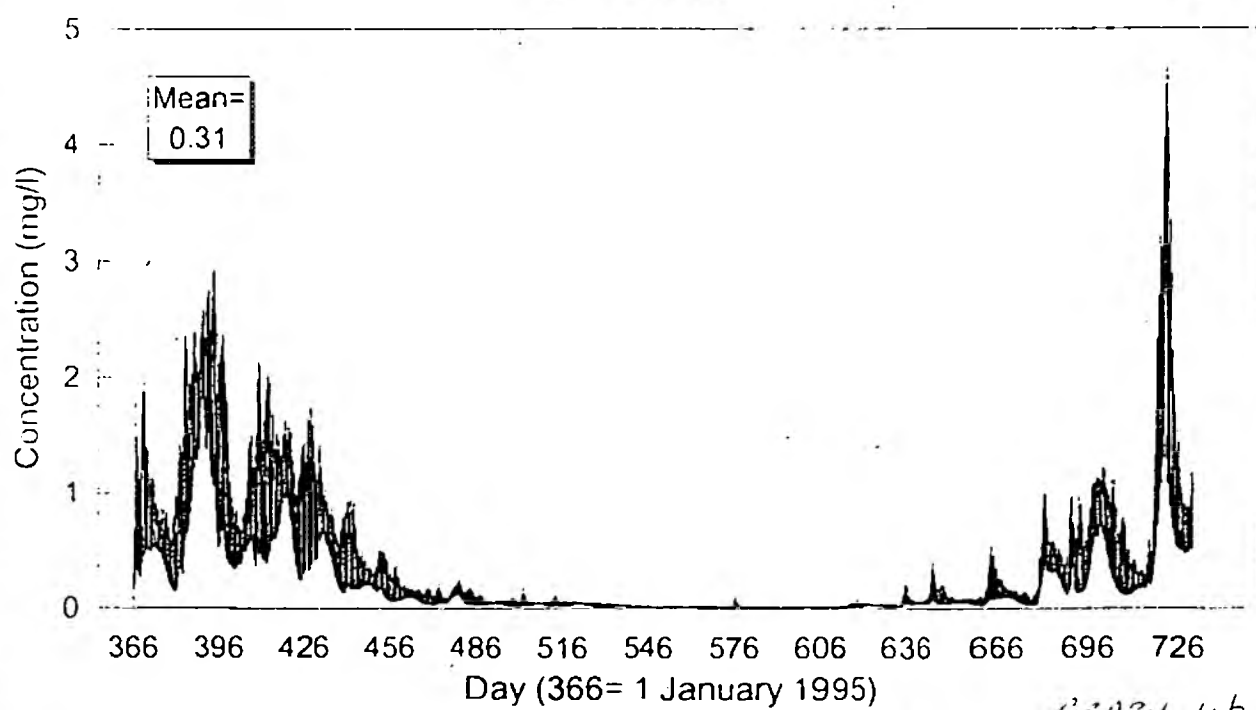
Taw (E30A8) : Summer 1995 : Modelled Nitrogen-No Ashford



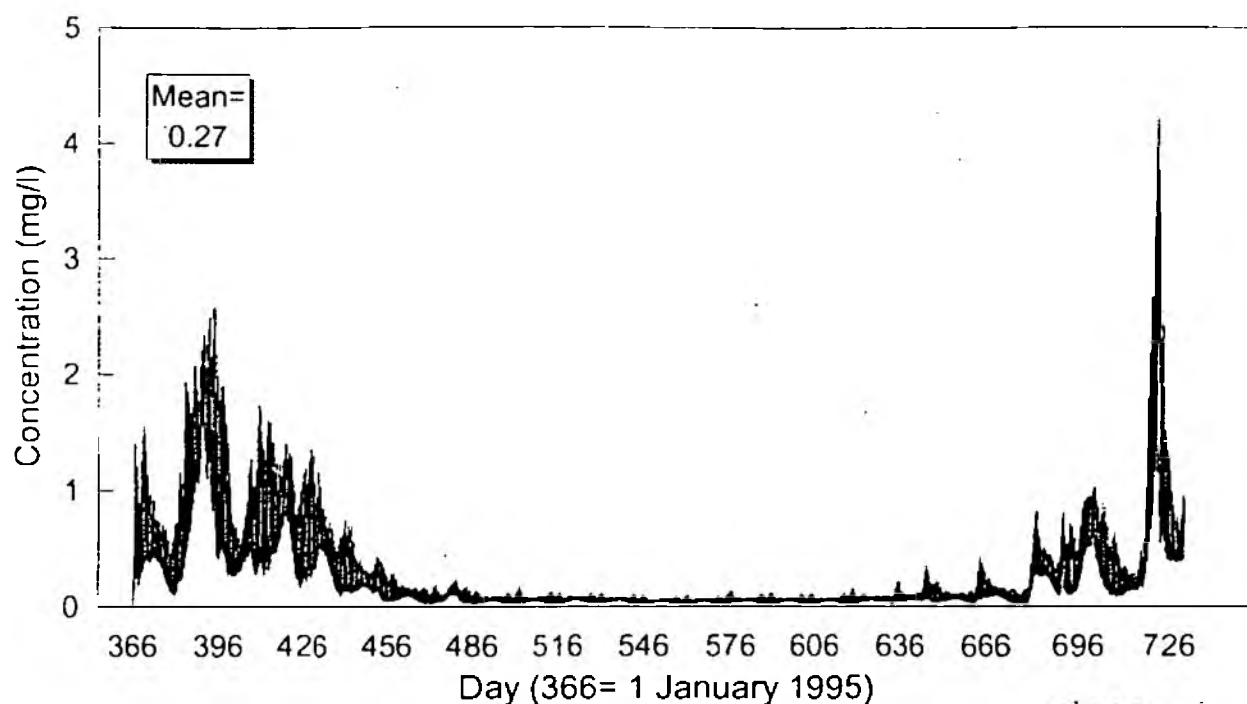
Taw Estuary (U/S Ashford): 1995: Modelled Nitrogen-All discharges
Point is 500m upstream of Ashford STW outfall



Taw Estuary (U/S Ashford): 1995: Modelled Nitrogen-No Ashford
Point is 500m upstream of Ashford STW outfall

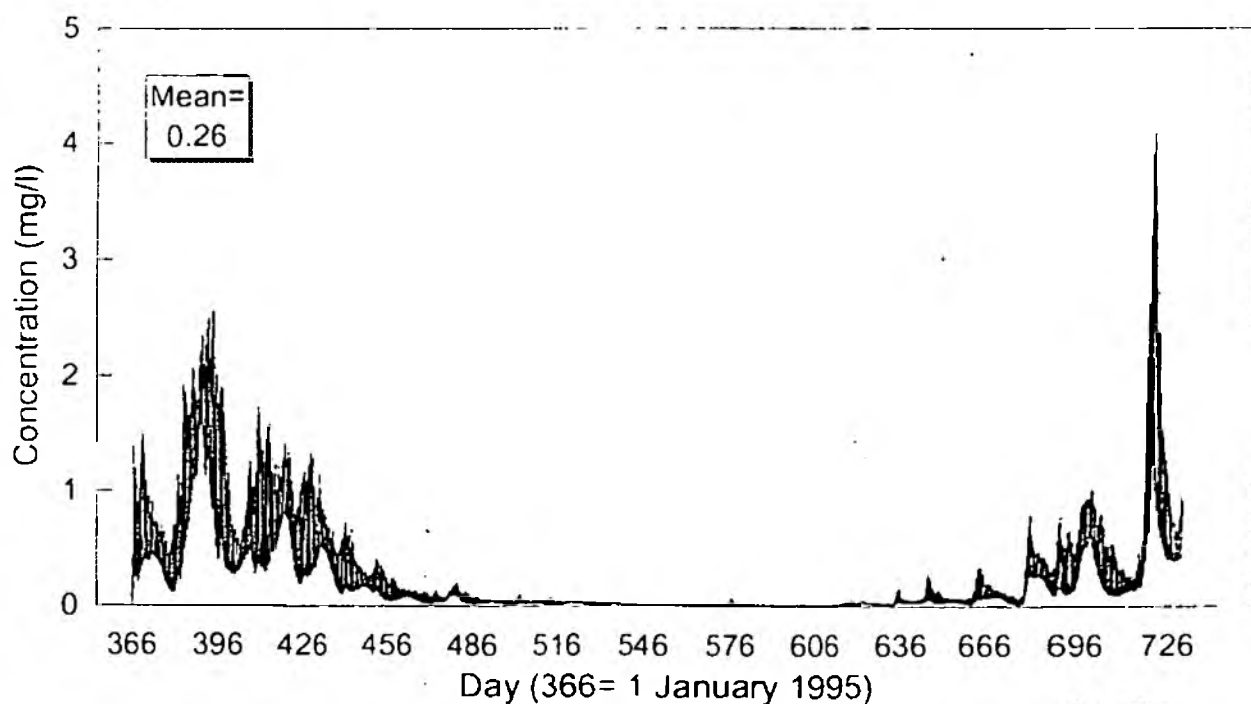


Taw Estuary (D/S Ashford): 1995: Modelled Nitrogen-All discharges
 Point is 500m downstream of Ashford STW outfall



GRAPH LC

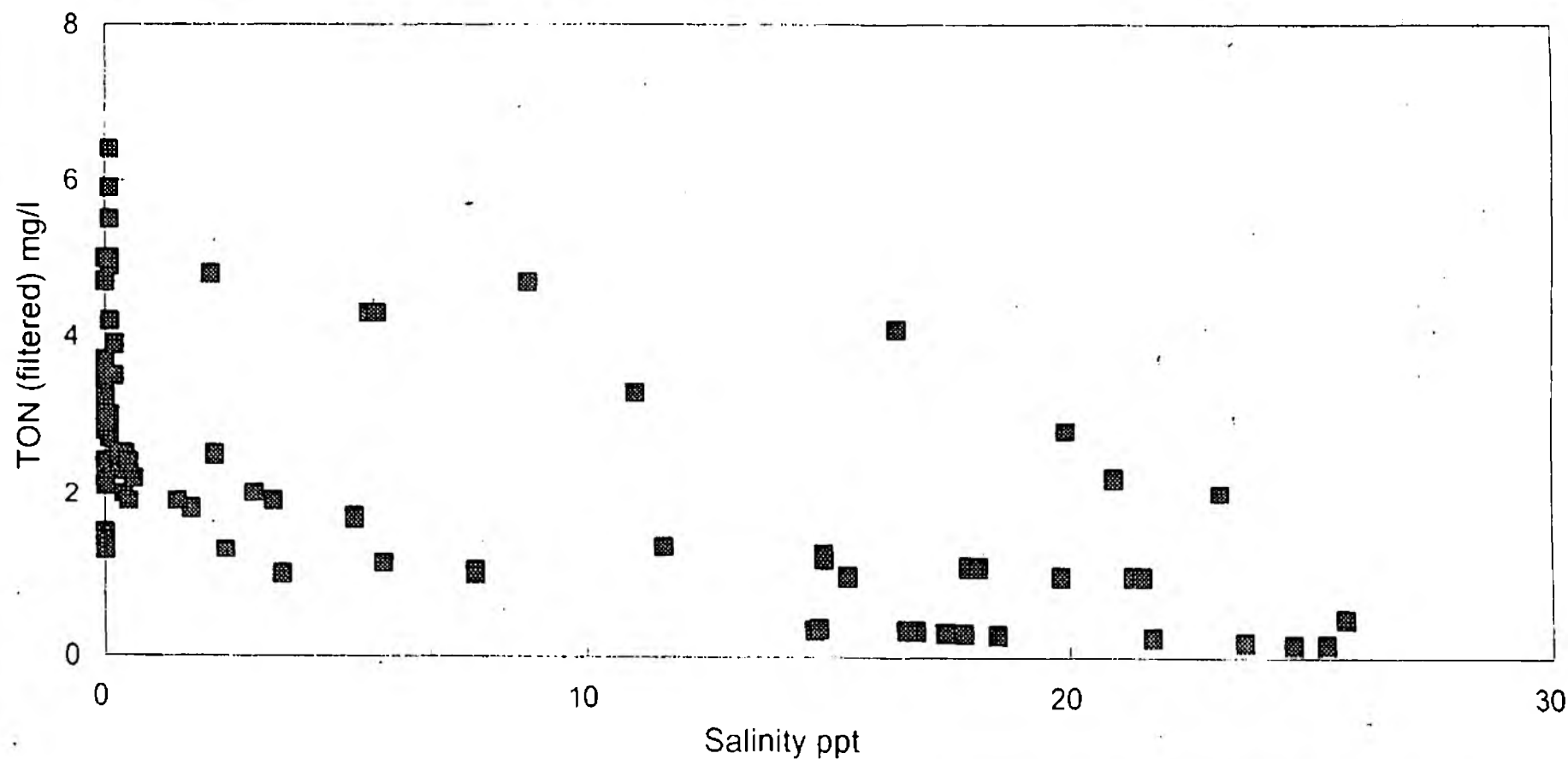
Taw Estuary (D/S Ashford): 1995: Modelled Nitrogen-No Ashford
 Point is 500m downstream of Ashford STW outfall



GRAPH LC

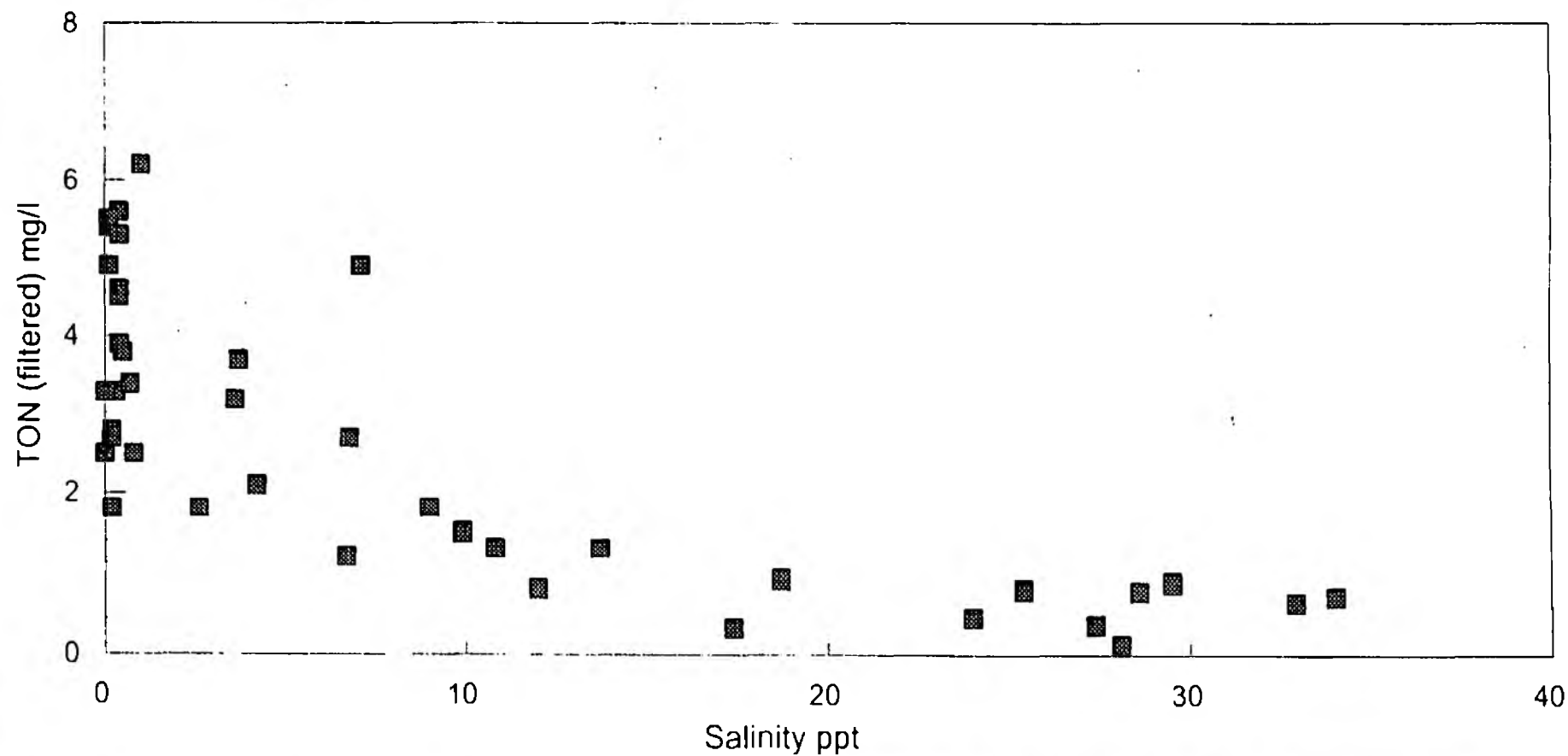
TAW ESTUARY - BARNSTAPLE 22/04/94 to 12/11/96

TON vs Salinity



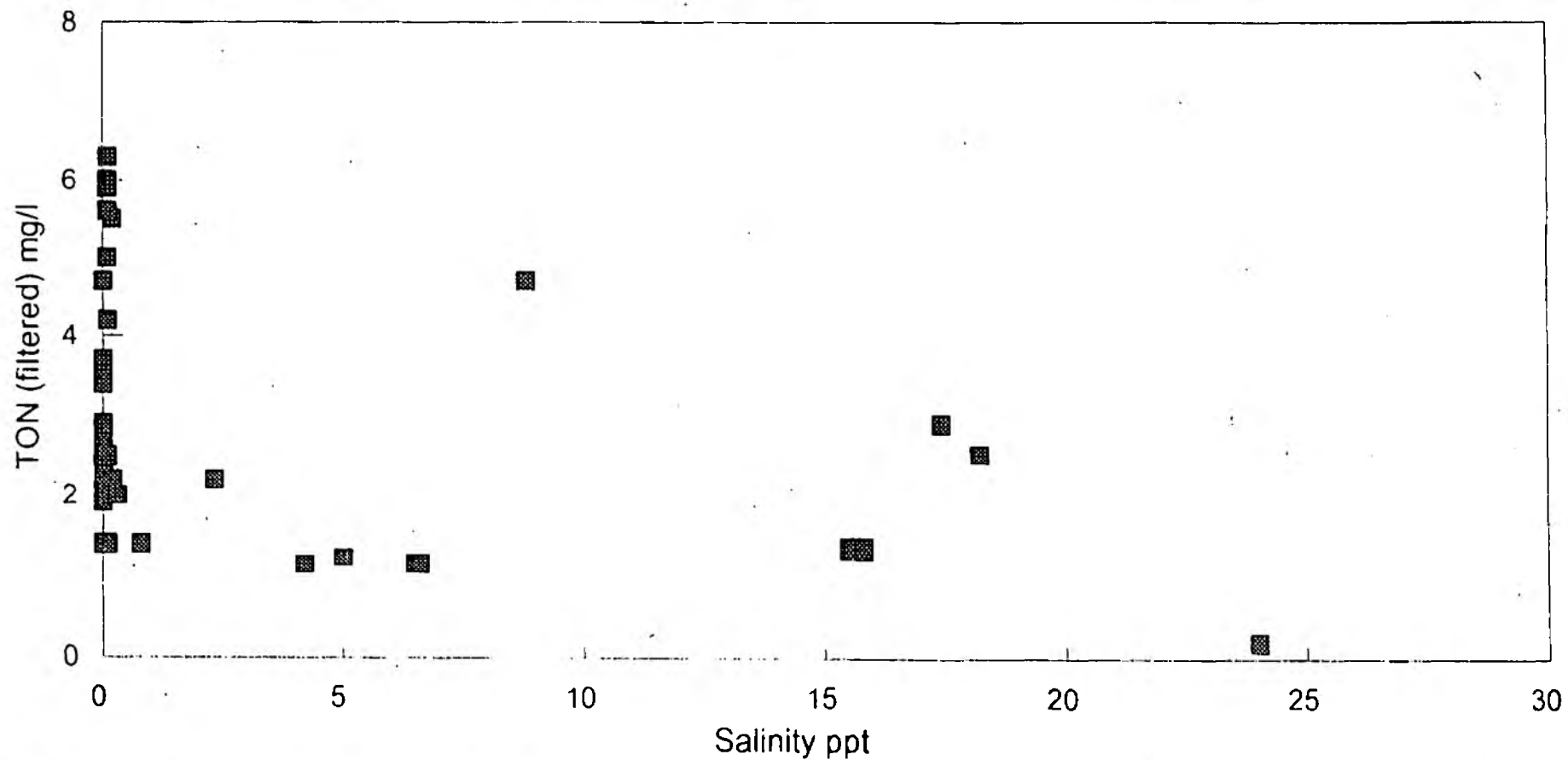
TAW ESTUARY - ASHFORD STW 13/01/94 to 12/11/96

TON vs Salinity



TAW ESTUARY - BY LITTLE PILL 22/02/94 to 12/11/96

TON vs Salinity



TAW ESTUARY - RAF CHIVENOR 22/02/94 to 12/11/96

TON vs Salinity

