

Environmental Protection Report

River Fal Catchment River Water Quality Classification 1991

April 1992

WQP/92/0022

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NRA

National Rivers Authority

South West Region

ACKNOWLEDGEMENTS

The Water Quality Planner acknowledges the substantial contributions made by the following staff:

R Broome - Co-ordinator and Editor
Freshwater Planning - Production of Maps
C McCarthy - Administration and report compilation
A Gurney - Statistical Schedule production

Thanks are extended to A. Burghes of Moonsoft, Exeter for computer support.

Suggestions for improvements that could be incorporated in the production of the next Classification report would be welcomed.

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RIVER WATER QUALITY IN THE RIVER FAL CATCHMENT

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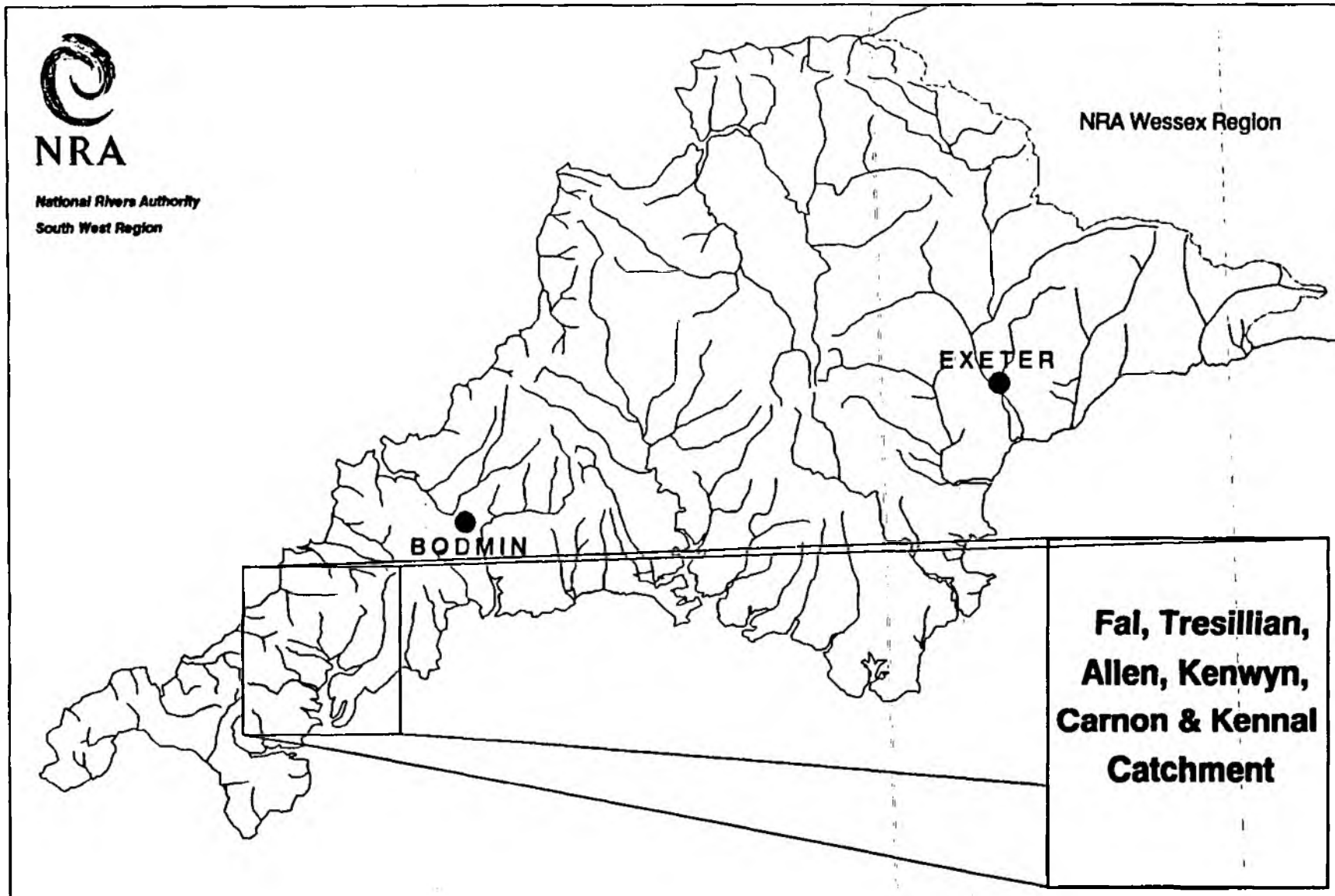
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National Rivers Authority South West Region



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South West Region



Fal, Tresillian, Allen, Kenwyn, Carnon & Kennal Catchment

1. INTRODUCTION

Monitoring to assess the quality of river waters is undertaken in thirty-four catchments within the region. As part of this monitoring programme samples are collected routinely from selected monitoring points at a pre-determined frequency per year, usually twelve spaced at monthly intervals. Each monitoring point provides data for the water quality of a river reach (in kilometres) upstream of the monitoring point.

Each water sample collected from each monitoring point is analysed for a range of chemical and physical constituents or properties known as determinands. The analytical results for each sample are entered into a computer database called the Water Quality Archive.

Selected data are accessed from the Archive so that the quality of each river reach can be determined based on a River Classification System developed by the National Water Council (NWC), (7.1).

This report presents the river water quality classification for 1991 for monitored river reaches in the River Fal catchment.

2. RIVER FAL CATCHMENT

The River Fal flows over a distance of 29 km from its source to the tidal limit, (Appendix 8.1). Water quality was monitored at seven locations on the main river at approximately monthly intervals.

The River Allen (9.6 km), River Kerwyn (7.5 km) and Calenick Stream (9.1 km) were all monitored at approximately monthly intervals at two sites between their source and the tidal limits, (Appendix 8.1).

The Percuil River (5.5 km), Trevella Stream (8 km), Penkevil Stream (5.6 km), Perranwell Stream (5.0 km), Penryn Stream (4.3 km) and Maenporth Stream (5.6 km) were all monitored at one site between their source and the tidal limits, (Appendix 8.1) at approximately monthly intervals.

Swanpool Stream flows over a distance of 3.2 km from its source to the tidal limit, (Appendix 8.1) and was monitored at one site at approximately monthly intervals.

Mylor Stream flows over a distance of 2.2 km from its source to the tidal limit, (Appendix 8.1) and was monitored at two locations at approximately monthly intervals.

The River Tresillian flows over a distance of 12.5 km from its source to the tidal limit, (Appendix 8.1) and was monitored at four locations at approximately monthly intervals.

The River Carnon flows over a distance of 9 km from its source to the tidal limit, (Appendix 8.1) and was monitored at six locations. Five sites were sampled at approximately monthly intervals and the site at Devoran Bridge, which is a National Water Quality monitoring point, was sampled fortnightly. In addition County Adit discharge was monitored at approximately monthly intervals.

The River Kennal flows over a distance of 12.1 km from its source to the tidal limit, (Appendix 8.1) and was monitored at three sites at approximately monthly intervals.

Throughout the Fal catchment three secondary tributaries of the River Fal, two secondary tributaries of the River Tresillian, one secondary tributary of the River Allen, three secondary tributaries of the River Carnon and one secondary tributary of the River Kennal were monitored. In addition Stithians Reservoir and College Reservoir were both monitored at one location at approximately monthly intervals.

2.1 SECONDARY TRIBUTARIES

The Trewithen Stream and Bodella Brook flow over a distance of 6.0 km and 1.4 km respectively from their source to the confluence with the River Fal, (Appendix 8.1) and were both monitored at one location at approximately monthly intervals. Monitoring points are located in the lower reaches.

The Gwindra Stream flows over a distance of 8.6 km from its source to the confluence with the River Fal, (Appendix 8.1) and was monitored at four locations at approximately monthly intervals.

Kestle Stream and Brighton Stream flow over a distance of 9.2 km and 6.8 km respectively from their source to the confluence with the River Tresillian, (Appendix 8.1) and were both monitored at one location at approximately monthly intervals.

Zelah Brook flows over a distance of 5.2 km from its source to the confluence with the River Allen, (Appendix 8.1) and was monitored at one location at approximately monthly intervals.

Baldhu Stream (1.6 km), Hick's Mill Stream (4.9 km) and St. Day Stream (3 km) were all monitored at one location between their source and confluence with the River Carnon, (Appendix 8.1) at approximately monthly intervals.

Stithians Stream flows over a distance of 5.6 km from its source to the confluence with the River Kennal, (Appendix 8.1) and was monitored at approximately monthly intervals.

Each sample was analysed for a minimum number of determinands (Appendix 8.2) plus additional determinands based on local knowledge of the catchment. In addition, at selected sites, certain metal analyses were carried out.

The analytical results from all of these samples have been entered into the Water Quality Archive and can be accessed through the Water Resources Act Register, (7.2).

3. NATIONAL WATER COUNCIL'S RIVER CLASSIFICATION SYSTEM

3.1 River Quality Objectives

In 1978 River Quality Objectives (RQOs) were assigned to all river lengths that were part of the routine monitoring network and to those additional watercourses, which were not part of the routine network, but which received discharges of effluents.

For the majority of watercourses long term objectives were identified based on existing and assumed adequate quality for the long term protection of the watercourse. In a few instances short term objectives were identified but no timetable for the achievement of the associated long term objective was set.

The RQOs currently in use in the River Fal catchment are identified in Appendix 8.1.

3.2 River Quality Classification

River water quality is classified using the National Water Council's (NWC) River Classification System (see Appendix 8.3), which identifies river water quality as being one of five quality classes as shown in Table 1 below:

Table 1 - National Water Council - River Classification System

<u>Class</u>	<u>Description</u>
1A	Good quality
1B	Lesser good quality
2	Fair quality
3	Poor quality
4	Bad quality

Using the NWC system, the classification of river water quality is based on the values of certain determinands as arithmetic means or as 95 percentiles (5 percentiles are used for pH and dissolved oxygen) as indicated in Appendices 8.4 and 8.4.1.

The quality classification system incorporates some of the European Inland Fisheries Advisory Commission (EIFAC) criteria (Appendix 8.3) recommended for use by the NWC system.

4. 1991 RIVER WATER QUALITY CLASSIFICATION

Analytical data collected from monitoring during 1989, 1990 and 1991 were processed through a computerised river water quality classification programme. This resulted in a quality class being assigned to each monitored river reach as indicated in Appendix 8.5.

The quality class for 1991 can be compared against the appropriate River Quality Objective and previous annual quality classes (1985-1990) also based on three years combined data, for each river reach in Appendix 8.5.

The river water classification system used to classify each river length is identical to the system used both in 1985 and 1990 for the Department of the Environment's Quinquennial River Quality Surveys. The determinand classification criteria used to determine the annual quality classes in 1985, subsequent years and for 1991 are indicated in Appendices 8.4 and 8.4.1.

The river quality classes for 1991 of monitored river reaches in the catchment are shown in map form in Appendix 8.6.

The calculated determinand statistics for pH, temperature, dissolved oxygen, biochemical oxygen demand (BOD), total ammonia, un-ionised ammonia, suspended solids, copper and zinc from which the quality class was determined for each river reach, are indicated in Appendix 8.7.

5. NON-COMPLIANCE WITH QUALITY OBJECTIVES

Those monitored river reaches within the catchment, which do not comply with their assigned (RQO), are shown in map form in Appendix 8.8.

Appendix 8.9 indicates the number of samples analysed for each determinand over the period 1989 to 1991 and the number of sample results per determinand, which exceed the determinand quality standard.

For those non-compliant river reaches in the catchment, the extent of exceedance of the calculated determinand statistic with the relevant quality standard (represented as a percentage), is indicated in Appendix 8.10.

6. GLOSSARY OF TERMS

RIVER REACH	A segment of water, upstream from sampling point to the next sampling point.
RIVER LENGTH	River distance in kilometres.
RIVER QUALITY OBJECTIVE	That NWC class, which protects the most sensitive use of the water.
95 percentiles	Maximum limits, which must be met for at least 95% of the time.
5 percentiles	Minimum limits, which must be met for at least 95% of the time.
BIOLOGICAL OXYGEN DEMAND (5 day carbonaceous ATU)	A standard test measuring the microbial uptake of oxygen - an estimate of organic pollution.
pH	A scale of acid to alkali.
UN-IONISED AMMONIA	Fraction of ammonia poisonous to fish, NH_3 .
SUSPENDED SOLIDS	Solids removed by filtration or centrifuge under specific conditions.
USER REFERENCE NUMBER	Reference number allocated to a sampling point.
INFERRED STRETCH	Segment of water, which is not monitored and whose water quality classification is assigned from the monitored reach upstream.

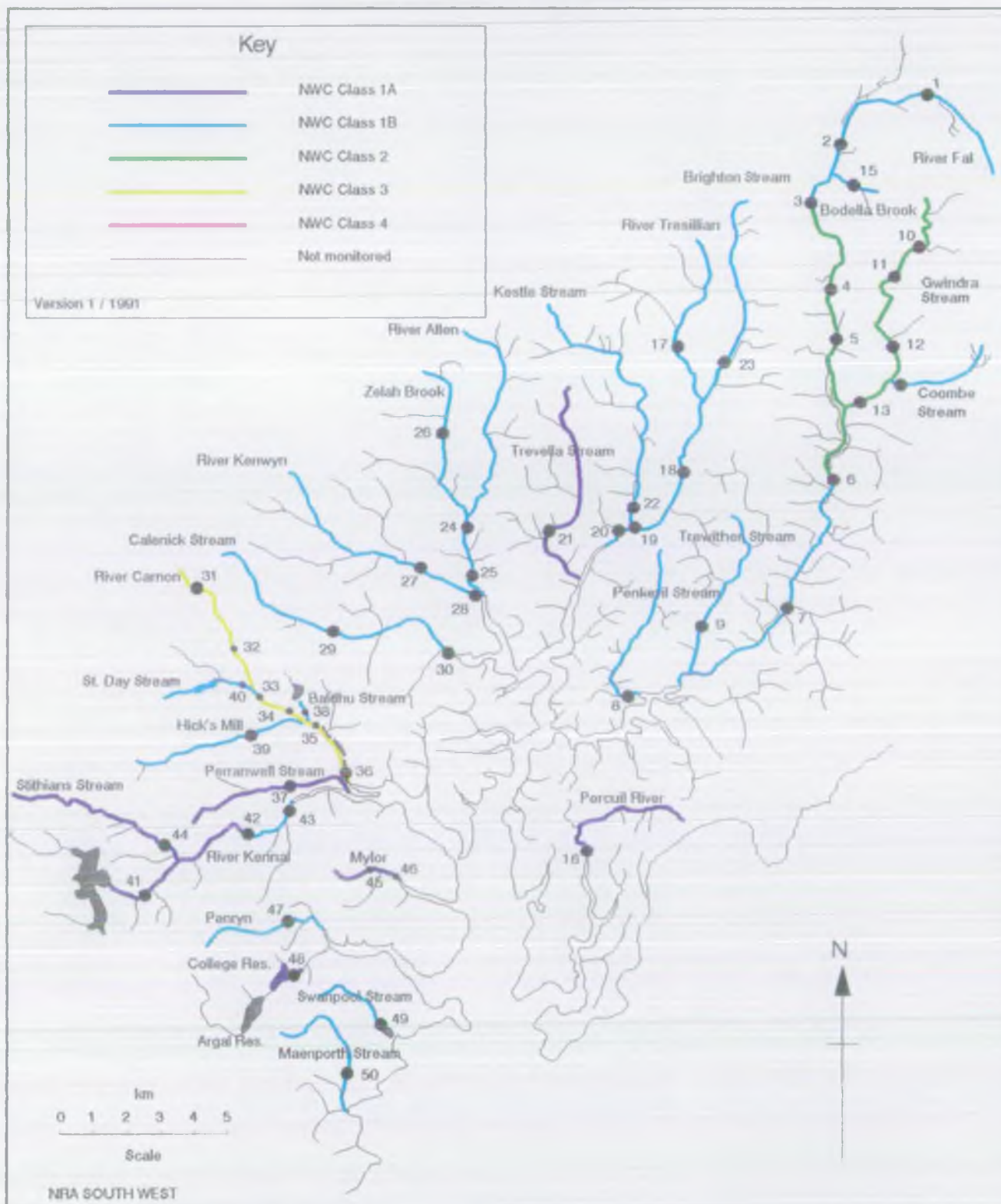
7. REFERENCES

Reference

- 7.1 National Water Council (1977). River Water Quality: The Next Stage. Review of Discharge Consent Conditions. London.
- 7.2 Water Resources Act 1991 Section 190.
- 7.3 Alabaster J. S. and Lloyd R. Water Quality Criteria for Freshwater Fish, 2nd edition, 1982. Butterworths.

Fal, Tresillian, Allen, Kenwyn, Carnon & Kennal Catchments

River Quality Objectives



BASIC DETERMINAND ANALYTICAL SUITE FOR ALL CLASSIFIED RIVER SITES

pH as pH Units

Conductivity at 20 C as uS/cm

Water temperature (Cel)

Oxygen dissolved % saturation

Oxygen dissolved as mg/l O

Biochemical oxygen demand (5 day total ATU) as mg/l O

Total organic carbon as mg/l C

Nitrogen ammoniacal as mg/l N

Ammonia un-ionised as mg/l N

Nitrate as mg/l N

Nitrite as mg/l N

Suspended solids at 105 C as mg/l

Total hardness as mg/l CaCO₃

Chloride as mg/l Cl

Orthophosphate (total) as mg/l P

Silicate reactive dissolved as mg/l SiO₂

Sulphate (dissolved) as mg/l SO₄

Sodium (total) as mg/l Na

Potassium (total) as mg/l K

Magnesium (total) as mg/l Mg

Calcium (total) as mg/l Ca

Alkalinity as pH 4.5 as mg/l CaCO₃

NVC RIVER QUALITY CLASSIFICATION SYSTEM

River Class	Quality criteria	Remarks	Current potential uses
Class limiting criteria (95 percentile)			
1A Good Quality	(i) Dissolved oxygen saturation greater than 80% (ii) Biochemical oxygen demand not greater than 3 mg/l (iii) Ammonia not greater than 0.4 mg/l (iv) Where the water is abstracted for drinking water, it complies with requirements for A2* water (v) Non-toxic to fish in EIFAC terms (or best estimates if EIFAC figures not available)	(i) Average BOD probably not greater than 1.5 mg/l (ii) Visible evidence of pollution should be absent	(i) Water of high quality suitable for potable supply abstractions and for all abstractions (ii) Game or other high class fisheries (iii) High amenity value
1B Good Quality	(i) DO greater than 60% saturation (ii) BOD not greater than 5 mg/l (iii) Ammonia not greater than 0.9 mg/l (iv) Where water is abstracted for drinking water, it complies with the requirements for A2* water (v) Non-toxic to fish in EIFAC terms (or best estimates if EIFAC figures not available)	(i) Average BOD probably not greater than 2 mg/l (ii) Average ammonia probably not greater than 0.5 mg/l (iii) Visible evidence of pollution should be absent (iv) Waters of high quality which cannot be placed in Class 1A because of the high proportion of high quality effluent present or because of the effect of physical factors such as canalisation, low gradient or eutrophication (v) Class 1A and Class 1B together are essentially the Class 1 of the River Pollution Survey (RPS)	Water of less high quality than Class 1A but usable for substantially the same purposes
2 Fair Quality	(i) DO greater than 40% saturation (ii) BOD not greater than 9 mg/l (iii) Where water is abstracted for drinking water it complies with the requirements for A3* water (iv) Non-toxic to fish in EIFAC terms (or best estimates if EIFAC figures not available)	(i) Average BOD probably not greater than 5 mg/l (ii) Similar to Class 2 of RPS (iii) Water not showing physical signs of pollution other than humic colouration and a little foaming below weirs	(i) Waters suitable for potable supply after advanced treatment (ii) Supporting reasonably good coarse fisheries (iii) Moderate amenity value

3 Poor Quality	(i) DO greater than 10% saturation (ii) Not likely to be anaerobic (iii) BOD not greater than 17 mg/l. This may not apply if there is a high degree of re-aeration	Similar to Class 3 of RPS	Waters which are polluted to an extent that fish are absent only sporadically present. May be used for low grade industrial abstraction purposes. Considerable potential for further use if cleaned up
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4 Bad Quality	Waters which are inferior to Class 3 in terms of dissolved oxygen and likely to be anaerobic at times DO greater than 10% saturation	Similar to Class 4 of RPS	Waters which are grossly polluted and are likely to cause nuisance Insignificant watercourses and ditches not usable, where the objective is simply to prevent nuisance developing
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- Notes
- (a) Under extreme weather conditions (eg flood, drought, freeze-up), or when dominated by plant growth, or by aquatic plant decay, rivers usually in Class 1, 2, and 3 may have BODs and dissolved oxygen levels, or ammonia content outside the stated levels for those Classes. When this occurs the cause should be stated along with analytical results.
 - (b) The BOD determinations refer to 5 day carbonaceous BOD (ATU). Ammonia figures are expressed as NH_4 .
 - (c) In most instances the chemical classification given above will be suitable. However, the basis of the classification is restricted to a finite number of chemical determinands and there may be a few cases where the presence of a chemical substance other than those used in the classification markedly reduces the quality of the water. In such cases, the quality classification of the water should be down-graded on the basis of biota actually present, and the reasons stated.
 - (d) EIFAC (European Inland Fisheries Advisory Commission) limits should be expressed as 95 percentile limits.

EEC category A2 and A3 requirements are those specified in the EEC Council directive of 16 June 1975 concerning the Quality of Surface Water intended for Abstraction of Drinking Water in the Member State.

* Ammonia Conversion Factors

(mg NH_4 /l to mg N/l)

Class 1A	0.4 mg NH_4 /l = 0.31 mg N/l
Class 1B	0.9 mg NH_4 /l = 0.70 mg N/l
	0.5 mg NH_4 /l = 0.39 mg N/l

NWC RIVER CLASSIFICATION SYSTEM

CRITERIA USED BY NATIONAL RIVERS AUTHORITY - SOUTH WEST REGION FOR NON-METALLIC DETERMINANDS

River Class	Quality Criteria
1A	Dissolved oxygen % saturation greater than 80% BOD (ATU) not greater than 3 mg/l O Total ammonia not greater than 0.31 mg/l N Non-ionised ammonia not greater than 0.021 mg/l N Temperature not greater than 21.5 C pH greater than 5.0 and less than 9.0 Suspended solids not greater than 25 mg/l
1B	Dissolved oxygen % saturation greater than 60% BOD (ATU) not greater than 5 mg/l O Total ammonia not greater than 0.70 mg/l N Non-ionised ammonia not greater than 0.021 mg/l N Temperature not greater than 21.5 C pH greater than 5.0 and less than 9.0 Suspended solids not greater than 25 mg/l
2	Dissolved oxygen & saturation greater than 40% BOD (ATU) not greater than 9 mg/l O Total ammonia not greater than 1.56 mg/l N Non-ionised ammonia not greater than 0.021 mg/l N Temperature not greater than 28 C pH greater than 5.0 and less than 9.0 Suspended solids not greater than 25 mg/l
3	Dissolved oxygen % saturation greater than 10% BOD (ATU) not greater than 17 mg/l O
4	Dissolved oxygen % saturation not greater than 10% BOD (ATU) greater than 17 mg/l O

STATISTICS USED BY NATIONAL RIVERS AUTHORITY - SOUTH WEST REGION

Determinand	Statistic
Dissolved oxygen	5 percentile
BOD (ATU)	95 percentile
Total ammonia	95 percentile
Non-ionised ammonia	95 percentile
Temperature	95 percentile
pH	5 percentile
	95 percentile
Suspended solids	arithmetic mean

NWC RIVER CLASSIFICATION SYSTEM

CRITERIA USED BY NATIONAL RIVERS AUTHORITY - SOUTH WEST REGION FOR METALLIC DETERMINANDS

SOLUBLE COPPER

Total Hardness (mean) mg/l CaCO ₃	Statistic	Soluble Copper* ug/l Cu	
		Class 1	Class 2
0 - 10	95 percentile	< = 5	> 5
10 - 50	95 percentile	< = 22	> 22
50 - 100	95 percentile	< = 40	> 40
100 - 300	95 percentile	< = 112	> 112

* Total copper is used for classification until sufficient data on soluble copper can be obtained.

TOTAL ZINC

Total Hardness (mean) mg/l CaCO ₃	Statistic	Total Zinc ug/l Zn		
		Class 1	Class 2	Class 3
0 - 10	95 percentile	< = 30	< = 300	> 300
10 - 50	95 percentile	< = 200	< = 700	> 700
50 - 100	95 percentile	< = 300	< = 1000	> 1000
100 - 300	95 percentile	< = 500	< = 2000	> 2000

NATIONAL RIVERS AUTHORITY - SOUTH WEST REGION
 1991 RIVER WATER QUALITY CLASSIFICATION
 CATCHMENT: FAL

1991 Map Position Number	River	Reach upstream of	User Reference Number	National Grid Reference
1	FAL	TREGOSS BRIDGE	R19C001	SW 9655 6013
2	FAL	GAVERIGAN BRIDGE	R19C002	SW 9373 5875
3	FAL	RETEW BRIDGE	R19C003	SW 9265 5696
4	FAL	KERNICK BRIDGE	R19C011	SW 9325 5464
5	FAL	TERRAS BRIDGE	R19C004	SW 9340 5361
6	FAL	GRAMPOUND BRIDGE	R19C005	SW 9336 4844
7	FAL	TREGONEY GAUGING STATION	R19C006	SW 9205 4473
	FAL	NORMAL TIDAL LIMIT (INFERRED STRETCH)		
8	PENKEVIL STREAM	PARSON'S HILL WOOD	R19B004	SW 8709 4185
	PENKEVIL STREAM	NORMAL TIDAL LIMIT (INFERRED STRETCH)		
9	TREWITTHEN STREAM	MELLINGOOSE	R19C016	SW 8955 4438
	TREWITTHEN STREAM	FAL CONFLUENCE (INFERRED STRETCH)		
10	GWINDRA STREAM	RANPEAN BRIDGE	R19C014	SW 9632 5586
11	GWINDRA STREAM	GOONABARN	R19C017	SW 9555 5491
12	GWINDRA STREAM	GWINDRA BRIDGE	R19C008	SW 9510 5290
13	GWINDRA STREAM	TREWAY BRIDGE	R19C009	SW 9380 5065
	GWINDRA STREAM	FAL CONFLUENCE (INFERRED STRETCH)		
14	COOMBE STREAM	COOMBE	R19C021	SW 9512 5167
15	BODELLA BROOK	CARSELLA	R19C018	SW 9409 5765
	BODELLA BROOK	FAL CONFLUENCE (INFERRED STRETCH)		
16	PERCUIL RIVER	TRETHEM MILL	R19A013	SW 8613 3638
17	TRESILLIAN RIVER	TRENDEAL	R19D033	SW 8868 5283
18	TRESILLIAN RIVER	TRESOWGAR BRIDGE	R19D002	SW 8855 4810
19	TRESILLIAN RIVER	TRESILLIAN PUMPING STATION	R19D032	SW 8713 4706
20	TRESILLIAN RIVER	BELOW LADDOCK STW	R19D034	SW 8710 4695
	TRESILLIAN RIVER	NORMAL TIDAL LIMIT (INFERRED STRETCH)		
21	TREVELLA STREAM	TREGURRA BRIDGE	R19D014	SW 8483 4689
	TREVELLA STREAM	NORMAL TIDAL LIMIT (INFERRED STRETCH)		
22	KESTLE STREAM	CANDOR FORD	R19D008	SW 8737 4770
	KESTLE STREAM	TRESSILLIAN R. CONFL. (INFERRED STRETCH)		
23	BRIGHTON STREAM	NEW MILLS	R19D005	SW 9001 5228
	BRIGHTON STREAM	TRESSILLIAN R. CONFL. (INFERRED STRETCH)		
24	ALLEN	IDLESS BRIDGE	R19D018	SW 8218 4701
25	ALLEN	MORESK LAUNDRY BRIDGE	R19D004	SW 8268 4505

Reach Length (km)	Distance from source (km)	River Quality Objective	85 NWC Class	86 NWC Class	87 NWC Class	88 NWC Class	89 NWC Class	90 NWC Class	91 NWC Class
3.3	3.3	1B	1B	1B	1B	1B	1B	3	3
4.2	7.5	1B	1B	2	2	1B	1B	1B	1B
2.3	9.8	1B	3	2	2	1B	1B	3	3
3.0	12.8	2	3	2	2	3	3	3	3
1.5	14.3	2	3	2	2	3	3	3	3
5.8	20.1	2	3	2	2	3	3	3	3
4.3	24.4	1B	3	2	2	3	3	3	3
4.6	29.0	1B	3	2	2	3	3	3	3
5.2	5.2	1B	1B					2	1B
0.4	5.6	1B	1B					2	1B
4.1	4.1	1B	1B					2	3
1.9	6.0	1B	1B					2	3
1.2	1.2	2	3	3	3	3	3	2	1B
1.4	2.6	2	3	3	3	3	3	3	3
2.8	5.4	2	3	3	3	3	3	3	3
3.1	8.5	2	3	2	3	3	3	3	3
0.1	8.6	2	3	2	3	3	3	3	3
3.2	3.2	1B							3
0.7	0.7	1B	3					3	3
0.7	1.4	1B	3					3	3
5.5	5.5	1A	1B	1B			1B	2	2
4.0	4.0	1B	1B	2	1B	1B	2	1B	1A
5.6	9.6	1B	2	2	2	2	2	1B	1A
2.1	11.7	1B	2	2	2	2	2	N	2
0.2	11.9	1B	2	2	2	2	2	N	3
0.6	12.5	1B	2	2	2	2	2	N	3
5.8	5.8	1A	1B	1A	1B	1B	2	1B	1B
2.2	8.0	1A	1B	1A	1B	1B	2	1B	1B
8.5	8.5	1B	1B	1B			1B	2	1A
0.7	9.2	1B	1B	1B			1B	2	1A
5.5	5.5	1B	1B	2	2	2	2	1B	1B
1.3	6.8	1B	1B	2	2	2	2	1B	1B
7.3	7.3	1B	2	1B	1B	1B	1B	1A	1A
2.2	9.5	1B	2	1B	1B	1B	1B	1B	1B

NATIONAL RIVERS AUTHORITY - SOUTH WEST REGION
1991 RIVER WATER QUALITY CLASSIFICATION
CATCHMENT: FAL

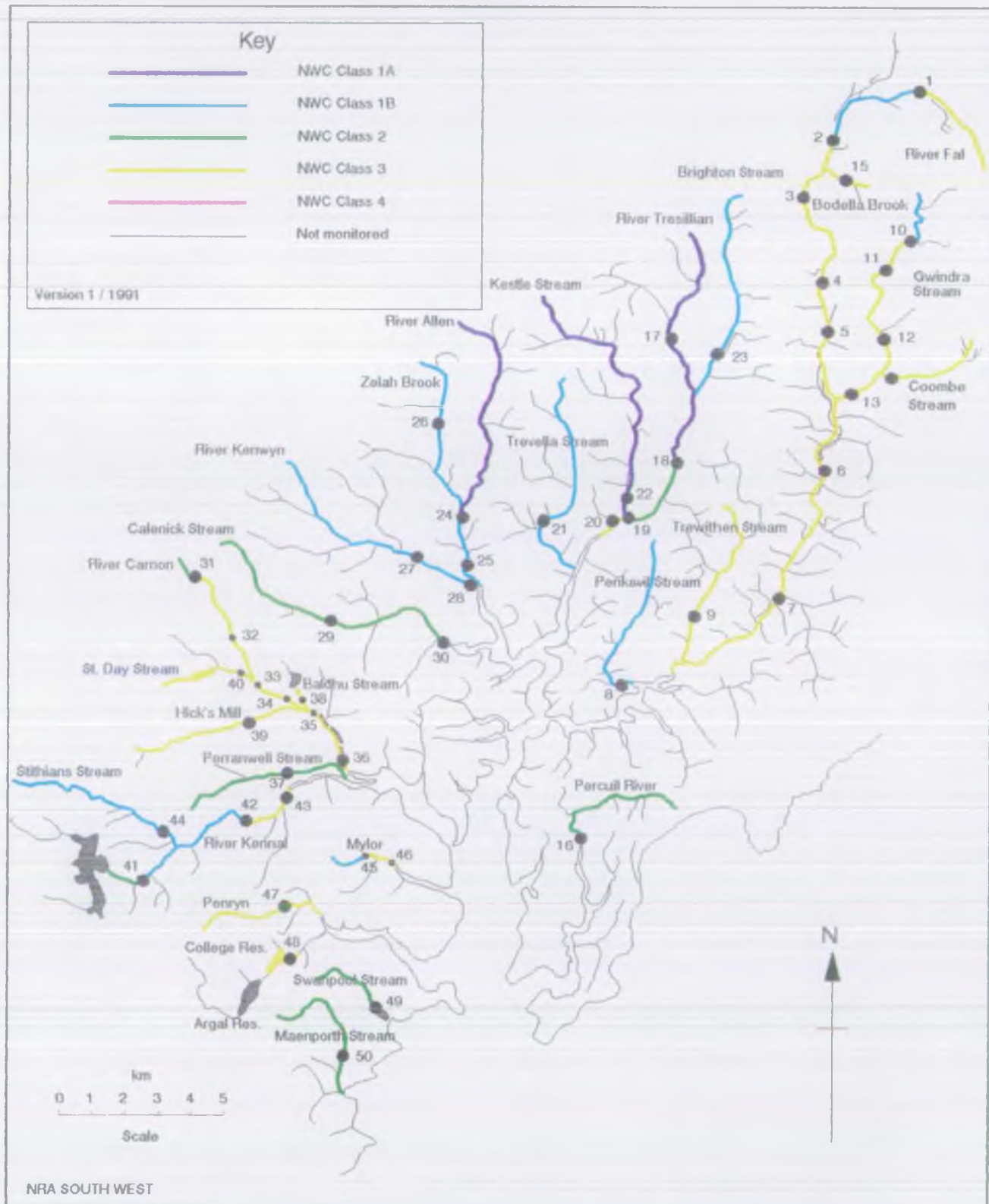
1991 Map Position Number	River	Reach upstream of	User Reference Number	National Grid Reference	Reach Length (km)	Distance from source (km)	River Quality Objective	85 RWC Class	86 RWC Class	87 RWC Class	88 RWC Class	89 RWC Class	90 RWC Class	91 RWC Class
	ALLEN	NORMAL TIDAL LIMIT (INFERRED STRETCH)			0.1	9.6	1B	2	1B	1B	1B	1B	1B	1B
26	ZELAH BROOK ZELAH BROOK	GWARNICK MILL ALLEN CONFLUENCE (INFERRED STRETCH)	R19D030	SW 8165 4923	3.0 2.2	3.0 5.2	1B 1B						2 2	1B 1B
27	KENWYN	NEW MILL	R19D016	SW 8085 4587	5.1	5.1	1B	1B	1B		2	2	3	1B
28	KENWYN KENWYN	BOSVIGO BRIDGE NORMAL TIDAL LIMIT (INFERRED STRETCH)	R19D007	SW 8161 4528	1.0 1.4	6.1 7.5	1B 1B	1B 1B	1B 1B		2 2	2 2	1B 1B	1B 1B
29	CALENICK STREAM	HUGUS	R19D025	SW 7840 4381	4.5	4.5	1B	1B	1B		2	2	2	2
30	CALENICK STREAM CALENICK STREAM	CALENICK BRIDGE NORMAL TIDAL LIMIT (INFERRED STRETCH)	R19D006	SW 8220 4310	4.5 0.1	9.0 9.1	1B 1B	1B 1B	1B 1B		2 2	2 2	2 2	2 2
31	CARNON RIVER	CHACEWATER VIADUCT	R19E016	SW 7446 4520	0.8	0.8	3	3	3	3	3	3	3	2
32	CARNON RIVER	BELOW CHACEWATER S T W	R19E008	SW 7560 4308	2.1	2.9	3	3	3	3	3	3	3	3
33	CARNON RIVER	TWELVEHEADS	R19E001	SW 7618 4194	1.9	4.8	3	3	3	3	3	3	3	3
34	CARNON RIVER	BELOW COUNTY AND WELLINGTON ADITS	R19E015	SW 7669 4146	0.9	5.7	3	3	3	3	3	3	3	3
35	CARNON RIVER	BISSOE BRIDGE	R19E003	SW 7758 4115	0.6	6.3	3	3	3	3	3	3	3	3
36	CARNON RIVER CARNON RIVER	DEVORAN BRIDGE NORMAL TIDAL LIMIT (INFERRED STRETCH)	R19E004	SW 7910 3941	2.6 0.1	8.9 9.0	3 3	3 3	3 3	3 3	3 3	3 3	3 3	3 3
37	PERRANWELL STREAM PERRANWELL STREAM	PERRANWELL NORMAL TIDAL LIMIT (INFERRED STRETCH)	R19E020	SW 7758 3940	3.5 1.5	3.5 5.0	1A 1A	1B 1B					2 2	2 2
38	BALDHU STREAM BALDHU STREAM	BISSOE BRIDGE CARNON CONFLUENCE (INFERRED STRETCH)	R19E021	SW 7760 4146	1.4 0.2	1.4 1.6	1B 1B	3 3					3 3	3 3
39	HICK'S MILL STREAM HICK'S MILL STREAM	HICK'S MILL CARNON CONFLUENCE (INFERRED STRETCH)	R19E019	SW 7673 4115	4.5 0.4	4.5 4.9	1B 1B	3 3					3 2	3 3
40	ST DAY STREAM ST DAY STREAM	PRIOR TO CARNON RIVER CARNON CONFLUENCE (INFERRED STRETCH)	R19E022	SW 7595 4225	2.9 0.1	2.9 3.0	1B 1B	3 3					3 3	3 3
41	KENNAL	STITHIANS RESERVOIR (UNMON. STRETCH)		SW 7195 3635	4.1	4.1	1A	1B	1B	1B	1B	2	U	U
42	KENNAL	TREGOLLS BRIDGE	R19E005	SW 7300 3613	1.6	5.7	1A	1B	1B	1B	1B	2	2	2
43	KENNAL	PONSANOOTH GAUGING STATION	R19E006	SW 7631 3768	4.6	10.3	1A	1B	1B	1B	1B	2	1A	1B
43	KENNAL	STICKEN BRIDGE	R19E007	SW 7735 3819	1.4	11.7	1B	1B	1B	1B	1B	2	3	3
	KENNAL	NORMAL TIDAL LIMIT (INFERRED STRETCH)			0.4	12.1	1B	1B	1B	1B	1B	2	3	3
44	STITHIANS STREAM STITHIANS STREAM	SEAUREAUGH MOOR KENNAL CONFLUENCE (INFERRED STRETCH)	R19E023	SW 7349 3735	4.9 0.7	4.9 5.6	1A 1A	1B 1B					1A 1A	1B 1B
45	MYLOR STREAM	ENYS	R19A035	SW 7906 3651	0.6	0.6	1A	1B	1B			3	1B	1B
46	MYLOR STREAM	MYLOR BRIDGE	R19A014	SW 8043 3611	1.6	2.2	1A	1B	1B			3	3	3

NATIONAL RIVERS AUTHORITY - SOUTH WEST REGION
 1991 RIVER WATER QUALITY CLASSIFICATION
 CATCHMENT: FAL

1991 Map Position Number	River	Reach upstream of	User Reference Number	National Grid Reference
47	PENRYN RIVER PENRYN RIVER	TREMOUGH NORMAL TIDAL LIMIT (INFERRED STRETCH)	R19A037	SW 7735 3505
48	ARGAL STREAM ARGAL STREAM ARGAL STREAM	INFLOW, COLLEGE RES. (UNMON. STRETCH) COLLEGE RESERVOIR NORMAL TIDAL LIMIT (UNMON. STRETCH)	R19A033	SW 7718 3355
49	SWANPOOL STREAM SWANPOOL STREAM	ABOVE SWANPOOL NORMAL TIDAL LIMIT (UNMON. STRETCH)	R19A009	SW 8004 3166
50	MAENPORTH STREAM MAENPORTH STREAM	TREGEDNA BRIDGE NORMAL TIDAL LIMIT (INFERRED STRETCH)	R19A008	SW 7883 3028

Reach Length (km)	Distance from source (km)	River Quality Objective	85 NWC Class	86 NWC Class	87 NWC Class	88 NWC Class	89 NWC Class	90 NWC Class	91 NWC Class
2.8 1.5	2.8 4.3	1B 1B	1A 1A					1B 1B	3 3
4.9 0.9 1.8	4.9 5.8 7.6	1A 1A 1A						U 2 U	U 3 U
2.7 0.5	2.7 3.2	1B 1B				1B 1B	2 2	2 U	2 U
4.0 1.6	4.0 5.6	1B 1B						2 2	2 2

Fal, Tresillian, Allen, Kenwyn, Carnon & Kennal Catchments Water Quality - 1991



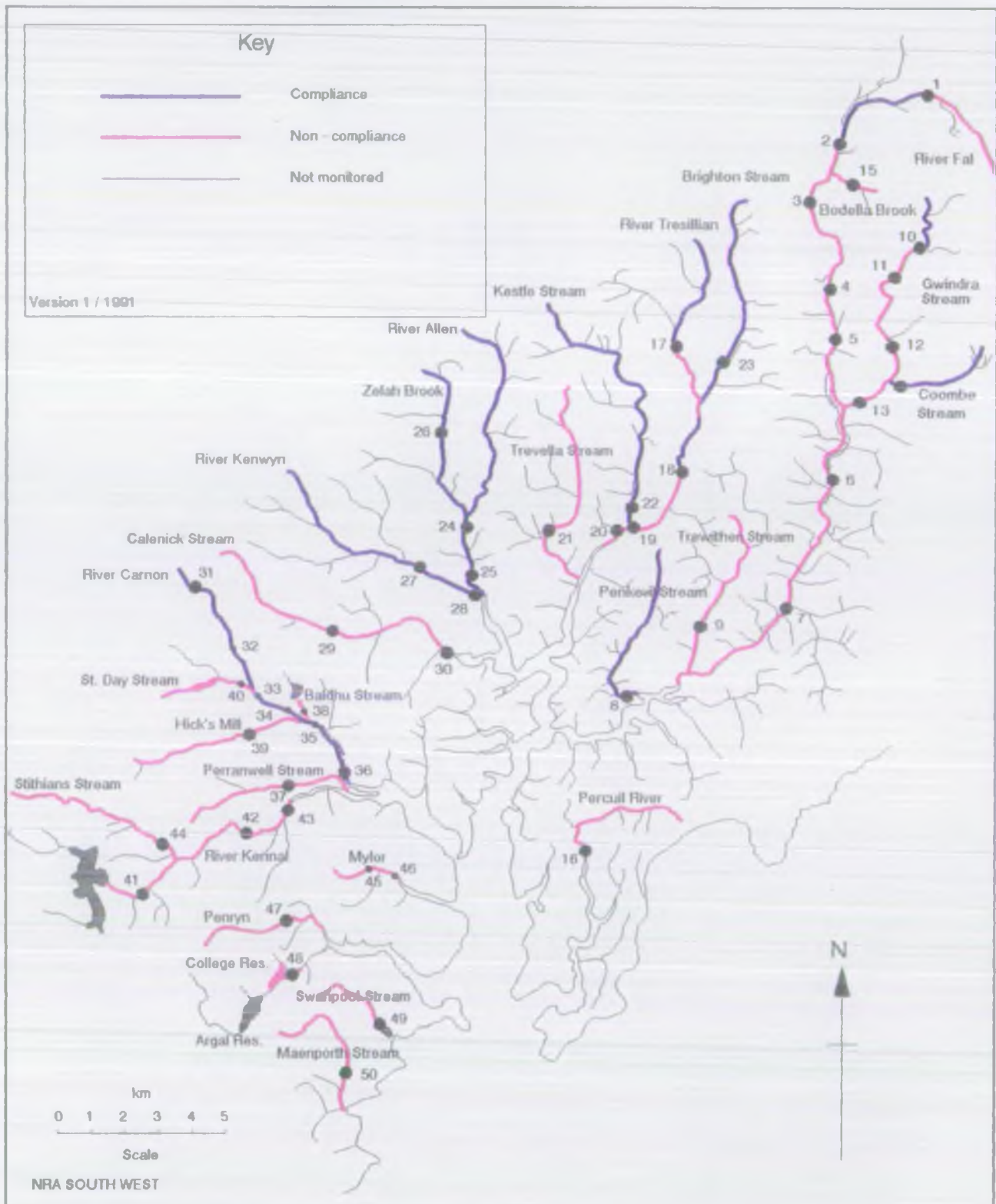
NATIONAL RIVERS AUTHORITY - SOUTH WEST REGION
 1991 RIVER WATER QUALITY CLASSIFICATION
 CALCULATED DETERMINAND STATISTICS USED FOR QUALITY ASSESSMENT
 CATCHMENT: FAL

River	Reach upstream of	Uber Ref. Number	RQD	Calculated Determinand Statistics used for Quality Assessment														S.Solids Class Mean	Total Copper Class 95tile	Total Zinc Class 95tile			
				pH Lower Class 5tile		pH Upper Class 95tile		Temperature Class 95tile		DO (%) Class 5tile		BOD (RTU) Class 95tile		Total Ammonia Class 95tile		Union. Ammonia Class 95tile							
FAL	TRELOSS BRIDGE	R19CD01	1B	1A	5.9	1A	7.6	1A	14.3	1A	80.3	1A	2.2	1A	0.207	1A	0.010	3	37.5	1A	10.6	1A	37.5
FAL	GAVERIGAN BRIDGE	R19CD02	1B	1A	6.2	1A	7.4	1A	15.3	1B	78.3	1A	2.6	1A	0.175	1A	0.010	1A	10.6	1A	10.4	1A	53.9
FAL	REIDY BRIDGE	R19CD03	1B	1A	5.9	1A	7.4	1A	15.0	1A	82.0	1A	2.6	1A	0.252	1A	0.010	3	28.7	1A	14.6	1A	51.4
FAL	KERNICK BRIDGE	R19CD11	2	1A	5.9	1A	7.5	1A	16.2	1A	81.3	1A	2.4	1A	0.191	1A	0.010	3	54.6	1A	9.4	1A	48.9
FAL	TERRAS BRIDGE	R19CD04	2	1A	5.1	1A	7.3	1A	16.0	1A	87.8	1A	2.8	1B	0.334	1A	0.010	3	44.5	2	386.2	3	4051.8
FAL	GRANDOUND BRIDGE	R19CD05	2	1A	6.3	1A	7.2	1A	15.5	1A	80.7	1B	3.4	3	5.950	1A	0.014	3	39.4	1A	15.0	1A	106.0
FAL	TREBOONEY GAUGING STATION	R19CD06	1B	1A	6.5	1A	7.3	1A	16.9	1A	81.1	1A	3.0	1B	0.368	1A	0.010	3	46.4	1A	20.2	1A	73.0
PENNEVIL STREAM	PARSON'S HILL WOOD	R19ED04	1B	1A	6.9	1A	8.0	1A	15.6	1A	84.1	1B	4.2	1B	0.474	1A	0.010	1A	12.5	1A	5.0	1A	27.0
CREATHEN STREAM	MELLINGDOSE	R19CD16	1B	1A	6.8	1A	7.8	1A	15.9	1A	81.5	3	13.8	3	1.718	1A	0.010	1A	16.2	1A	6.0	1A	27.0
GAINDRA STREAM	NANFERN BRIDGE	R19CD14	2	1A	5.7	1A	7.2	1A	15.4	1B	69.3	1B	4.5	1A	0.097	1A	0.010	1A	17.4	1A	8.0	1A	42.0
GAINDRA STREAM	COONHARRY	R19CD17	2	3	4.2	1A	6.6	1A	16.1	1B	74.3	1B	3.9	2	0.883	1A	0.010	3	59.5	2	76.0	1A	157.0
GAINDRA STREAM	GAINDRA BRIDGE	R19CD08	2	1A	6.1	1A	7.1	1A	16.1	2	59.0	2	5.8	3	5.570	1A	0.013	3	51.7	1A	15.8	1A	103.8
GAINDRA STREAM	TIRWAY BRIDGE	R19CD09	2	1A	6.1	1A	7.3	1A	16.0	1B	79.3	2	5.7	3	3.991	1A	0.012	3	35.7	1A	15.4	1A	137.8
COOME STREAM	COOME	R19CD21	1B	3	4.6	1A	7.2	1A	14.5	1A	80.4	1A	2.0	1B	0.339	1A	0.010	3	33.3	1A	38.0	1A	280.0
BODELLA BROOK	ONSELLA	R19CD18	1B	3	3.3	1A	6.6	1A	18.0	2	52.8	3	16.3	3	4.650	1A	0.010	3	46.0	1A	28.5	1A	67.3
PERCUL RIVER	TREDEM MILL	R19A013	1A	1A	7.3	1A	8.6	1A	18.2	2	43.1	1B	4.1	1B	0.487	1A	0.010	1A	19.8	1A	5.0	1A	11.0
TRESILLIAN RIVER	TRENDALE	R19CD33	1B	1A	7.0	1A	7.9	1A	15.7	1A	84.6	1A	2.7	1A	0.175	1A	0.010	1A	5.2	1A	6.0	1A	54.0
TRESILLIAN RIVER	TRESOGAR BRIDGE	R19CD02	1B	1A	7.0	1A	7.8	1A	16.0	1A	81.8	1A	2.8	1A	0.135	1A	0.010	1A	7.1	1A	7.0	1A	65.7
TRESILLIAN RIVER	TRESILLIAN PUMPING STATION	R19CD32	1B	1A	6.9	1A	7.8	1A	16.0	1B	72.9	1A	2.6	2	0.813	1A	0.010	1A	8.1	1A	9.5	1A	90.0
TRESILLIAN RIVER	BELOW LADOCK STW	R19CD34	1B	1A	7.1	1A	7.8	1A	17.0	1B	71.0	1B	4.6	3	2.300	1A	0.011	1A	16.0	-	-	-	-
TREVELLA STREAM	TREQUERRA BRIDGE	R19CD14	1A	1A	7.1	1A	7.9	1A	16.6	1A	83.8	1B	3.1	1A	0.148	1A	0.010	1A	13.3	1A	6.0	1A	25.5
PESTLE STREAM	ONDOO FORD	R19CD08	1B	1A	6.8	1A	7.8	1A	15.9	1A	81.9	1A	2.7	1A	0.212	1A	0.010	1A	6.7	1A	5.0	1A	17.2
BRUCHTON STREAM	NEW MILLS	R19CD05	1B	1A	6.5	1A	7.7	1A	16.1	1B	67.4	1A	2.6	1A	0.234	1A	0.010	1A	8.7	1A	10.0	1A	195.0
ALLEN	DELESS BRIDGE	R19CD18	1B	1A	7.2	1A	7.8	1A	17.1	1A	82.7	1A	2.6	1A	0.219	1A	0.010	1A	5.4	1A	9.6	1A	29.9
ALLEN	MORESK LAUNDRY BRIDGE	R19CD04	1B	1A	7.2	1A	7.9	1A	17.5	1B	78.5	1A	2.4	1A	0.154	1A	0.010	1A	8.5	1A	8.0	1A	31.0
ZELAH BROOK	GHARRICK MILL	R19CD30	1B	1A	7.1	1A	7.8	1A	20.2	1B	72.4	1B	4.7	1B	0.456	1A	0.010	1A	15.4	1A	7.0	1A	31.0
RENNAN	NEW MILL	R19CD16	1B	1A	7.0	1A	7.7	1A	17.0	1B	79.4	1A	2.6	1A	0.090	1A	0.010	1A	20.9	1A	24.0	1A	127.4
RENNAN	BOSVIDO BRIDGE	R19CD07	1B	1A	7.1	1A	7.9	1A	18.2	1A	88.0	1B	3.6	1A	0.155	1A	0.010	1A	7.3	1A	9.6	1A	57.1
CALENTICK STREAM	HILLS	R19CD25	1B	1A	6.8	1A	7.6	1A	16.6	1B	73.5	1B	3.4	1B	0.340	1A	0.010	1A	8.5	1A	29.4	2	803.0
CALENTICK STREAM	CALENTICK BRIDGE	R19CD06	1B	1A	6.6	1A	7.7	1A	16.4	1B	75.6	1B	3.4	1B	0.312	1A	0.010	1A	9.1	2	48.3	2	328.3

NATIONAL RIVERS AUTHORITY - SOUTH WEST REGION
 1991 RIVER WATER QUALITY CLASSIFICATION
 CALCULATED DETERMINED STATISTICS USED FOR QUALITY ASSESSMENT
 CROPPING: PAL

River	Reach upstream of	User Ref. Number	RQD	Calculated Determined Statistics used for Quality Assessment																			
				pH Lower Class 5tile		pH Upper Class 95tile		Temperature Class 95tile		DO (%) Class 5tile		BOD (ATU) Class 95tile		Total Ammonia Class 95tile		Union. Ammonia Class 95tile		S.Solids Class Mean		Total Copper Class 95tile		Total Zinc Class 95tile	
CARRON RIVER	CHANCEWATER VIADUCT	R196D16	3	1A	6.0	1A	7.2	1A	17.4	2	44.4	1B	3.5	1B	0.462	1A	0.010	1A	6.8	2	107.6	2	914.5
CARRON RIVER	BELOW CHANCEWATER S T W	R196D08	3	1A	6.3	1A	7.3	1A	17.4	1B	60.2	1B	4.5	1B	0.668	1A	0.010	3	31.4	2	443.4	3	1558.0
CARRON RIVER	TWELVEHEADS	R196D01	3	1A	5.2	1A	7.3	1A	16.8	1B	76.3	1A	2.7	1B	0.366	1A	0.010	1A	7.2	2	651.4	3	3385.0
CARRON RIVER	BELOW COUNTRY AND WELLINGTON ACRES	R196D15	3	3	3.3	1A	5.7	1A	17.1	2	57.0	1B	3.2	1A	0.280	1A	0.010	1A	10.0	2	2300.0	3	20520.0
CARRON RIVER	BISSOE BRIDGE	R196D03	3	3	3.2	1A	6.3	1A	20.3	1B	63.2	2	6.3	2	1.100	1A	0.010	1A	20.2	2	1594.5	3	16356.0
CARRON RIVER	DEVORAN BRIDGE	R196D04	3	3	3.5	1A	6.5	1A	18.8	1B	67.4	1A	2.9	2	1.218	1A	0.010	1A	17.3	2	1145.5	3	19660.0
FERRANWELL STREAM	FERRANWELL	R196D20	1A	1A	6.2	1A	7.3	1A	15.0	1B	72.0	1A	2.7	1A	0.274	1A	0.010	1A	11.0	2	1132.6	1A	64.2
BALDHU STREAM	BISSOE BRIDGE	R196D21	1B	3	3.5	1A	8.5	2	22.0	1B	65.9	2	9.0	3	2.620	3	0.375	3	37.1	2	4100.0	3	87200.0
HICK'S MILL STREAM	HICK'S MILL	R196D19	1B	1A	6.5	1A	7.4	1A	16.6	1B	78.5	1B	3.7	2	0.860	1A	0.010	1A	7.0	2	715.2	3	3850.0
ST DRY STREAM	PRIOR TO CARRON RIVER	R196D22	1B	3	3.2	1A	6.6	2	21.6	1B	61.6	1A	2.2	2	1.124	1A	0.010	1A	3.9	2	1933.0	3	8778.0
KENWALL	TRELLIS BRIDGE	R196D05	1A	1A	6.4	1A	7.2	1A	18.1	1A	82.1	2	5.5	2	0.929	1A	0.010	1A	6.9	1A	13.9	1A	25.7
KENWALL	ROSEMOOTH GAUGING STATION	R196D06	1A	1A	6.6	1A	7.6	1A	15.7	1A	88.0	1B	3.4	1A	0.174	1A	0.010	1A	10.0	1A	18.1	1A	135.6
KENWALL	STICTON BRIDGE	R196D07	1B	1A	6.6	1A	7.3	1A	15.2	2	47.0	2	5.5	3	1.600	1A	0.010	1A	12.1	1A	13.4	1A	43.1
STITHIANS STREAM	SEDLINLUCH MOOR	R196D23	1A	1A	6.3	1A	7.3	1A	17.4	1A	86.6	1B	3.6	1A	0.190	1A	0.010	1A	8.0	1A	8.0	1A	43.0
MILOR STREAM	ENIS	R19A035	1A	1A	6.5	1A	7.3	1A	16.0	1B	73.0	1A	2.7	1A	0.147	1A	0.010	1A	6.5	1A	6.0	1A	27.0
MILOR STREAM	MILOR BRIDGE	R19A014	1A	1A	6.9	1A	7.5	1A	16.7	2	60.0	2	5.2	3	4.670	1A	0.010	1A	10.4	1A	12.6	1A	78.2
PENRON RIVER	TREMUGH	R19A037	1B	1A	6.9	1A	7.7	1A	16.3	1A	84.2	2	5.1	1B	0.344	1A	0.010	3	30.7	1A	12.0	1A	62.0
MARGAL STREAM	COLLEGE RESERVOIR	R19A033	1A	1A	6.7	3	9.2	2	23.8	1B	77.5	2	8.4	1A	0.084	1A	0.010	1A	13.4	1A	4.0	1A	18.1
SHANROOL STREAM	ABOVE SHANROOL	R19A009	1B	1A	7.1	1A	7.7	1A	18.6	1B	77.1	2	5.4	1A	0.094	1A	0.010	1A	18.5	1A	23.0	1A	115.0
MANEORIN STREAM	TREGEINA BRIDGE	R19A008	1B	1A	6.9	1A	7.5	1A	18.7	2	56.2	1B	3.2	1A	0.240	1A	0.010	1A	7.9	1A	6.0	1A	33.0

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1991 RIVER WATER QUALITY CLASSIFICATION

NUMBER OF SAMPLES (N) AND NUMBER OF SAMPLES EXCEEDING QUALITY STANDARD (F)

CATCHMENT: FAL

River	Reach upstream of	User Ref. Number	pH Lower		pH Upper		Temperature		DO (%)		BOD (ATU)		Total Ammonia		Union. Ammonia		S.Solids		Total Copper		Total Zinc	
			N	F	N	F	N	F	N	F	N	F	N	F	N	F	N	F	N	F	N	F
FAL	TREDS BRIDGE	R19C001	34	-	34	-	34	-	34	-	33	-	34	-	34	-	34	6	22	-	22	-
FAL	GAVRUGAN BRIDGE	R19C002	34	-	34	-	34	-	34	-	33	-	34	-	33	-	34	3	22	-	22	-
FAL	REIDW BRIDGE	R19C003	34	-	34	-	34	-	34	-	33	-	34	-	34	-	34	6	22	-	22	-
FAL	KERNICK BRIDGE	R19C011	33	-	33	-	32	-	32	-	32	-	33	-	31	-	33	16	32	-	32	-
FAL	TERRAS BRIDGE	R19C004	35	1	35	-	34	-	34	-	34	-	35	-	32	-	35	16	23	-	23	1
FAL	GRAMPOND BRIDGE	R19C005	32	-	32	-	32	-	32	-	31	-	32	6	32	-	32	14	19	-	19	-
FAL	TREDSNY GAUGING SECTION	R19C006	67	-	67	-	67	-	66	-	66	-	67	1	16	-	67	35	67	2	67	-
PENKVEL STREAM	PARSON'S HILL, WYD	R19B004	33	-	33	-	33	-	33	-	32	1	33	-	33	-	33	3	11	-	11	-
TREMITHEN STREAM	MELLINGDOSE	R19C016	33	-	33	-	33	-	33	-	32	1	33	2	32	-	33	4	11	-	11	-
GWINDRA STREAM	WANNEN BRIDGE	R19C014	32	-	32	-	32	-	32	-	31	-	32	-	27	-	32	5	19	-	19	-
GWINDRA STREAM	GOONBARR	R19C017	32	3	32	-	32	-	32	-	31	-	32	-	31	-	32	21	19	-	19	-
GWINDRA STREAM	GWINDRA BRIDGE	R19C008	33	-	33	-	33	-	33	-	32	-	33	7	33	-	33	18	21	-	21	-
GWINDRA STREAM	TREDSNY BRIDGE	R19C009	34	-	34	-	34	-	34	-	33	-	34	5	33	-	34	15	31	-	31	-
COOMBE STREAM	COOMBE	R19C021	20	2	20	-	20	-	20	-	20	-	20	-	16	-	20	8	12	-	12	-
BODELLA BROOK	CARSELLA	R19C018	34	10	34	-	34	-	34	2	33	9	34	16	28	-	34	12	24	-	24	-
PENCILL RIVER	TREDSNY MILL	R19A013	33	-	33	-	33	-	32	6	33	3	32	4	30	-	33	4	18	-	18	-
TRESILLIAN RIVER	TREDSNY	R19C033	30	-	30	-	30	-	30	-	30	-	30	-	28	-	30	2	17	-	17	-
TRESILLIAN RIVER	TRESOGAR BRIDGE	R19C002	34	-	34	-	34	-	34	-	34	-	34	-	33	-	34	1	20	-	20	-
TRESILLIAN RIVER	TRESILLIAN PUMPING SECTION	R19C032	30	-	30	-	30	-	30	-	30	-	30	1	30	-	30	1	29	-	29	-
TRESILLIAN RIVER	BELOW LADDOCK SW	R19C034	15	-	15	-	15	-	15	-	15	-	15	2	15	-	15	2	5	-	5	-
TREVELLA STREAM	TRELLARA BRIDGE	R19C014	31	-	31	-	31	-	31	-	31	1	31	-	29	-	31	4	24	-	24	-
NESTLE STREAM	ONDR FORD	R19C008	32	-	32	-	31	-	32	-	32	-	32	-	31	-	32	1	27	-	27	-
BRIGHTON STREAM	NEW MILLS	R19C005	31	-	31	-	31	-	31	-	31	-	31	-	29	-	31	3	19	-	19	-
ALLEN	ITLESS BRIDGE	R19C018	37	-	37	-	37	-	37	-	37	-	37	-	37	-	37	-	26	-	26	-
ALLEN	PORESK LAUNDRY BRIDGE	R19C004	32	-	32	-	32	-	32	-	32	-	32	-	31	-	32	3	29	-	29	-
TELAM BROOK	WARRICK MILL	R19C030	28	-	28	-	28	1	28	-	28	1	28	-	28	-	28	3	16	-	16	-
KENWIN	NEW MILL	R19C016	33	-	33	-	33	-	33	-	33	-	33	-	33	-	33	3	23	-	23	-
KENWIN	BOSWICK BRIDGE	R19C007	34	-	34	-	34	-	34	-	34	1	34	-	34	-	34	1	33	-	33	-
CALENICK STREAM	HILLS	R19C025	34	-	34	-	34	-	34	-	34	1	34	1	29	-	34	3	21	-	21	3
CALENICK STREAM	CALENICK BRIDGE	R19C006	35	-	35	-	35	-	35	-	35	1	35	-	33	-	35	2	33	2	33	3

NATIONAL RIVERS AUTHORITY - SOUTH WEST REGION

1991 RIVER WATER QUALITY CLASSIFICATION

NUMBER OF SAMPLES (N) AND NUMBER OF SAMPLES EXCEEDING QUALITY STANDARD (P)

CATCHMENT: FNL

River	Reach upstream of	User Ref. Number	pH Lower		pH Upper		Temperature		DO (%)		BOD (ATU)		Total Ammonia		Union. Ammonia		S.Solids		Total Copper		Total Zinc	
			N	P	N	P	N	P	N	P	N	P	N	P	N	P	N	P	N	P	N	P
CANNON RIVER	CHACAPUER VIA DUCT	R19ED16	33	-	33	-	31	-	31	-	33	-	33	-	28	-	33	-	30	-	30	-
CANNON RIVER	BELOW CHACAPUER S T W	R19ED08	35	-	35	-	35	-	35	-	35	-	35	-	35	-	35	-	31	-	31	-
CANNON RIVER	TWELVEHEADS	R19ED01	33	-	33	-	33	-	33	-	33	-	33	-	32	-	33	-	30	-	30	-
CANNON RIVER	BELOW COUNTRY AND WELLINGTON ADITS	R19ED15	34	-	34	-	34	-	34	-	34	-	34	-	17	-	34	-	31	-	31	-
CANNON RIVER	BISSOE BRIDGE	R19ED03	35	-	35	-	33	-	33	-	35	-	35	-	20	-	35	-	32	-	32	-
CANNON RIVER	DEVORAN BRIDGE	R19ED04	66	-	66	-	67	-	66	-	66	-	67	-	10	-	67	-	66	-	66	-
PERRAWELL STREAM	PERRAWELL	R19ED20	31	-	31	-	31	-	31	2	31	1	31	1	29	-	31	1	22	1	22	-
BALHU STREAM	BISSOE BRIDGE	R19ED21	28	4	28	1	28	2	28	-	28	7	28	22	24	2	28	9	19	7	19	19
HICK'S MILL STREAM	HICK'S MILL	R19ED19	29	-	29	-	29	-	29	-	29	-	29	3	27	-	29	2	22	21	22	21
ST DAY STREAM	PRIOR TO CANNON RIVER	R19ED22	26	23	26	-	26	1	26	1	26	-	26	1	10	-	26	-	20	20	20	20
KENALL	TREDDLES BRIDGE	R19ED05	32	-	32	-	30	-	30	-	31	3	32	4	28	-	32	1	22	-	22	-
KENALL	PONSNOOTH GAUGING STATION	R19ED06	32	-	32	-	32	-	32	-	32	1	32	-	30	-	32	1	21	-	21	-
KENALL	STICKEN BRIDGE	R19ED07	34	-	34	-	34	-	34	6	34	1	34	3	34	-	34	2	32	-	32	-
STITHLANS STREAM	SEAFERLUGH MOOR	R19ED23	30	-	30	-	30	-	30	-	29	1	30	-	28	-	30	1	12	-	12	-
MILOR STREAM	ERVS	R19A035	30	-	30	-	29	-	29	2	29	-	30	-	26	-	30	2	12	-	12	-
MILOR STREAM	MILOR BRIDGE	R19A014	32	-	32	-	32	-	32	13	32	9	32	19	32	-	32	2	22	-	22	-
PENRON RIVER	FIRE CUGH	R19A037	30	-	30	-	30	-	30	-	29	1	30	-	28	-	30	7	12	-	12	-
ARGAL STREAM	COLLAGE RESERVOIR	R19A033	22	-	22	1	22	2	22	1	22	12	22	-	18	-	22	2	21	-	21	-
SHANFOOL STREAM	ABOVE SHANFOOL	R19A009	32	-	32	-	32	-	32	-	32	1	32	-	29	-	32	5	19	-	19	-
MAENFORTH STREAM	TREEDNA BRIDGE	R19A008	30	-	30	-	30	-	30	2	29	-	30	-	30	-	30	-	12	-	12	-

NATIONAL RIVERS AUTHORITY - SOUTH WEST REGION
 1991 RIVER WATER QUALITY CLASSIFICATION
 PERCENTAGE EXCEEDENCE OF DETERMINAND STATISTICS FROM QUALITY STANDARDS
 CATCHMENT: FAL

River	Reach upstream of	User Ref. Number	PERCENTAGE EXCEEDENCE OF STATISTIC FROM QUALITY STANDARD									
			pH Lower	pH Upper	Temperature	DO (%)	BOD (ATU)	Total Ammonia	Un-ionised Ammonia	Suspended Solids	Total Copper	Total Zinc
FAL	TREGOSS BRIDGE	R19C001	-	-	-	-	-	-	-	50	-	-
FAL	GAVERIGAN BRIDGE	R19C002	-	-	-	-	-	-	-	-	-	-
FAL	RETEW BRIDGE	R19C003	-	-	-	-	-	-	-	15	-	-
FAL	KERNICK BRIDGE	R19C011	-	-	-	-	-	-	-	-	-	-
FAL	TERRAS BRIDGE	R19C004	-	-	-	-	-	-	-	-	-	479
FAL	GRAMPOUND BRIDGE	R19C005	-	-	-	-	-	256	-	-	-	-
FAL	TREGONEY GAUGING STATION	R19C006	-	-	-	-	-	-	-	86	-	-
PENKEVIL STREAM	PARSON'S HILL WOOD	R19B004	-	-	-	-	-	-	-	-	-	-
TREWITHEEN STREAM	MELLINGOOSE	R19C016	-	-	-	-	177	145	-	-	-	-
GWINDRA STREAM	NANPEAN BRIDGE	R19C014	-	-	-	-	-	-	-	-	-	-
GWINDRA STREAM	GOONABARN	R19C017	15	-	-	-	-	-	-	-	-	-
GWINDRA STREAM	GWINDRA BRIDGE	R19C008	-	-	-	-	-	257	-	-	-	-
GWINDRA STREAM	TREWAY BRIDGE	R19C009	-	-	-	-	-	156	-	-	-	-
COOMBE STREAM	COOMBE	R19C021	8	-	-	-	-	-	-	33	-	-
BODELLA BROOK	CARSELLA	R19C018	33	-	-	12	225	564	-	84	-	-
PERCUIL RIVER	TRETHEM MILL	R19A013	-	-	-	46	35	57	-	-	-	-
TRESILLIAN RIVER	TRENDEAL	R19D033	-	-	-	-	-	-	-	-	-	-
TRESILLIAN RIVER	TRESOMGAR BRIDGE	R19D002	-	-	-	-	-	-	-	-	-	-
TRESILLIAN RIVER	TRESILLIAN PUMPING STATION	R19D032	-	-	-	-	-	16	-	-	-	-
TRESILLIAN RIVER	BELOW LADDOCK STW	R19D034	-	-	-	-	-	229	-	-	-	-
TREVELLA STREAM	TREGURRA BRIDGE	R19D014	-	-	-	-	1	-	-	-	-	-
KESTLE STREAM	CANDOR FORD	R19D008	-	-	-	-	-	-	-	-	-	-
BRIGHTON STREAM	NEW MILLS	R19D005	-	-	-	-	-	-	-	-	-	-
ALLEN	IDLESS BRIDGE	R19D018	-	-	-	-	-	-	-	-	-	-
ALLEN	MORESK LAUNDRY BRIDGE	R19D004	-	-	-	-	-	-	-	-	-	-
ZELAH BROOK	GWARNICK MILL	R19D030	-	-	-	-	-	-	-	-	-	-
KENWYN	NEW MILL	R19D016	-	-	-	-	-	-	-	-	-	-
KENWYN	BOSVIGO BRIDGE	R19D007	-	-	-	-	-	-	-	-	-	-
CALENICK STREAM	HUGUS	R19D025	-	-	-	-	-	-	-	-	-	168
CALENICK STREAM	CALENICK BRIDGE	R19D006	-	-	-	-	-	-	-	-	21	9

NATIONAL RIVERS AUTHORITY - SOUTH WEST REGION

1991 RIVER WATER QUALITY CLASSIFICATION

PERCENTAGE EXCEEDENCE OF DETERMINAND STATISTICS FROM QUALITY STANDARDS

CATCHMENT: PAL

River	Reach upstream of	User Ref. Number	PERCENTAGE EXCEEDENCE OF STATISTIC FROM QUALITY STANDARD									
			pH Lower	pH Upper	Temperature	DO (%)	BOD (ATU)	Total Ammonia	Un-ionised Ammonia	Suspended Solids	Total Copper	Total Zinc
CARNON RIVER	CHACEWATER VIADUCT	R19E016	-	-	-	-	-	-	-	-	-	-
CARNON RIVER	BELOW CHACEWATER S T W	R19E008	-	-	-	-	-	-	-	-	-	-
CARNON RIVER	TWELVEHEADS	R19E001	-	-	-	-	-	-	-	-	-	-
CARNON RIVER	BELOW COUNTY AND WELLINGTON ADITS	R19E015	-	-	-	-	-	-	-	-	-	-
CARNON RIVER	BISSOE BRIDGE	R19E003	-	-	-	-	-	-	-	-	-	-
CARNON RIVER	DEVORAN BRIDGE	R19E004	-	-	-	-	-	-	-	-	-	-
PERRANWELL STREAM	PERRANWELL	R19E020	-	-	-	10	-	-	-	-	2732	-
BALDHU STREAM	BISSOE BRIDGE	R19E021	29	-	2	-	79	274	1686	48	3561	17340
HICK'S MILL STREAM	HICK'S MILL	R19E019	-	-	-	-	-	23	-	-	1688	1183
ST DAY STREAM	PRIOR TO CARNON RIVER	R19E022	35	-	-	-	-	61	-	-	4733	2823
KENALL	TREGOLLS BRIDGE	R19E005	-	-	-	-	83	200	-	-	-	-
KENALL	PONSANOOTH GAUGING STATION	R19E006	-	-	-	-	13	-	-	-	-	-
KENALL	STICKEN BRIDGE	R19E007	-	-	-	22	11	129	-	-	-	-
STITHIANS STREAM	SEAUREAUGH MOOR	R19E023	-	-	-	-	18	-	-	-	-	-
MYLOR STREAM	ENYS	R19A035	-	-	-	9	-	-	-	-	-	-
MYLOR STREAM	MYLOR BRIDGE	R19A014	-	-	-	25	74	1406	-	-	-	-
PENRYN RIVER	TREMOUGH	R19A037	-	-	-	-	1	-	-	23	-	-
ARGAL STREAM	COLLEGE RESERVOIR	R19A033	-	2	11	3	181	-	-	-	-	-
SWANPOOL STREAM	ABOVE SWANPOOL	R19A009	-	-	-	-	7	-	-	-	-	-
MAENPORTH STREAM	TREGEDNA BRIDGE	R19A008	-	-	-	6	-	-	-	-	-	-