

Environmental Protection Report

AN ASSESSMENT OF THE CAUSES OF NON-COMPLIANCE WITH RIVER QUALITY STANDARDS WITHIN THE RIVER TIDDY CATCHMENT (1989-1991)

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FWP/92/006

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An Assessment of the Causes of Non-compliance with River Quality Standards within the River Tiddy Catchment (1989-1991).

SUMMARY.

The River Tiddy Catchment has failed to meet its River Quality Objectives (RQO) of NWC Class 1B for a number of years. Stretches of the river have been classified as the National Water Council (NWC) NWC Class 4 and Class 3 between 1989 and 1991. In view of this poor water quality a review of water quality, fisheries and biological data has been undertaken to assess the significance and severity of quality problems and to make recommendations for further action to ensure any necessary improvements in water quality.

The poor river water quality in the River Tiddy Catchment is mainly caused by high BOD concentrations associated with rainfall. Quethiock STW, the only monitored consented discharge in the catchment, is not thought to be currently contributing to water quality problems further downstream. This problem of organic runoff throughout the catchment is thought to be attributable to farm drainage problems in the River Tiddy Catchment.

Routine biological monitoring data (fish and aquatic invertebrates) do not reflect the poor water quality detected chemically and probably indicate the intermittent nature and short duration of the pollution events.

Drainage from the disused mines in the River Tiddy Catchment, particularly from the copper mines located on Caradon Hill, will enter the River Tiddy in the upper catchment and probably explain the high metal concentrations detected in the River Tiddy.

It is recommended that task force investigations are carried out in the River Tiddy Catchment to secure any necessary farm drainage improvements. The routine river water quality should be reviewed once any necessary improvements in farm drainage have been secured to assess any concomitant improvement in river water quality.

Furthermore, the impact of historic mining activities on water quality needs to be assessed.

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AN ASSESSMENT OF THE CAUSES OF NON-COMPLIANCE WITH RIVER QUALITY STANDARDS WITHIN THE RIVER TIDDY CATCHMENT (1989-1991). ---

1. INTRODUCTION.

There has been widespread non-compliance with River Quality Standards equivalent to NWC Class 1B in the River Tiddy Catchment over a number of years. Examination of this poor water quality was given a high priority due to the classification of part of the catchment as National Water Council (NWC) Class 4 (bad) in 1989 and the classification of stretches as NWC Class 3 (poor) in 1991.

This study is planned to:

1. Assess the cause of non-compliance with the relevant River Quality Standards in the River Tiddy Catchment
2. Make relevant recommendations to ensure water quality is improved and maintained to target standards.

2. STUDY AREA.

The River Tiddy drains the western margin of the Tamar catchment. The river rises in the settlement of Pensilva (NGR SX 28 69) and flows for 15.9 km in a south-easterly direction before draining directly into the tidal estuary of the River Lynher below Tideford. The River Tiddy Catchment comprises an area of 37.2 km² and is largely rural in nature with small settlements.

The Trecorme Stream rises north east of St Ive (NGR SX 3142 6756) and flows 7.3 km to its confluence with the River Tiddy at Tilland (NGR SX 3300 6170).

2.1. River Quality Objectives.

The River Tiddy was assigned a RQO of NWC Class 1B from source to tidal limit. There are 6 routine monitoring sites in the River Tiddy Catchment. At 2 of these sites, above Pensilva STW (NGR SX 2900 6890) and Tideford Bridge (NGR SX 3443 5960), river water samples are analysed for List II Dangerous Substances. Tideford Bridge is also the designated monitoring point for assessing compliance, for the river stretch from Tilland to Tideford Bridge, with the criteria for salmonid fish under the EC Freshwater Fish Directive and the designated Red List Site for assessing contaminant loads to the marine environment.

The location of these sites are indicated on the map in Appendix 1.

2.2. River Uses.

The National Rivers Authority-South West Region have continued to use the following use-related Environmental Quality Objectives for the River Tiddy from source to tidal limit, which were adopted in 1986:

- * Protection of Aesthetic Quality
- * Protection of Salmonid Fish
- * Protection of Other Aquatic Life/Dependent Organisms
- * Protection for Livestock Watering
- * Protection for Irrigation of Crops

3. DATA REVIEW.

3.1. Review of Routine River Water Quality Data.

All the historical raw water quality data and summary graphs for the 1991 NWC Classification (as produced by 'Aardvark') are given in Appendix 2.

3.1.1. Historical Water Quality - NWC Classification.

TABLE 1. NWC Classification since 1985 (- = not sampled).

Site	RQO	1989	1990	1991
<u>River Tiddy</u>				
U/S Pensilva STW	1B	-	3	3
Butterdon Mill	1B	4	3	2
Trehunsey Bridge	1B	-	1B	-
Tilland Mill Bridge	1B	-	2	3
Tideford Bridge	1B	2	2	3
<u>Trecorme Stream</u>				
Tilland Bridge	1B	-	2	2

1. There has been widespread non-compliance with RQO's throughout the catchment during 1990 and 1991 (see Table 1).
2. River water quality has been poor historically, particularly at Butterdon Mill, where water quality was classified as NWC Class 4 during 1989 (see Table 1).

3.1.2. Reasons For Non-compliance.

TABLE 2. Calculated Determinand Statistics in the 1991 NWC Classification (* = non-compliance with RQO).

Site	BOD (mg/l)	Ammonia (mg/l)	Solids (mg/l)	Tot. copper (ug/l)
<u>River Tiddy</u>				
U/S Pensilva STW	9.7*	0.68	20.8	27.6*
Butterdon Mill	5.4*	0.34	15.5	13.7
Tilland Mill Bridge	6.1*	0.308	33.0*	22.2
Tideford Bridge	6.7*	0.367	31.3*	30.2
<u>Trecorme Stream</u>				
Tilland Bridge	7.6*	0.503	16.7	7.9

1. BOD concentrations in excess of the standards for a NWC Class 1B river were recorded at all sites. These high concentrations were associated with rainfall.

2. Ammonia concentrations throughout the catchment complied with the standard for a NWC Class 1B river although the calculated 95 percentiles values were close to the maximum allowable for a 1B river in the upper catchment (see Table 2).

3. A high ammonia concentration (1.1 mg/l) and a very high BOD concentration (25 mg/l) occurred at Butterdon Mill on 15 March 1988 following heavy rainfall. No pollution incident was reported for this river stretch on that day. This high BOD concentration resulted in the classification of this site as NWC Class 4. However, this high BOD concentration was not an isolated event as there have been 2 other BOD concentrations (6.4 and 9.6 mg/l) that have exceeded the NWC Class 1B standard at this site between 1988 and 1991.

4. During rainfall suspended solid concentrations are particularly high throughout the catchment. Elevated zinc and copper concentrations are often associated with these high suspended solids concentrations.

5. Failure of the relevant copper Environmental Quality Standard (EQS) occurred during 1991 at the routine site above Pensilva STW (95%ile 27.6 ug/l). The relevant standard for copper refers to the dissolved concentration and up until 1991 the river water samples collected have been tested for total copper concentration only.

6. Quethiock STW, the only monitored consented discharge in the River Tiddy Catchment, has complied with its consent conditions for BOD (20 mg/l) and suspended solids (30 mg/l) from 1989 to the end of 1991.

7. River water samples that have been collected directly up and downstream of the discharge as part of the 'Ups and Downs Monitoring Programme', which commenced in April 1991, indicate small increases in ammonia, BOD and

suspended solid concentrations downstream of the STW which do not exceed the standards for a NWC Class 1B river. Therefore, the STW is not thought to be currently contributing to poor water quality further downstream at Tilland Mill Bridge.

3.2. Review of Routine Biological Data.

1. High BMWP and ASPT scores indicative of good water quality were found throughout the catchment during routine aquatic invertebrate surveys (see Table 3.).

TABLE 3. Biotic scores calculated from invertebrate samples collected during 1990 and 1991 (NB Scores are for 3 seasonal samples combined).

Site	BMWP	ASPT
<u>River Tiddy</u>		
U/S Pensilva STW	139	6.3 (1991)
Butterdon Mill	209	6.8 (1990)
Tilland mill Bridge	176	6.5 (1991)
Tideford Bridge	177	6.6 (1991)
<u>Trecorme Stream</u>		
Tilland Bridge	219	6.8 (1990)

3.3. Review of Routine Fisheries Data.

1. Reasonable trout fry and parr densities were recorded in the River Tiddy Catchment during a survey carried out in 1990 although higher densities were found in the upper catchment (see Appendix 3).

2. Low salmon densities were recorded in the River Tiddy Catchment although this may reflect a lack of suitable habitat and is not necessarily indicative of poor water quality as the presence of a viable trout population should be sufficient to indicate good water quality.

4. CONCLUSIONS.

1. Poor river water quality detected in the River Tiddy Catchment is mainly due to BOD pollution associated with rainfall.

2. Quethiock STW is not thought to be currently contributing to water quality problems further downstream in the River Tiddy.

3. This problem organic runoff throughout the catchment is thought to be due to farm drainage in the River Tiddy Catchment.

4. The routine biological monitoring data (fish and aquatic invertebrates) do not reflect the poor water quality detected chemically and, therefore, probably indicate poor water quality problems of short duration and of an

intermittent nature.

5. Drainage from the disused mines in the River Tiddy Catchment, particularly from the copper mines located on Caradon Hill, will enter the River Tiddy in the upper catchment and probably explain the high metal concentrations detected in the River Tiddy.

5. RECOMMENDATIONS.

1. Task force investigations should be carried out in the River Tiddy Catchment to secure any necessary farm drainage improvements.

- Action by Pollution Officer (West).

2. The routine river water quality should be reviewed once improvements in farm drainage have been secured to assess any concomitant improvement in river water quality.

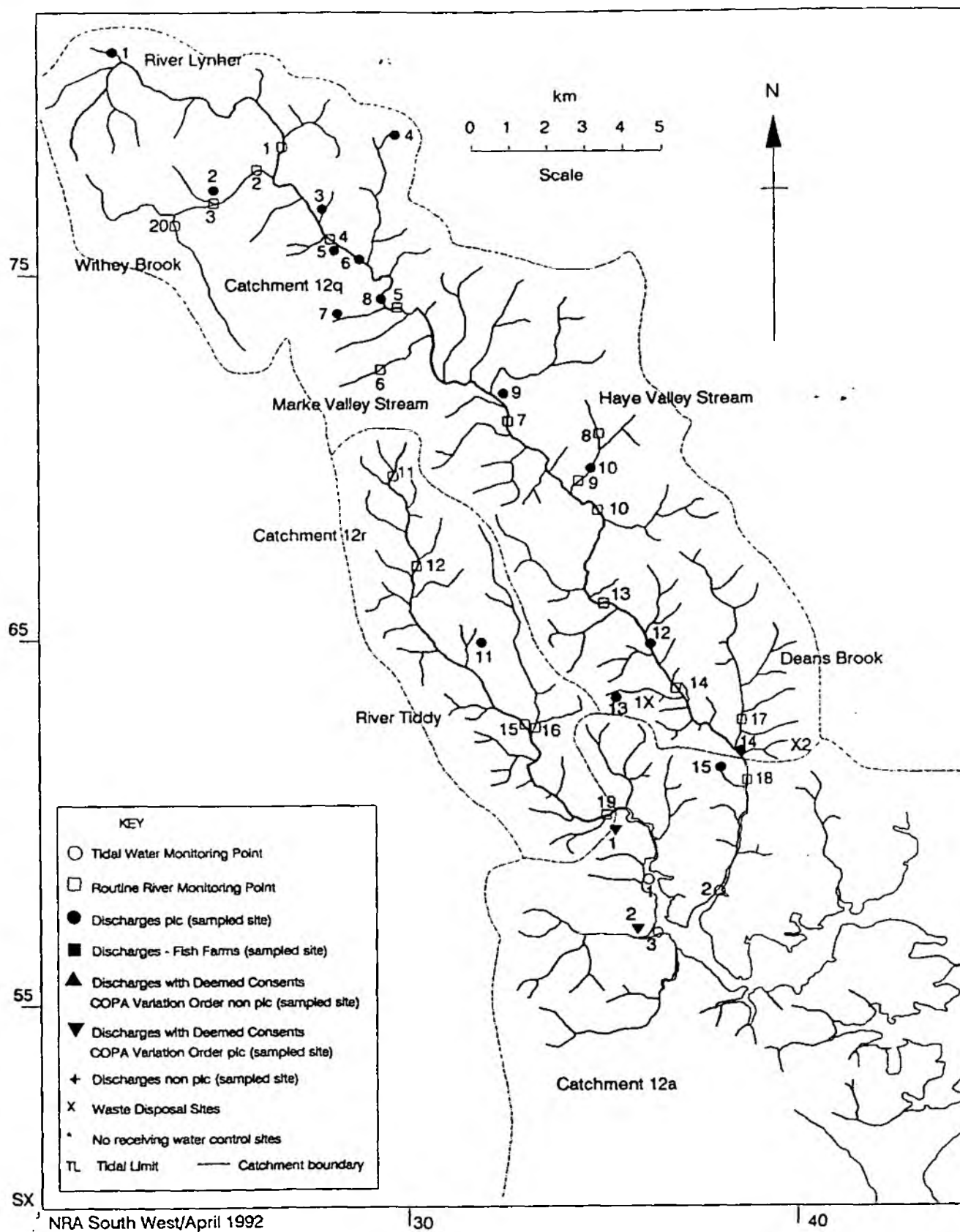
- Action by Freshwater Officer.

3. The impact of historic mining activities on water quality needs to be assessed.

- Action by Freshwater Officer.

APPENDIX 1. Water Quality Monitoring Locations Map and Index.

Lynher Catchment 12A, 12Q & 12R



LYNHUR CATCHMENT 12A, 12Q & 12R

O	REFERENCE	NGR	LOCATION	ADDITIONAL DETAILS
DISCHARGES PLC				
	WSTW4802FE	SX21928038	Trewint	Sewage treatment works
	WWTW5302D	SX24427660	Bastreet	Water treatment works
3	WSTW4702FE	SX27187635	North Hill	Sewage treatment works
4	WSTW4546FE	SX29137698	Coads Green	Sewage treatment works
	WSTW4682FE	SX27527548	Middlewood	Sewage treatment works
6	WSTW4512FE	SX28407460	Bathpool	Sewage treatment works
7	WSTW4612FE	SX26737314	Henwood	Sewage treatment works
	WSTW4740FE	SX29407338	Rilla Mill	Sewage treatment works
	WSTW4592FE	SX31967094	Golberdon	Sewage treatment works
10	WSTW4535FE	SX34036888	Callington	Sewage treatment works
11	WSTW4736FE	SX31296466	Quethiock	Sewage treatment works
12	WSTW4716FE	SX36046404	Pillaton	Sewage treatment works
13	WSTW4518FE	SX34506290	Blunts	Sewage treatment works
14	WSTW4608FE	SX38346135	Hatt	Sewage treatment works
15	WSTW4636FE	SX38006100	Landrake	Sewage treatment works

DISCHARGES WITH DEEMED CONSENTS - COPA VARIATION ORDER PLC

1	OUT4900	SX34835951	Tideford	
2	WSTW4754FE	SX35973710	St Germans	Sewage treatment works

WASTE DISPOSAL SITES

1	080ANMAL	SX36106310	Holwood Quarry, Callington
2	080ASEAL	SX39606130	Roads Croft, Halt, Saltash

TIDAL WATER QUALITY MONITORING POINT - ESTUARY QUALITY

1	E12A16	SX36255850	River Tiddy	Routine monitoring site
2	E12A14	SX38005830	Off Trevollard	Routine monitoring site
3	E12A15	SX35705700	Polbathick	Routine monitoring site

ROUTINE RIVER MONITORING

1	R12Q001	SX26037778	Trebartha Rd Br	Chemical site
	1267	SX26297782		Biological site
2	R12Q008	SX26107723	Withey Brook	Chemical site
	1272	SX26107720		Freshwater Fish Directive
				Biological site
3	R12Q010	SX24357637	Withey Brook	Chemical site
	1271	SX24367636		Biological site
4	R12Q002	SX27337564	Berriowbridge	Chemical site
	12134	SX27327565		Biological site
5	R12Q003	SX29487311	Rilla Mill Bridge	Chemical site
				Freshwater Fish Directive
	1268	SX28957385		Biological site
6	R12Q027	SX28707195	Marke Valley Stream	Chemical site
				Dangerous Substances Directive
	1275	SX28627192		Biological site
7	R12Q004	SX32157005	Bicton Mill Bridge	Chemical site
	12135	SX32157007		Biological site
8	R12Q026	SX34706991	Haye	Chemical site
	12139	SX34677008		Biological site
9	R12Q009	SX34006888	Caddapit	Chemical site
				Dangerous Substances Directive
	1274	SX34006888		Biological site

LYNHER CATCHMENT 12A, 12Q & 12R (cont)

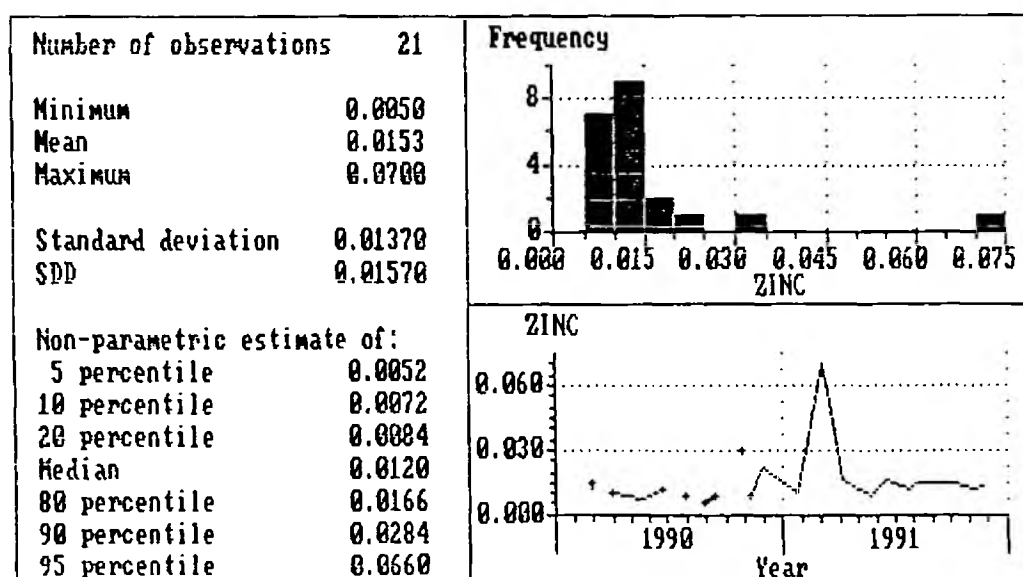
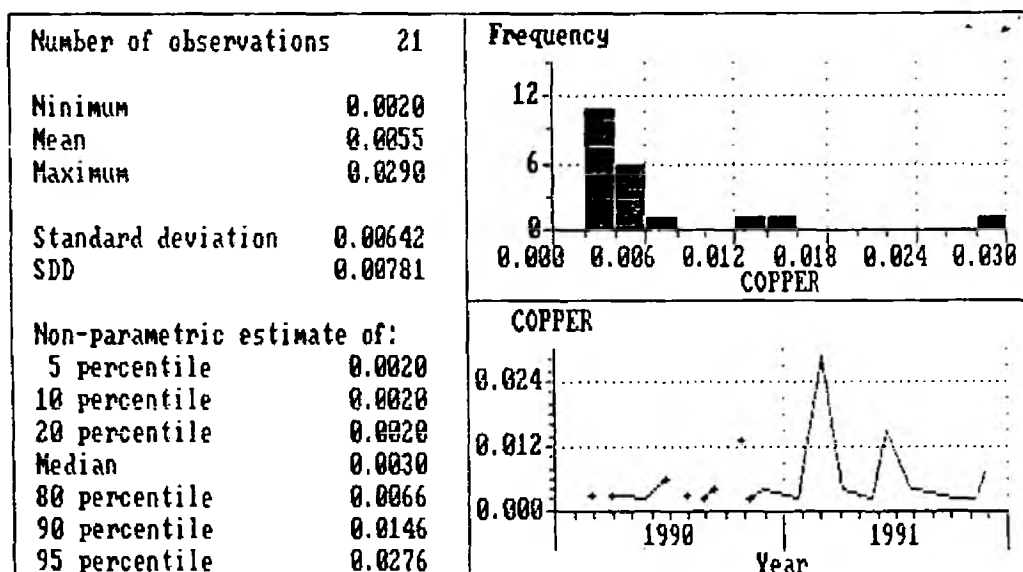
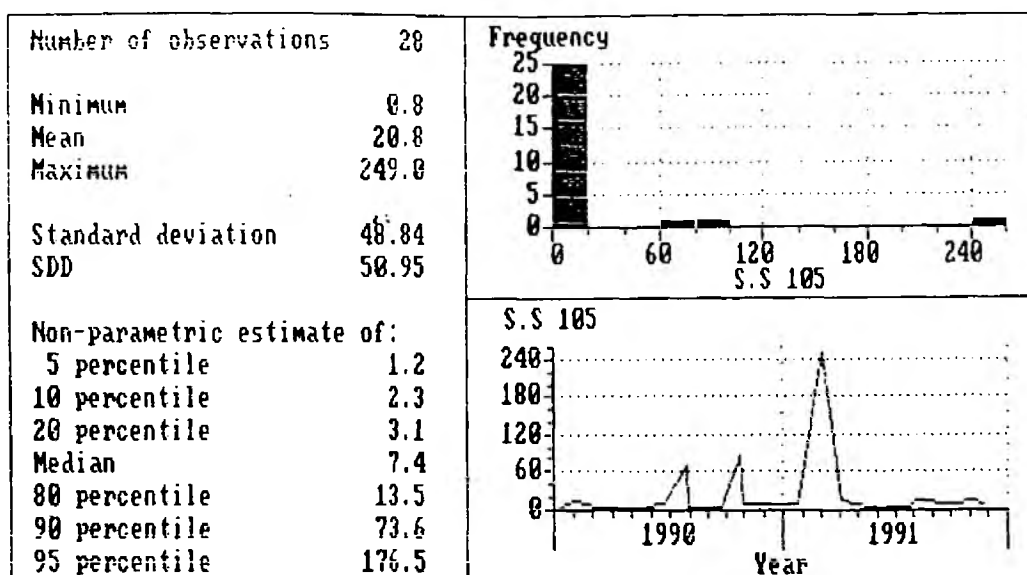
NO	REFERENCE	NGR	LOCATION	ADDITIONAL DETAILS
ROUTINE RIVER MONITORING				
10	R12Q005	SX34736801	Newbridge	Chemical site
	1269	SX34736809		Biological site
11	R12R001	SX29006890	U/S Pensilva STW	Chemical site
	12140	SX29006890		Biological site
12	R12R002	SX29446617	Butterdon Mill	Chemical site
	1276	SX29526625		Dangerous Substances Directive
				Biological site
13	R12Q025	SX35156526	Clapper Bridge	Chemical site
	12136	SX35136527		Biological site
14	R12Q006	SX36506324	Pillaton Bridge	Chemical site
	12137	SX36596318		Biological site
15	R12R003	SX32886188	Tilland Mill Bridge	Chemical site
	12141	SX32856188		Biological site
16	R12R006	SX33156196	Trecorme Stream	Chemical site
	1278	SX33206200		Biological site
17	R12Q029	SX38256224	Deans Brook	Chemical site
	1273	SX38246235		Biological site
18	R12Q007	SX38506090	Notter Bridge	Chemical site
				Red List site
				Freshwater Fish Directive
				Dangerous substances site
				Harmonised monitoring point
	1270	SX38486099		Biological site
19	R12R004	SX34435960	Tideford Bridge	Chemical site
				Red List site
				Freshwater Fish Directive
	1277	SX34515964		Biological site
20		SX23407600	Rushford Water	Biological site

APPENDIX 2. Routine River Water Quality Data.

TIDDY ABOVE PENSILVA S T W

R12R001

DATE	pH	TEMP	DO	BOD ATU	AMMON TOTAL	AMMON UNION	SUSP.SOL. 105°C	COPPER	ZINC	ORTHOPHOS	NITRATE
	pH UNITS	°C	% SATN	mg/l O	mg/l N	mg/l N	mg/l	mg/l Cu	mg/l Zn	mg/l P	mg/l N
03/01/90	6.6000	9.3000	93.0000	1.0000	0.0100	0.0100	0.8000			0.0100	1.8000
01/02/90	6.9000	8.8000	90.0000	1.1000	0.0300	0.0100	12.0000			0.0100	6.0000
06/02/90	7.2000	10.0000	92.0000	2.2000	0.1400	0.0100	10.0000	0.0030	0.0140	0.0400	4.5000
02/03/90	7.1000	9.5000	96.0000	2.4000	0.3100	0.0100	6.4000			0.0700	4.8000
29/03/90	7.1000	7.5000	94.0000	1.9000	0.0700	0.0100	3.2000	0.0030	0.0100	0.0200	4.4000
23/04/90	7.2000	9.7000	91.0000	0.6000	0.0300	0.0100	5.6000	0.0030	0.0080	0.0100	3.9000
18/05/90	7.5000	11.5000	103.0000	1.4000	0.0400	0.0100	2.4000	0.0020	0.0070	0.0200	3.6000
22/06/90	7.0000	12.4000	85.0000	9.1000	0.6000	0.0100	9.2000	0.0060	0.0120	0.0300	2.6000
27/07/90	7.0000	14.2000	86.0000	5.7000	0.0100	0.0100	72.0000			0.0200	4.1000
31/07/90	6.3000	14.1000	89.0000	3.6000	0.2700	0.0100	5.2000	0.0030	0.0090	0.0400	3.7000
13/08/90	7.9000	14.0000	87.0000	1.0000	0.0300	0.0100	4.0000			0.0200	3.4000
28/08/90	7.2000	16.1000	81.0000	0.4000	0.0300	0.0100	1.6000	0.0020	0.0050	0.0200	3.4000
12/09/90	7.4000	9.6000	124.0000	0.6000	0.0100	0.0100	2.8000	0.0040	0.0080	0.0100	3.3000
24/09/90	6.1000	11.4000	87.0000	1.4000	0.1100	0.0100	4.0000			0.0200	2.8000
25/10/90	7.1000	11.2000	95.0000	10.1000	0.6700	0.0100	88.0000	0.0130	0.0300	0.3400	2.1000
31/10/90	7.1000	11.5000	105.0000	1.3000	0.1200	0.0100	8.0000			0.0300	4.5000
07/11/90	7.1000	9.8000	100.0000	1.0000	0.0500	0.0100	7.2000	0.0020	0.0090	0.1200	4.7000
29/11/90	7.1000	10.5000	131.0000	1.3000	0.0500	0.0100	11.0000	0.0040	0.0220	0.0100	4.9000
24/01/91	7.1000	7.0000	101.0000	1.2000	0.0400	0.0100	8.0000	0.0020	0.0100	0.0100	4.8000
04/03/91	7.0000	7.9000	91.0000	4.6000	0.4000	0.0100	249.0000	0.0290	0.0700	0.1200	1.9000
05/04/91	7.2000	8.3000	103.0000	2.1000	0.0800	0.0100	15.6000	0.0040	0.0170	0.0100	4.2000
23/05/91	7.0000	12.4000	95.0000	1.4000	0.0200	0.0100	6.4000	0.0020	0.0090	0.0200	3.9000
16/06/91	7.0000	12.5000	95.0000	1.1000	0.0200	0.0100	2.8000	0.0150	0.0160	0.0100	3.6000
25/07/91	7.0000	13.6000	92.0000	1.2000	0.1000	0.0100	4.0000	0.0040	0.0120	0.0100	4.0000
05/08/91	7.1900	13.5000	88.5000	1.0000	0.0100		13.0700	0.0040	0.0140	0.0400	
04/10/91	7.5200	10.0000	99.0000	1.0000	0.0100	0.0001	7.6000	0.0020	0.0140	0.0190	3.5000
07/11/91	7.3000	11.1000	99.0000	1.1000	0.1100	0.0004	15.0000	0.0020	0.0120	0.0100	4.1800
25/11/91	7.6000	10.8000	103.0000	1.1000	0.1500	0.0012	7.9000	0.0070	0.0130	0.0200	4.1800



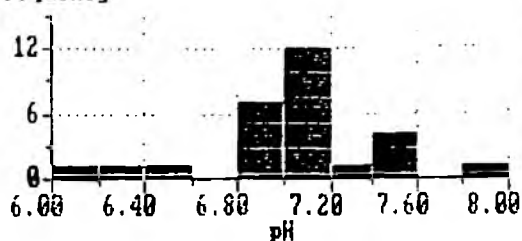
TIDY ABOVE PENSILVA S T W

pH

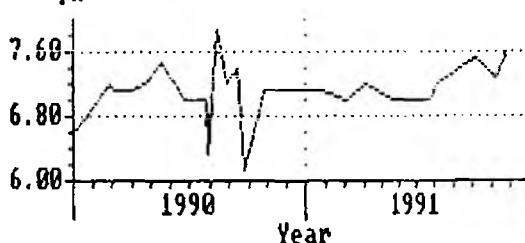
3/ 1/90 to 25/11/91

Number of observations	28
Minimum	6.100
Mean	7.100
Maximum	7.900
Standard deviation	0.3546
SDD	0.3717
Non-parametric estimate of:	
5 percentile	6.190
10 percentile	6.570
20 percentile	7.000
Median	7.100
80 percentile	7.320
90 percentile	7.528
95 percentile	7.765

Frequency



pH



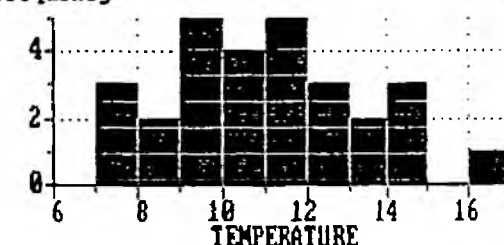
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TEMPERATURE

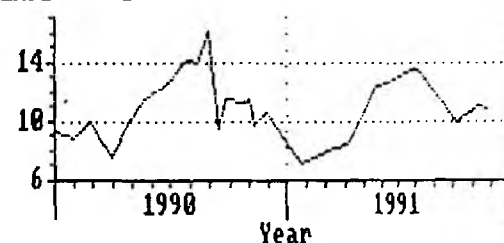
3/ 1/90 to 25/11/91

Number of observations	28
Minimum	7.00
Mean	11.01
Maximum	16.10
Standard deviation	2.255
SDD	1.496
Non-parametric estimate of:	
5 percentile	7.22
10 percentile	7.86
20 percentile	9.20
Median	10.95
80 percentile	13.52
90 percentile	14.11
95 percentile	15.24

Frequency



TEMPERATURE



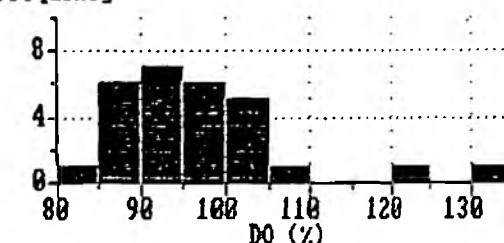
TIDY ABOVE PENSILVA S T W

DO (%)

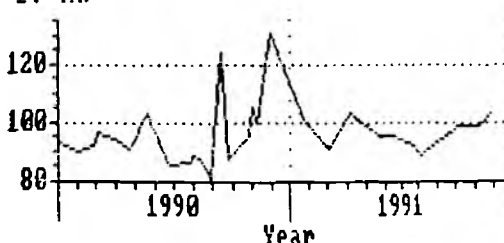
3/ 1/90 to 25/11/91

Number of observations	28
Minimum	81.0
Mean	96.3
Maximum	131.0
Standard deviation	10.79
SDD	10.99
Non-parametric estimate of:	
5 percentile	82.8
10 percentile	85.9
20 percentile	88.2
Median	94.5
80 percentile	103.0
90 percentile	106.9
95 percentile	127.8

Frequency



DO (%)



TIDDY AT BUTTERDON MILL

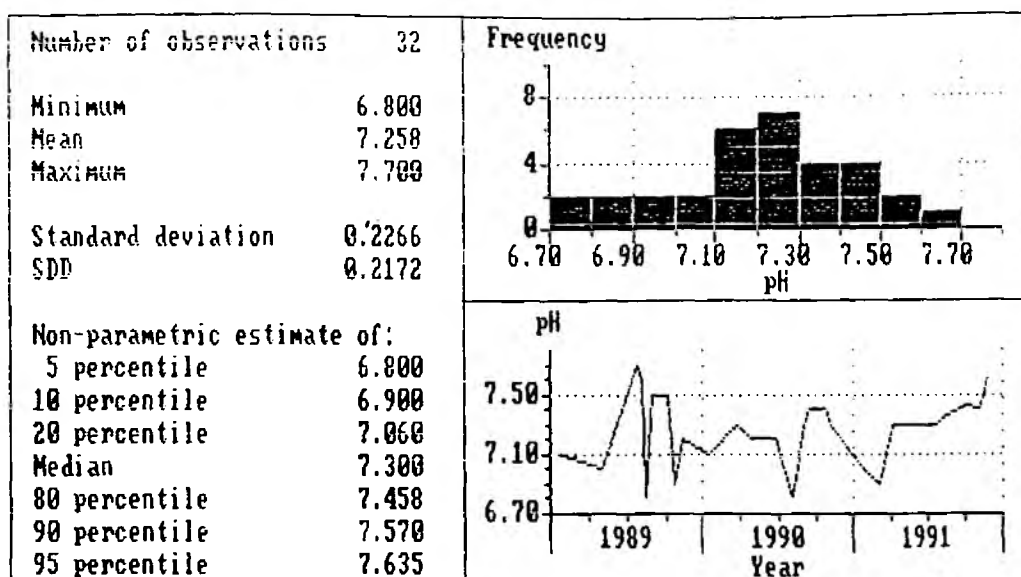
R12R002

DATE	pH	TEMP	DO	BOD ATU	AMMON TOTAL	AMMON UNION	SUSP.SOL. 105°C	COPPER	ZINC	ORTHOPHOS	NITRATE
	pH UNITS	°C	% SATN	mg/l O	mg/l N	mg/l N	mg/l	mg/l Cu	mg/l Zn	mg/l P	mg/l N
05/02/86	7.0000	6.0000	92.0000	2.7000	0.0600	0.0100	11.0000	0.0030	0.0480	0.0700	5.3000
15/05/86	7.4000	10.0000	90.0000	1.1000	0.0300	0.0100	4.4000			0.0100	5.2000
28/07/86	7.2000	13.0000	71.0000	5.2000	0.7400	0.0100	70.0000			0.1300	2.3000
29/08/86	7.0000	15.0000	98.0000	3.5000	0.2400	0.0100	74.0000			0.0300	4.4000
08/01/87	7.0000	5.9000	90.0000	2.3000	0.0600	0.0100	6.0000	0.0030	0.0370	0.0800	5.5000
20/02/87	6.6000	6.0000	91.0000	3.1000	0.0600	0.0100	14.0000	0.0020	0.0210	0.0100	5.7000
21/05/87	8.1000	9.9000	101.0000	2.3000	0.0100		5.6000			0.1100	6.0000
23/07/87	7.4000	13.9000	95.0000	2.1000	0.5000	0.0100	6.8000			0.0800	5.2000
05/10/87	7.5000	13.7000	91.0000	1.3000	0.0500	0.0100	7.0000	0.0030	0.0210	0.1200	5.4000
15/01/88	6.9000	9.0000	87.0000	0.9000	0.1000	0.0100	22.8000	0.0050	0.0260	0.0100	5.0000
15/03/88	7.1000	10.0000	68.0000	25.0000	1.1000	0.0100	552.0000	0.0260	0.2030	0.5300	3.8000
06/05/88	7.5000	12.0000	96.0000	0.7000	0.0100	0.0100	4.0000			0.0100	6.0000
03/06/88	7.4000	11.0000	89.0000	2.3000	0.4700	0.0100	17.8000	0.0030	0.0200	0.0400	5.3000
29/07/88	7.2000	11.5000	87.0000	3.2000	1.0000	0.0100	4.8000			0.0900	4.9000
16/09/88	7.3000	15.0000	99.0000	6.4000	1.4000	0.0100	4.4000			0.1300	5.0000
09/11/88	7.2000	11.0000	93.0000	1.9000	0.0200	0.0100	3.2000	0.0050	0.0350	0.0300	3.7000
23/01/89	7.1000	8.8000	93.0000	2.0000	0.1000	0.0100	21.6000	0.0040	0.0290	0.0200	5.4000
02/05/89	7.0000	6.9000	86.0000	0.8000	0.0100	0.0100	1.4000			0.0100	3.8000
24/07/89	7.7000	16.7000	96.0000	0.9000	0.0100	0.0100	1.4000	0.0050	0.0290	0.0300	3.3000
07/08/89	7.6000	14.1000	94.0000	1.4000	0.0100	0.0100	2.4000	0.0030	0.0330	0.0300	2.9000
15/08/89	6.8000	14.5000	93.0000	0.6000	0.0200	0.0100	3.0000	0.0030	0.0600	0.0400	2.3000
29/08/89	7.5000	12.4000	88.0000	0.7000	0.0300	0.0100	2.0000	0.0030	0.0390	0.0300	2.7000
04/09/89	7.5000	10.0000	98.0000	1.0000	0.0200	0.0100	1.4000			0.0300	2.8000
03/10/89	7.5000	11.8000	92.0000	1.2000	0.0100		1.6000	0.0110	0.0460	0.0300	2.7000
22/10/89	6.9000	12.0000	85.0000	2.5000	0.0700	0.0100	15.6000	0.0070	0.1130	0.0500	3.5000
09/11/89	7.2000			1.3000	0.0200		30.8000	0.0080	0.0410	0.0200	5.6000
19/01/90	7.1000	9.0000	93.0000	0.8000	0.0400	0.0100	3.6000	0.0020	0.0330	0.0100	5.5000
26/02/90	7.2000	10.1000	88.0000	1.8000	0.2200	0.0100	28.0000	0.0020	0.0330	0.0300	6.8000
29/03/90	7.3000	7.0000	99.0000	1.7000	0.0100	0.0100	1.4000	0.0020	0.0550	0.0100	4.3000
23/04/90	7.2000	9.6000	93.0000	0.8000	0.0200	0.0100	2.4000	0.0020	0.0970	0.0100	3.2000
18/05/90	7.2000	11.6000	104.0000	1.4000	0.0200	0.0100	1.0000	0.0020	0.0480	0.0100	3.4000
22/06/90	7.2000	12.0000	99.0000	1.3000	0.0400	0.0100	11.0000	0.0060	0.0500	0.0400	2.6000
31/07/90	6.8000	14.0000	97.0000	1.0000	0.0400	0.0100	3.6000	0.0020	0.0350	0.0400	3.0000
28/08/90	7.3000	16.3000	80.0000	0.6000	0.0200	0.0100	0.8000	0.0030	0.0270	0.0400	2.9000
12/09/90	7.4000	8.5000	112.0000	0.7000	0.0200	0.0100	1.6000	0.0030	0.0320	0.0200	3.0000
25/10/90	7.4000	12.2000	88.0000	2.8000	0.0800	0.0100	13.0000	0.0060	0.0350	0.0600	4.3000
07/11/90	7.3000	9.2000	100.0000	1.1000	0.0200	0.0100	10.8000	0.0020	0.0290	0.0600	4.9000
29/11/90	7.2000	9.3000	128.0000	1.3000	0.0300	0.0100	7.2000	0.0040	0.0390	0.0200	5.3000
24/01/91	7.0000	8.0000	93.0000	0.9000	0.1100	0.0100	8.8000	0.0020	0.0250	0.0100	7.7000
04/03/91	6.9000	8.1000	90.0000	3.1000	0.2500	0.0100	277.0000	0.0170	0.1140	0.1400	2.8000
05/04/91	7.3000	7.8000	101.0000	1.7000	0.0100		5.6000	0.0020	0.0400	0.0200	4.3000
23/05/91	7.3000	11.8000	94.0000	1.6000	0.0100	0.0100	1.2000	0.0020	0.0440	0.0200	3.9000
16/06/91	7.3000	11.5000	99.0000	1.2000	0.0300	0.0100	2.6000	0.0020	0.0440	0.0100	3.4000
25/07/91	7.3000	13.6000	94.0000	0.9000	0.0500	0.0100	4.8000	0.0020	0.0280	0.0200	4.0000
05/08/91	7.3300	13.7000	92.8000	1.4000	0.0200		8.6700	0.0020	0.0410	0.0400	
04/10/91	7.4300	9.9000	97.0000	9.6000	0.5080	0.0025	11.0000	0.0020	0.0370	0.0890	

TIDY AT BUTTERDON MILL

pH

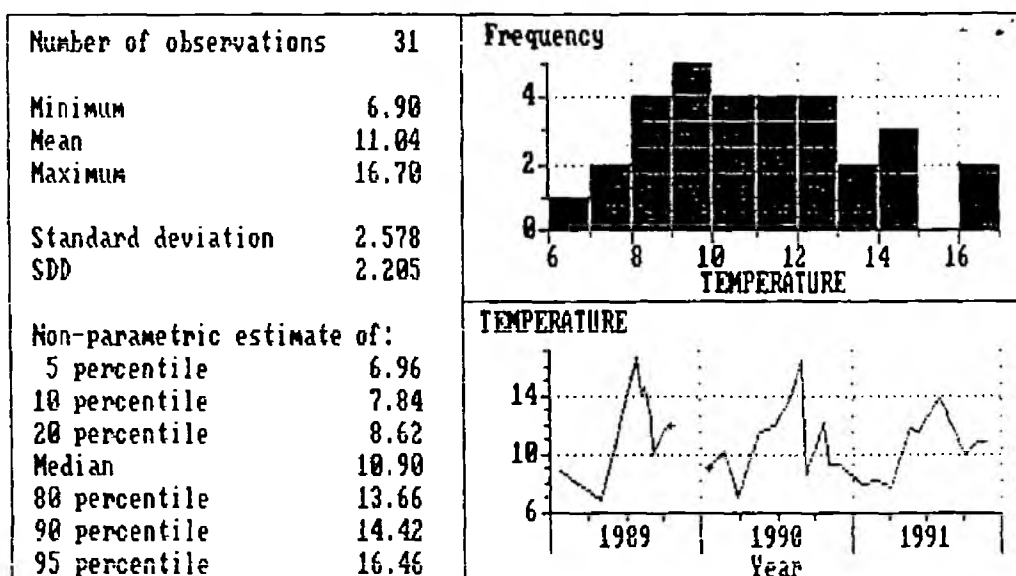
23/ 1/89 to 25/11/91



TIDY AT BUTTERDON MILL

TEMPERATURE

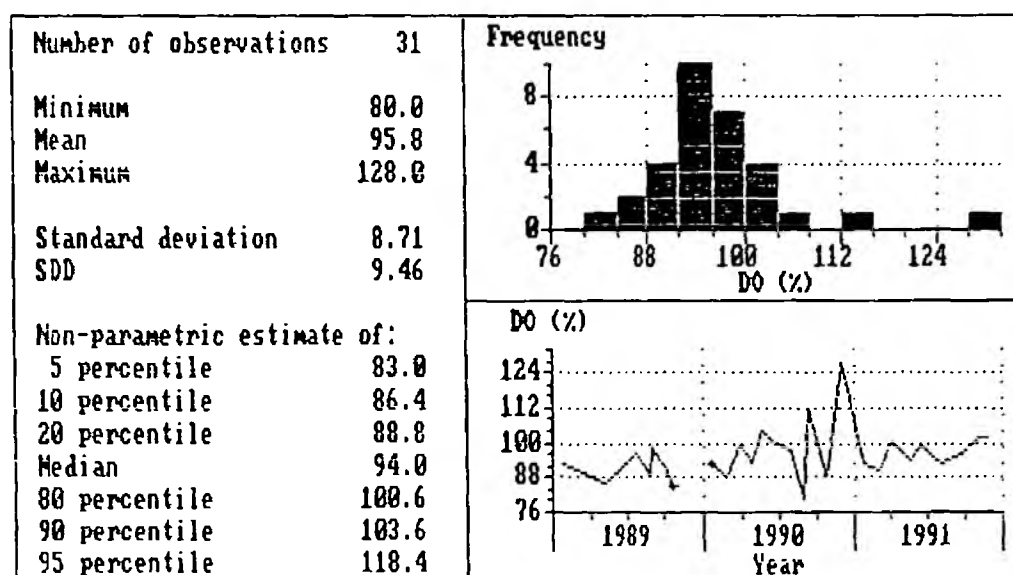
23/ 1/89 to 25/11/91



TIDY AT BUTTERDON MILL

DO (%)

23/ 1/89 to 25/11/91



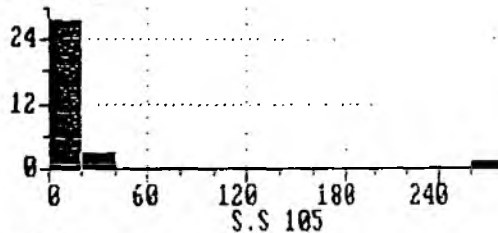
TIDY AT BUTTERDON MILL

S.S 105

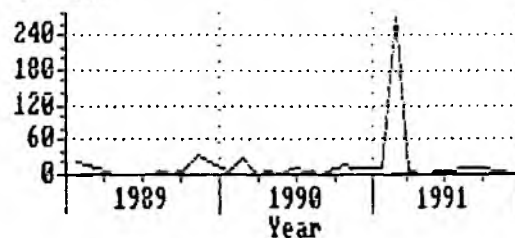
23/ 1/89 to 25/11/91

Number of observations	32
Minimum	0.0
Mean	15.5
Maximum	277.0
Standard deviation	48.33
SDD	49.81
Non-parametric estimate of:	
5 percentile	0.9
10 percentile	1.3
20 percentile	1.4
Median	4.2
80 percentile	11.8
90 percentile	26.1
95 percentile	117.0

Frequency



S.S 105



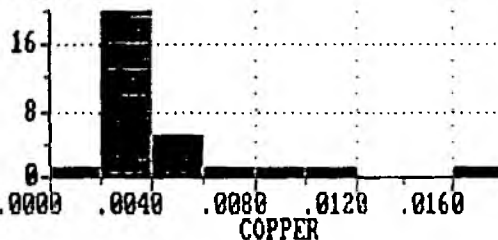
TIDY AT BUTTERDON MILL

COPPER

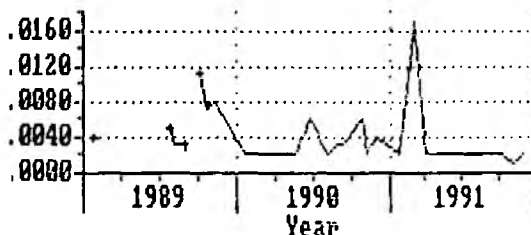
23/ 1/89 to 25/11/91

Number of observations	30
Minimum	0.00100
Mean	0.00380
Maximum	0.01700
Standard deviation	0.003347
SDD	0.003325
Non-parametric estimate of:	
5 percentile	0.00155
10 percentile	0.00200
20 percentile	0.00200
Median	0.00200
80 percentile	0.00580
90 percentile	0.00790
95 percentile	0.01370

Frequency



COPPER



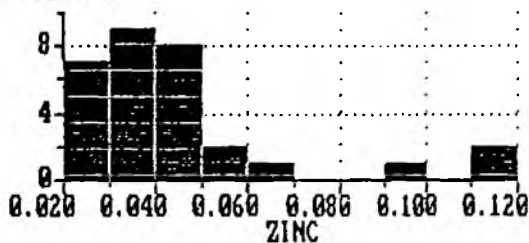
TIDY AT BUTTERDON MILL

ZINC

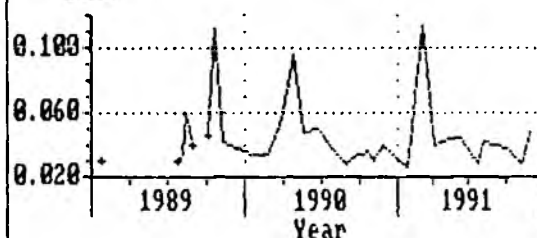
23/ 1/89 to 25/11/91

Number of observations	30
Minimum	0.0250
Mean	0.0450
Maximum	0.1140
Standard deviation	0.02316
SDD	0.02425
Non-parametric estimate of:	
5 percentile	0.0261
10 percentile	0.0271
20 percentile	0.0290
Median	0.0390
80 percentile	0.0496
90 percentile	0.0933
95 percentile	0.1134

Frequency



ZINC



TIDDY AT TILLAND MILL BRIDGE

R12R003

DATE	pH	TEMP	DO	BOD ATU	AMMON TOTAL	AMMON UNION	SUSP.SOL. 105°C	COPPER	ZINC	ORTHOPHOS	NITRATE
	pH UNITS	°C	% SATN	mg/l O	mg/l N	mg/l N	mg/l	mg/l Cu	mg/l Zn	mg/l P	mg/l N
24/07/89	9.1000	20.1000	112.0000	1.6000	0.0200	0.0100	4.0000	0.0010	0.0050	0.0700	4.2000
07/08/89	8.3000	16.0000	103.0000	1.6000	0.0200	0.0100	4.4000	0.0040	0.0090	0.0600	3.8000
15/08/89	7.7000	15.8000	93.0000	1.9000	0.0300	0.0100	8.0000	0.0050	0.0070	0.0700	3.4000
29/08/89	8.1000	13.9000	94.0000	1.0000	0.0300	0.0100	2.6000	0.0040	0.0050	0.0700	3.6000
04/09/89	8.0000	10.0000	108.0000	1.6000	0.0200	0.0100	2.0000	0.0030	0.0050	0.0600	3.8000
03/10/89	7.7000	12.0000	93.0000	1.3000	0.0100	0.0100	5.6000	0.0040	0.0070	0.1200	3.4000
22/10/89	7.0000			6.7000	0.2200		350.0000	0.0250	0.2340	0.1300	3.7000
09/11/89	7.1000	10.0000	90.0000	1.4000	0.0400	0.0100	43.2000	0.0060	0.0360	0.0400	6.6000
01/12/89	7.7000	5.5000	99.0000	2.0000	0.0100	0.0100	4.4000	0.0020	0.0090	0.0300	5.3000
05/12/89	7.3000	6.0000	99.0000	1.7000	0.0100	0.0100	3.6000	0.0050	0.0100	0.0300	5.1000
19/01/90	7.5000	8.9000	92.0000	0.9000	0.0200	0.0100	9.6000	0.0020	0.0140	0.0200	6.0000
26/02/90	7.6000	10.0000	89.0000	1.8000	0.1100	0.0100	26.0000	0.0040	0.0260	0.0600	5.8000
24/03/90	8.3000	9.0000	109.0000	0.5000	0.0300	0.0100	4.4000	0.0030	0.0090	0.0200	4.4000
29/03/90	7.9000	7.2000	108.0000	2.1000	0.0100	0.0100	2.6000	0.0020	0.0090	0.0200	5.2000
18/05/90	7.6000	12.2000	97.0000	2.0000	0.0400	0.0100	6.4000	0.0020	0.0110	0.0300	4.4000
22/06/90	7.4000	12.5000	90.0000	1.6000	0.0600	0.0100	20.0000	0.0060	0.0250	0.0800	3.2000
31/07/90	7.4000	15.5000	100.0000	0.8000	0.0400	0.0100	5.6000	0.0030	0.0110	0.0800	3.6000
28/08/90	7.5000	16.9000	76.0000	0.9000	0.0600	0.0100	7.6000	0.0020	0.0030	0.0500	5.7000
12/09/90	7.7000	13.3000	86.0000	1.2000	0.0200	0.0100	2.8000	0.0020	0.0070	0.0500	3.7000
25/10/90	7.7000	11.4000	96.0000	2.5000	0.0300	0.0100	3.6000	0.0020	0.0040	0.0500	4.5000
07/11/90	7.6000	8.9000	97.0000	1.1000	0.0100	0.0100	9.2000	0.0020	0.0140	0.0200	5.3000
29/11/90	7.4000	9.1000	126.0000	0.9000	0.0200	0.0100	11.0000	0.0010	0.0190	0.0100	5.9000
24/01/91	7.3000	6.5000	98.0000	1.3000	0.0200	0.0100	15.0000			0.0300	6.4000
04/03/91	7.2000	8.1000	92.0000	5.8000	0.4700	0.0100	436.0000			0.1900	3.9000
05/04/91	7.3000	8.1000	101.0000	2.0000	0.0500	0.0100	13.2000			0.0400	5.1000
22/05/91	7.9000	13.6000	101.0000	1.5000	0.0100	0.0100	6.8000			0.0300	4.9000
16/06/91	7.8000	11.6000	107.0000	0.9000	0.0200	0.0100	4.8000			0.0200	4.4000
25/07/91	7.5000	13.4000	94.0000	0.9000	0.0500	0.0100	6.4000			0.0300	4.4000
05/08/91	7.6600	14.4000	88.3000	1.1000	0.0200	0.0002	8.0700			0.0600	
04/10/91	7.8500	9.7000	101.0000	1.3000	0.0070	0.0001	4.6000			0.0440	3.9800
07/11/91	7.6000	11.0000	109.0000	1.0000	0.0200	0.0002	11.0000			0.0100	5.1900
25/11/91	7.8000	10.7000	108.0000	1.4000	0.0200	0.0002	15.0000			0.0400	5.0800

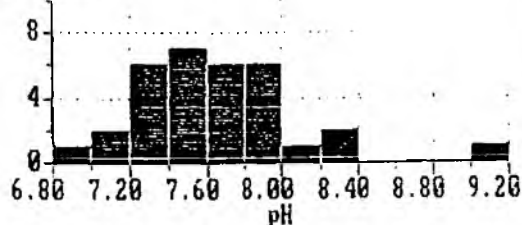
TIDY AT TILLAND MILL BRIDGE

pH

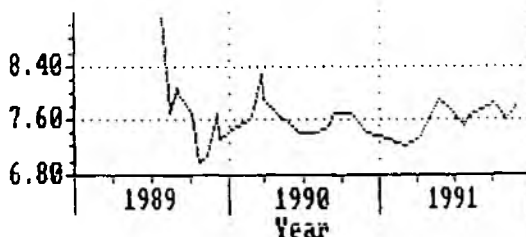
24/ 7/89 to 25/11/91

Number of observations	32
Minimum	7.000
Mean	7.672
Maximum	9.100
Standard deviation	0.4032
SDD	0.2538
Non-parametric estimate of:	
5 percentile	7.065
10 percentile	7.230
20 percentile	7.360
Median	7.630
80 percentile	7.900
90 percentile	8.240
95 percentile	8.580

Frequency



pH



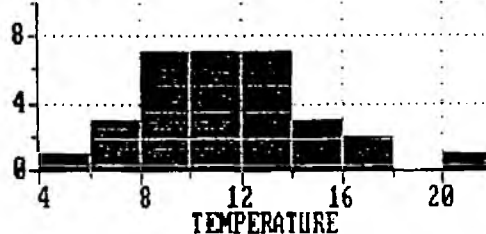
TIDY AT TILLAND MILL BRIDGE

TEMPERATURE

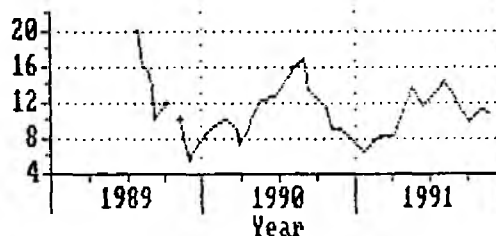
24/ 7/89 to 25/11/91

Number of observations	31
Minimum	5.50
Mean	11.33
Maximum	20.10
Standard deviation	3.432
SDD	1.912
Non-parametric estimate of:	
5 percentile	5.80
10 percentile	6.64
20 percentile	8.42
Median	11.00
80 percentile	14.20
90 percentile	15.96
95 percentile	18.18

Frequency



TEMPERATURE



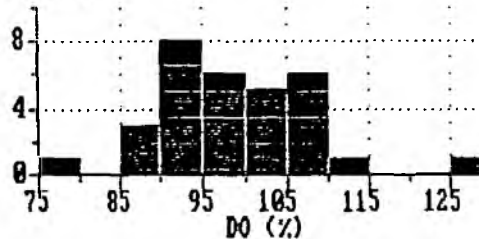
TIDY AT TILLAND MILL BRIDGE

DO (%)

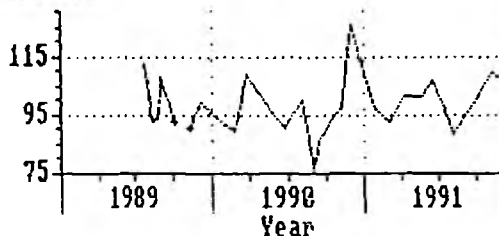
24/ 7/89 to 25/11/91

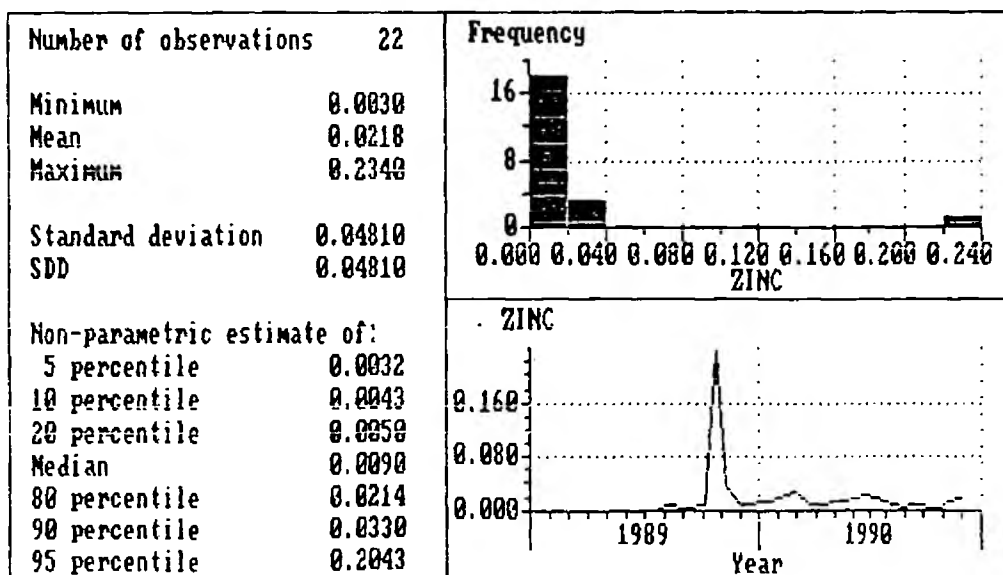
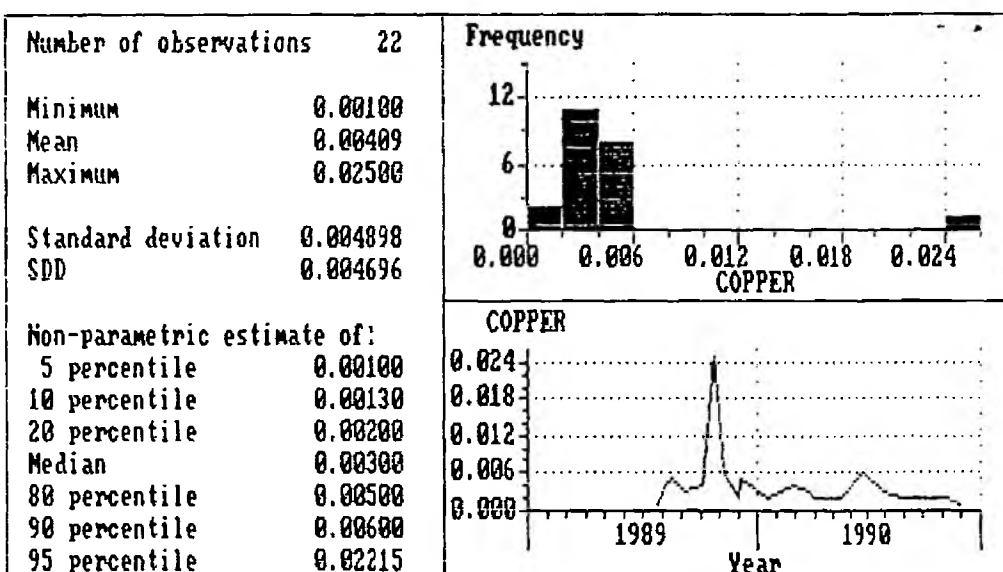
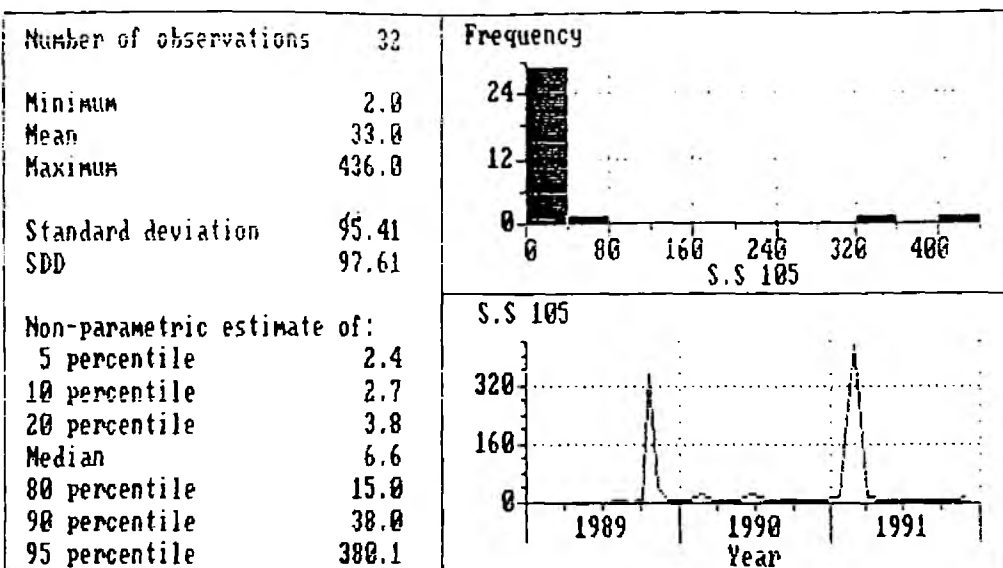
Number of observations	31
Minimum	76.0
Mean	98.6
Maximum	126.0
Standard deviation	9.56
SDD	8.86
Non-parametric estimate of:	
5 percentile	82.0
10 percentile	88.4
20 percentile	90.8
Median	98.0
80 percentile	108.0
90 percentile	109.0
95 percentile	117.6

Frequency



DO (%)





TIDDY AT TIDEFORD BRIDGE

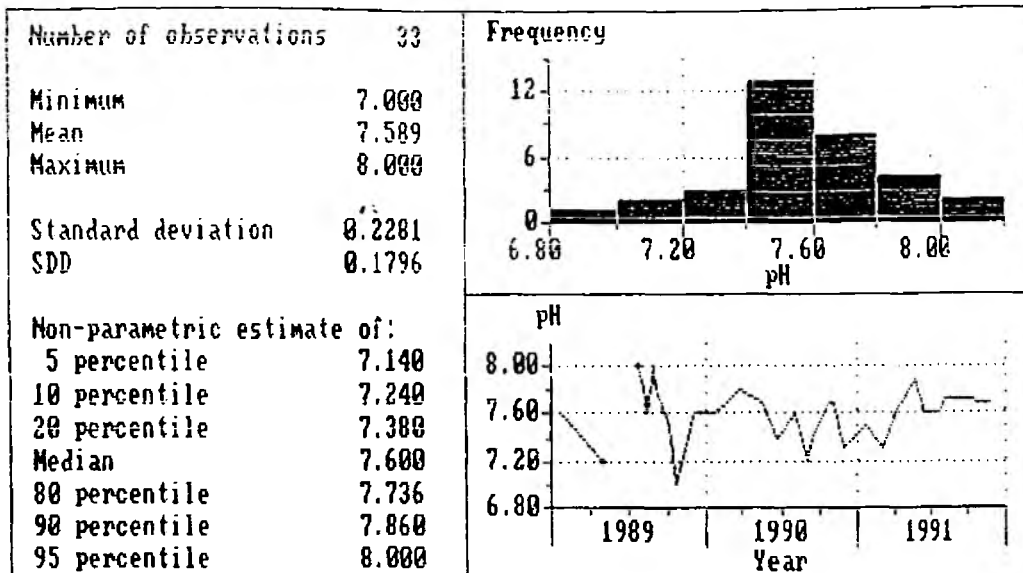
R12R004

DATE	pH	TEMP	DO	BOD ATU	AMMON TOTAL	AMMON UNION	SUSP. SOL. 105°C	COPPER	ZINC	ORTHOPHOS	NITRATE
	pH UNITS	°C	% SATN	mg/l O	mg/l N	mg/l N	mg/l	mg/l Cu	mg/l Zn	mg/l P	mg/l N
05/02/86	7.2000	6.3000	96.0000	2.6000	0.0400	0.0100	18.6000	0.0060	0.0100	0.0500	7.0000
15/05/86	7.7000	10.0000	100.0000	1.6000	0.0300	0.0100	19.0000			0.0600	5.5000
28/07/86	7.7000	14.5000	84.0000	2.9000	0.0500	0.0100	86.0000			0.2200	2.6000
29/08/86	7.6000	12.0000	98.0000	1.6000	0.0500	0.0100	18.0000			0.0300	6.3000
08/01/87	7.4000	6.0000	76.0000	2.6000	0.0100		17.0000	0.0030	0.0160	0.0700	7.1000
20/02/87	7.1000	5.0000	97.0000	3.0000	0.0300	0.0100	17.0000	0.0030	0.0160	0.0400	6.7000
21/05/87	8.1000	10.5000	100.0000	2.1000	0.0100		4.8000			0.1100	6.0000
23/07/87	7.7000	15.0000	88.0000	1.4000	0.0200	0.0100	8.4000			0.1400	5.3000
05/10/87	7.8000	13.9000	88.0000	1.9000	0.0500	0.0100	7.4000	0.0030	0.0130	0.2200	4.9000
15/01/88	7.5000	7.5000	93.0000	1.3000	0.0300	0.0100	19.4000	0.0050	0.0170	0.0400	6.4000
15/03/88	7.6000	10.0000	90.0000	5.4000	0.1500	0.0100	78.0000	0.0090	0.0350	0.1400	5.2000
06/05/88	7.9000	12.0000	99.0000	1.0000	0.0100	0.0100	9.2000			0.1000	6.1000
03/06/88	7.9000	10.5000	92.0000	1.9000	0.0200	0.0100	6.8000	0.0020	0.0110	0.1300	5.4000
29/07/88	7.8000	11.5000	90.0000	1.8000	0.0100		7.6000			0.1300	4.6000
09/11/88	7.5000	11.0000	93.0000	2.0000	0.1200	0.0100	9.2000	0.0050	0.0130	0.0700	5.1000
23/01/89	7.6000	8.7000	97.0000	1.9000	0.0300	0.0100	15.2000	0.0030	0.0160	0.0300	6.1000
02/05/89	7.2000	6.9000	87.0000	1.4000	0.0200	0.0100	9.6000			0.0200	5.6000
26/06/89								0.0020	0.0080		
24/07/89	8.0000	18.6000	96.0000	1.6000	0.0100	0.0100	3.2000	0.0030	0.0060	0.0400	4.5000
07/08/89	7.8000	15.6000	94.0000	1.2000	0.0200	0.0100	2.4000	0.0040	0.0070	0.0400	4.1000
15/08/89	7.6000	16.0000	95.0000	1.4000	0.0300	0.0100	10.0000	0.0070	0.0120	0.0800	3.9000
29/08/89	8.0000	13.8000	94.0000	1.3000	0.0300	0.0100	2.8000	0.0030	0.0050	0.0600	3.9000
04/09/89	7.8000	10.5000	101.0000	1.7000	0.0200	0.0100	2.0000	0.0020	0.0050	0.0400	4.3000
03/10/89	7.5000	12.0000	94.0000	1.4000	0.0200	0.0100	4.4000	0.0030	0.0040	0.1600	3.9000
22/10/89	7.0000	12.0000	81.0000	7.3000	0.2200	0.0100	276.0000	0.0170	0.1140	0.1200	4.8000
09/11/89	7.3000	10.0000	92.0000	1.4000	0.0400	0.0100	55.0000	0.0070	0.0250	0.0300	9.5000
01/12/89	7.6000	4.9000	97.0000	2.1000	0.0100	0.0100	2.0000	0.0020	0.0070	0.0200	6.5000
05/12/89	7.6000	5.8000	94.0000	2.0000	0.0200	0.0100	5.8000	0.0020	0.0060	0.0200	6.3000
19/01/90	7.6000	8.8000	95.0000	1.0000	0.0400	0.0100	12.4000	0.0610	0.0420	0.0200	7.7000
26/02/90	7.7000	9.0000	92.0000	2.1000	0.1600	0.0100	23.0000	0.0050	0.0210	0.0700	6.6000
29/03/90	7.8000	7.2000	99.0000	1.7000	0.0200	0.0100	2.6000	0.0020	0.0080	0.0300	5.9000
18/05/90	7.7000	12.3000	105.0000	2.1000	0.0400	0.0100	8.4000	0.0040	0.0100	0.0100	5.8000
22/06/90	7.4000	12.8000	91.0000	1.7000	0.1200	0.0100	22.0000	0.0050	0.0170	0.1100	3.6000
31/07/90	7.6000	15.5000	95.0000	1.0000	0.0500	0.0100	10.0000	0.0040	0.0120	0.0900	4.0000
28/08/90	7.2000	16.9000	80.0000	0.7000	0.0300	0.0100	2.8000	0.0020	0.0040	0.0900	4.0000
12/09/90	7.4000	12.3000	87.0000	0.9000	0.0300	0.0100	4.0000	0.0020	0.0070	0.0400	4.1000
25/10/90	7.7000	11.8000	88.0000	2.1000	0.0300	0.0100	8.8000	0.0030	0.0080	0.1400	3.8000
07/11/90	7.7000	8.8000	99.0000	1.2000	0.0200	0.0100	9.6000	0.0020	0.0090	0.0200	6.9000
29/11/90	7.3000	9.1000	129.0000	1.7000	0.0200	0.0100	16.0000	0.0070	0.0380	0.0200	7.0000
24/01/91	7.5000	6.0000	96.0000	1.5000	0.0200	0.0100	14.0000	0.0020	0.0140	0.0200	7.6000
04/03/91	7.3000	7.9000	88.0000	6.5000	0.7100	0.0100	435.0000	0.0170	0.0980	0.2300	5.2000
05/04/91	7.6000	8.0000	104.0000	2.2000	0.0900	0.0100	16.8000	0.0020	0.0180	0.0500	6.0000
23/05/91	7.9000	13.6000	97.0000	1.4000	0.0100	0.0100	6.4000	0.0020	0.0070	0.0300	5.8000
16/06/91	7.6000	11.2000	102.0000	1.7000	0.0400	0.0100	6.8000	0.0030	0.0060	0.0300	5.1000
25/07/91	7.6000	13.5000	92.0000	1.0000	0.0600	0.0100	5.2000	0.0030	0.0090	0.0300	5.5000
05/08/91	7.7200	14.7000	89.9000	1.0000	0.0200		8.8700	0.0020	0.0110	0.0600	

TIDY AT TIDEFORD BRIDGE

pH

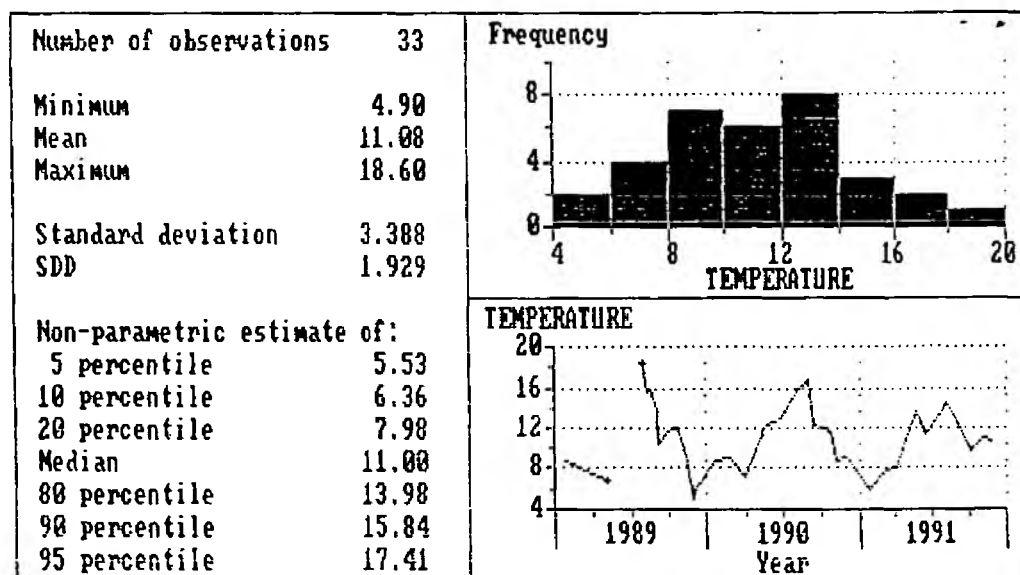
23/ 1/89 to 25/11/91



TIDY AT TIDEFORD BRIDGE

TEMPERATURE

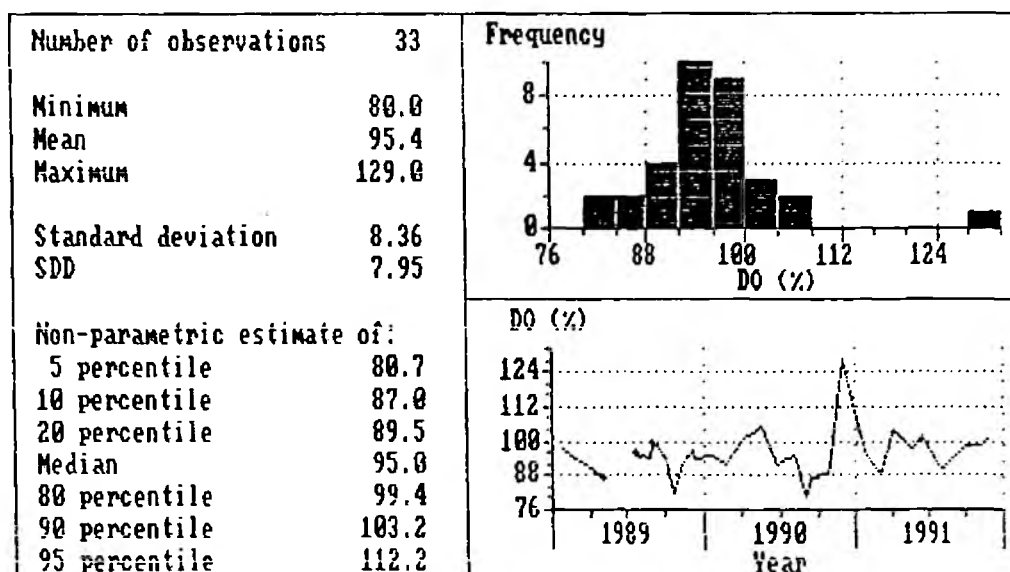
23/ 1/89 to 25/11/91

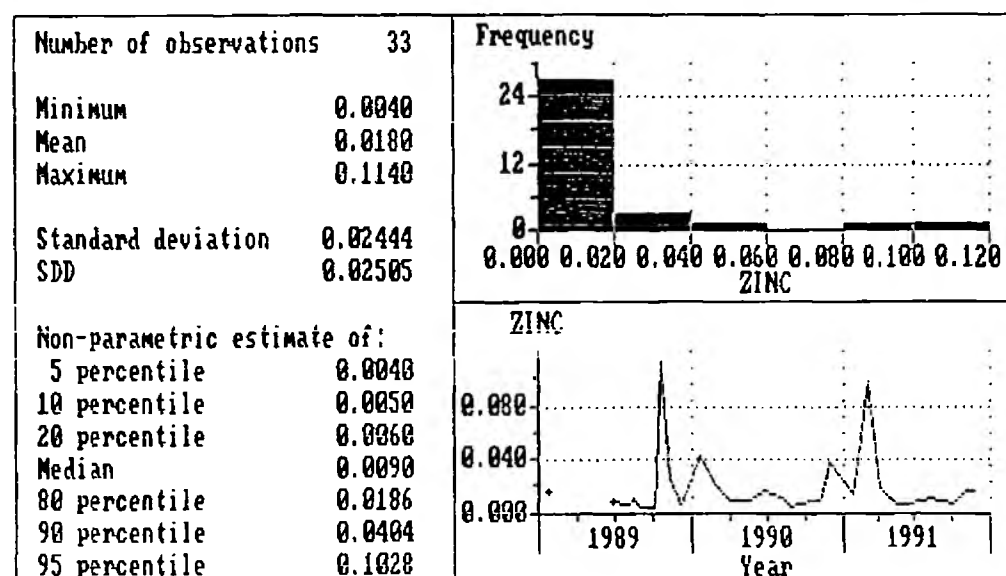
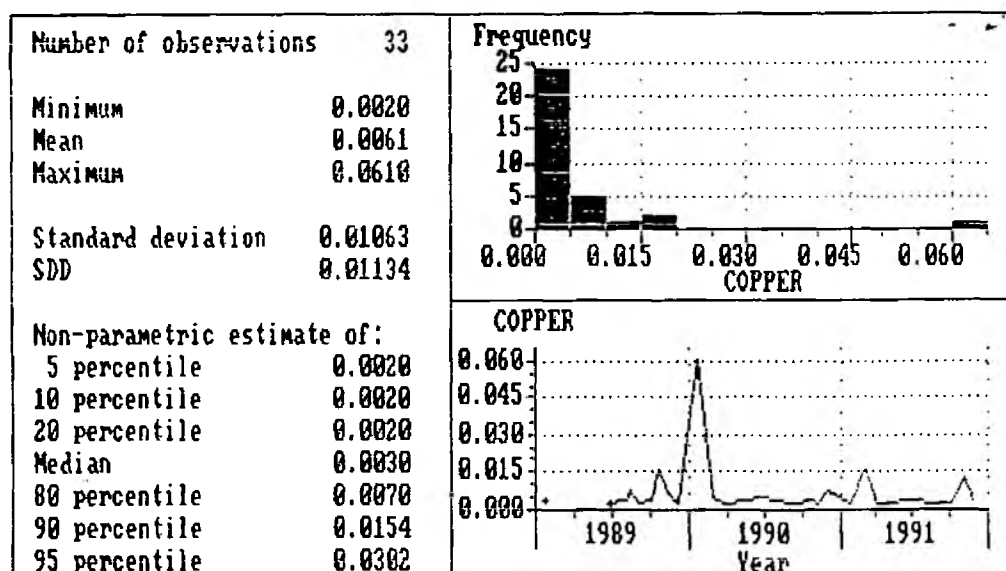
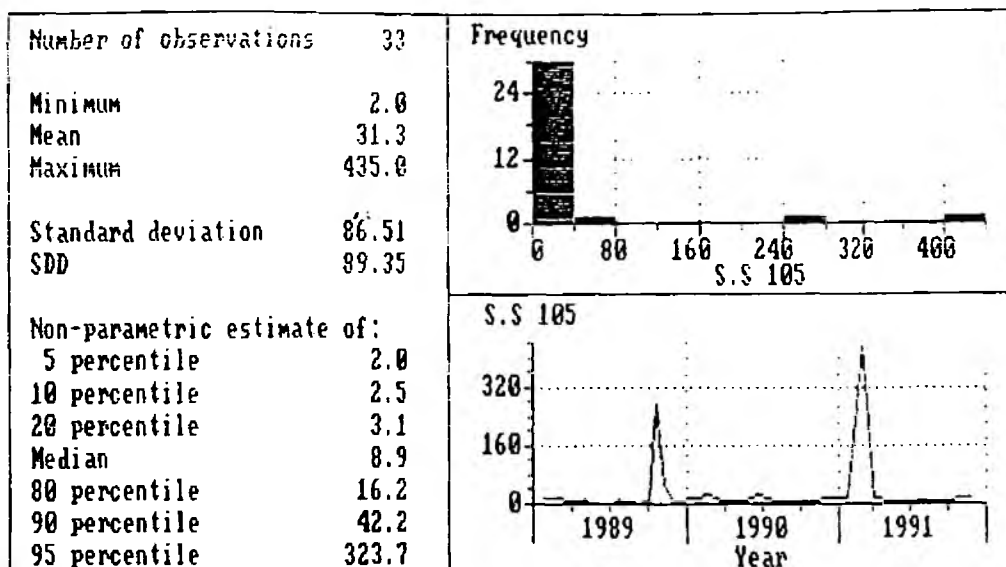


TIDY AT TIDEFORD BRIDGE

DO (%)

23/ 1/89 to 25/11/91

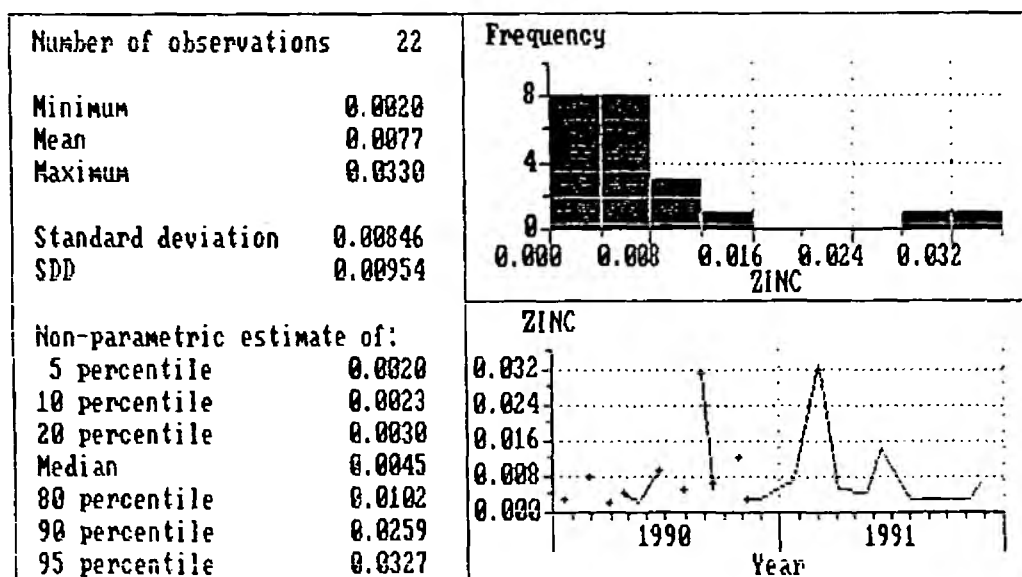
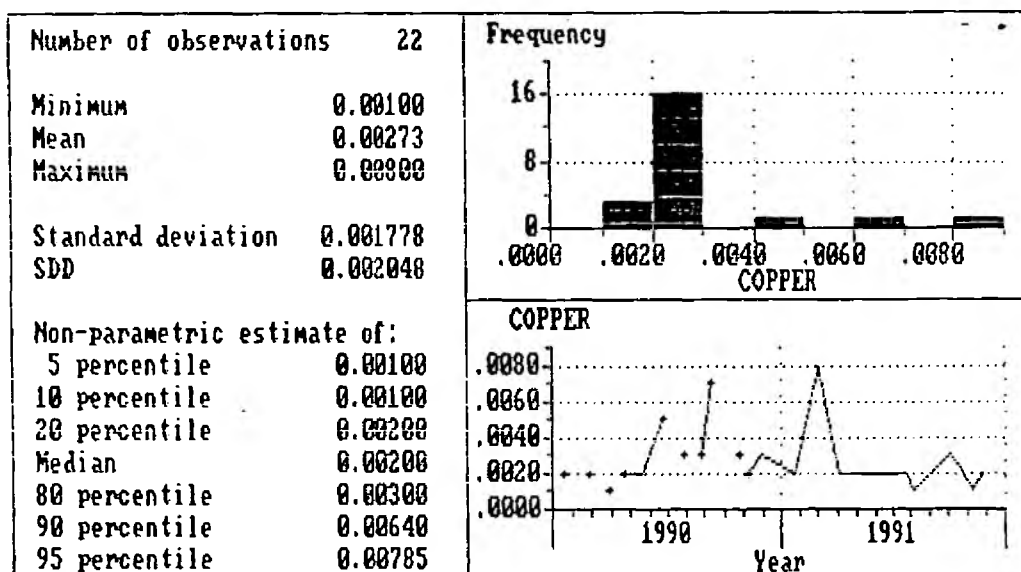
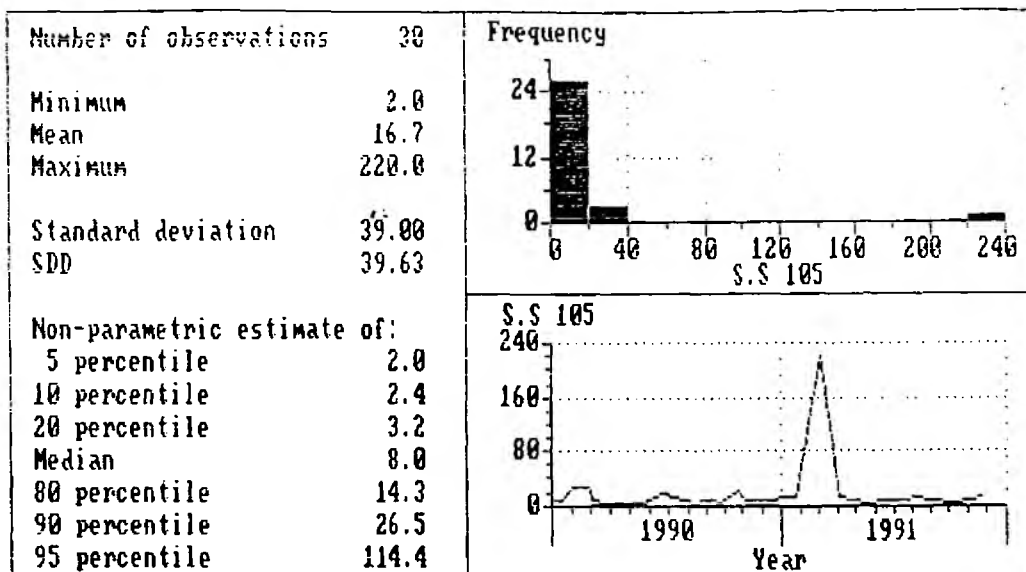




TRECORME STREAM AT TILLAND BRIDGE

R12R006

DATE	pH	TEMP	DO	BOD ATU	AMMON TOTAL	AMMON UNION	SUSP.SOL. 105°C	COPPER	ZINC	ORTHOPHOS	NITRATE
	pH UNITS	°C	% SATN	mg/l O	mg/l N	mg/l N	mg/l	mg/l Cu	mg/l Zn	mg/l P	mg/l N
03/01/90	7.7000	9.0000	90.0000	1.6000	0.0500	0.0100	6.4000			0.0300	7.7000
19/01/90	7.6000	9.0000	96.0000	1.1000	0.0700	0.0100	10.4000	0.0020	0.0030	0.0200	7.8000
01/02/90	7.4000	9.8000	92.0000	1.6000	0.0600	0.0100	28.0000			0.0200	8.6000
16/02/90	7.6000	9.5000	91.0000	2.9000	0.3500	0.0100	27.0000	0.0020	0.0080	0.1100	7.7000
02/03/90	7.6000	8.1000	94.0000	1.3000	0.0600	0.0100	10.0000			0.0200	8.1000
29/03/90	7.8000	7.8000	94.0000	1.8000	0.0300	0.0100	3.4000	0.0010	0.0020	0.0100	9.7000
06/04/90	7.6000	5.0000	99.0000	2.1000	0.0100		2.8000			0.0200	7.4000
23/04/90	7.9000	8.9000	99.0000	0.8000	0.0100		2.4000	0.0020	0.0040	0.0100	7.7000
18/05/90	7.6000	12.2000	99.0000	2.2000	0.0600	0.0100	2.4000	0.0020	0.0020	0.0100	7.5000
22/06/90	7.4000	12.8000	89.0000	2.1000	0.1000	0.0100	19.0000	0.0050	0.0090	0.1100	4.9000
27/07/90	7.3000	15.8000	73.0000	8.3000	0.0100	0.0100	7.2000			0.0200	6.4000
31/07/90	7.5000	16.3000	95.0000	1.1000	0.0400	0.0100	7.6000	0.0030	0.0050	0.0900	5.0000
13/08/90	7.6000	14.9000	97.0000	1.0000	0.0200	0.0100	2.0000			0.0300	6.0000
28/08/90	7.5000	17.1000	87.0000	0.8000	0.0300	0.0100	7.2000	0.0030	0.0310	0.0800	3.6000
12/09/90	7.5000	14.3000	81.0000	1.1000	0.0300	0.0100	8.8000	0.0070	0.0060	0.0300	6.2000
24/09/90	6.9000	11.4000	88.0000	1.3000	0.0100	0.0100	2.0000			0.0600	3.3000
25/10/90	7.7000	11.2000	90.0000	2.9000	0.0300	0.0100	22.0000	0.0030	0.0120	0.0600	3.3000
31/10/90	7.5000	10.5000	100.0000	1.9000	0.1400	0.0100	13.0000			0.0600	4.5000
07/11/90	7.7000	8.4000	96.0000	1.3000	0.0300	0.0100	8.4000	0.0020	0.0030	0.0200	5.8000
29/11/90	7.4000	8.7000	127.0000	1.3000	0.0500	0.0100	7.6000	0.0030	0.0030	0.0100	6.5000
24/01/91	7.4000	6.5000	98.0000	1.0000	0.1100	0.0100	11.0000	0.0020	0.0070	0.0200	8.2000
04/03/91	7.2000	8.0000	88.0000	7.1000	0.6900	0.0100	220.0000	0.0080	0.0330	0.3300	5.4000
05/04/91	7.6000	8.4000	104.0000	2.2000	0.1000	0.0100	14.4000	0.0020	0.0050	0.0300	6.9000
23/05/91	7.9000	14.2000	98.0000	1.7000	0.0300	0.0100	5.6000	0.0020	0.0040	0.0200	7.1000
16/06/91	6.7000	12.4000	102.0000	1.0000	0.0300	0.0100	7.6000	0.0020	0.0140	0.0200	6.6000
25/07/91	7.7000	13.8000	93.0000	1.2000	0.0500	0.0100	6.4000	0.0020	0.0040	0.0200	5.5000
05/08/91	7.7600	15.1000	90.7000	1.1000	0.0200		12.8700	0.0010	0.0030	0.0300	
04/10/91	7.9400	9.5000	98.0000	1.4000	0.0100	0.0002	3.1000	0.0030	0.0030	0.0220	5.7000
07/11/91	7.7000	11.0000	97.0000	1.0000	0.0800	0.0008	9.2000	0.0010	0.0030	0.0100	5.7700
25/11/91	7.8000	10.8000	107.0000	1.4000	0.0600	0.0007	14.0000	0.0020	0.0060	0.0300	6.4400



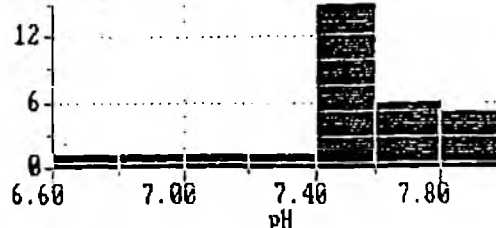
TRECORME STREAM AT TILLAND BRIDGE

pH

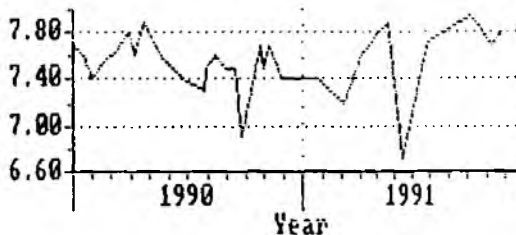
3/ 1/90 to 25/11/91

Number of observations	30
Minimum	6.700
Mean	7.550
Maximum	7.940
Standard deviation	0.2700
SDD	0.2823
Non-parametric estimate of:	
5 percentile	6.810
10 percentile	7.210
20 percentile	7.400
Median	7.600
80 percentile	7.740
90 percentile	7.890
95 percentile	7.918

Frequency



pH



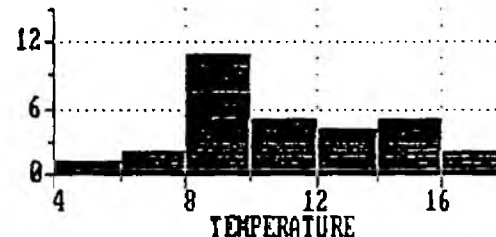
TRECORME STREAM AT TILLAND BRIDGE

TEMPERATURE

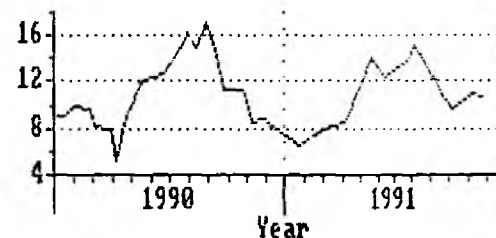
3/ 1/90 to 25/11/91

Number of observations	30
Minimum	5.00
Mean	11.01
Maximum	17.10
Standard deviation	3.093
SDD	1.668
Non-parametric estimate of:	
5 percentile	5.83
10 percentile	7.82
20 percentile	8.40
Median	10.65
80 percentile	14.28
90 percentile	15.73
95 percentile	16.66

Frequency



TEMPERATURE



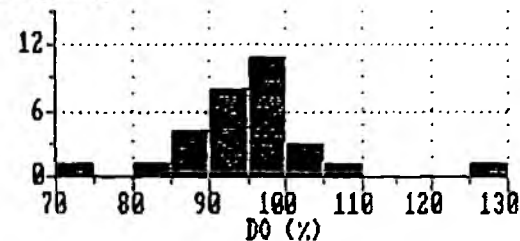
TRECORME STREAM AT TILLAND BRIDGE

DO (%)

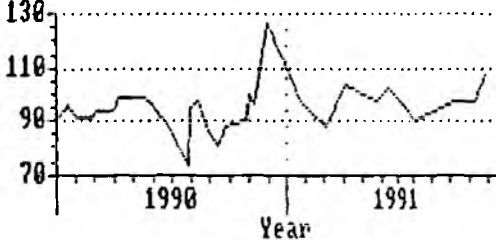
3/ 1/90 to 25/11/91

Number of observations	30
Minimum	73.0
Mean	95.1
Maximum	127.0
Standard deviation	9.87
SDD	8.11
Non-parametric estimate of:	
5 percentile	77.4
10 percentile	87.1
20 percentile	89.2
Median	95.5
80 percentile	99.0
90 percentile	103.8
95 percentile	116.0

Frequency



DO (%)



APPENDIX 3. Fish Survey Data.

TROUT DENSITIES(N/100m2): ALL SURVEYS, 1968 - 1990

WATERCOURSE	SITE NAME	FRY(0+)	1980	1981	1982	1984
		1968				
RIVER LYNHER	Notter Bridge	ns				
	Pillaton Bridge	ns	2.10	1.00		
	Pillaton Mill			1.30		
	Clapper Bridge	ns	0.60	2.10		
	New Bridge	ns	0.10	4.20		
	Bicton Bridge	ns		2.60		
	Kearney Bridge			0.20		
	Kearney Bridge Lower		1.30	0.90		
	Kearney Bridge Upper			0.30		
	Kerney Mill					
	Plusha Bridge	ns		1.10		
	Rilla Mill			4.70		
	Stara Bridge	ns	0.60	3.00		
	Bath Pool Lower	ns		3.70		
	Bath Pool Upper			0.30		
	Bath Pool				28.80	
	Berriow Bridge	ns	7.20	1.90	33.90	
	Trebartha Lower		25.00	5.90		
	Trebartha Upper			3.10		
	Trebartha				112.50	
	Trenhorne	ns				
	Knighton				114.10	
	Trevague	ns	28.30		64.30	
	Tregrenna				53.10	
	Trenilk				156.50	
	Tregirls		33.80		93.00	
	Trewint Works				64.30	
	Trewint Marsh				109.70	
	Hendra Farm	ns	38.40		208.60	
DEANS BROOK	Deans Bridge					
WITHEY BROOK	Withey Brook	ns				
	Bastreet					
	Newel Tor					
RIVER TIDDY	Heskin Mill					6.30
	Tidaford		6.00			
	Cutmere		9.80			7.20
	Tilland					13.50
	Coombe					
	Hepwell Bridge		13.30			19.70
	Trehunsey		9.80			
	Treweatha					19.10
	Cut Kive Wood					84.40
Hay Lake	Tilland					

PARR AND OLDER(<1+)

1990	1968	1980	1981	1982	1984	1990
	1.60					
3.30	3.90		2.30			12.00
			2.80			
5.60	2.50		5.40			12.00
5.30	4.00		1.90			14.40
	3.90		8.20			
			5.40			
		11.10	3.30			
			6.00			
5.50						9.30
18.30	4.70					6.40
	7.70	10.70	5.40			
	12.60		4.60			
			8.50			
21.40						22.30
9.50	7.30	12.10	9.70			12.70
		13.00	10.10			
			0.80			
8.60						10.70
	16.50					
42.10	20.70	29.00				12.70
		10.20				
190.00	45.70	32.40				37.60
13.20						19.30
	12.60					
16.60						20.20
3.10						46.90
2.90				10.00		8.70
		13.10				
		20.50		15.20		
2.50				9.50		1.90
5.10						12.60
9.70		22.70		18.50		16.20
		29.30				
28.80				6.00		20.50
30.80				25.50		1.30
6.60						23.60