NRA

National Rivers Authority

South West Region

ENVIRONMENTAL PROTECTION

St Austell River and South Cornwall Coastal Streams River Water Quality Classification 1990

NOVEMBER 1991

WQP/91/019

B L MILFORD

GORDON H BIELBY BSc
Regional General Manager

C V M Davies
Environmental Protection
Manager

ACKNOWLEDGEMENTS

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

R. Broome - Co-ordinator and Editor
A. Burrows - Production of Maps and editorial support
P. Grigorey - Production of Maps and editorial support
B. Steele - Production of Forepage
C. McCarthy - Administration and report compilation

Special thanks are extended to A. Burghes of Moonsoft, Exeter for computer support and the production of statistical schedules.

The following NRA sections also made valuable contributions:

Pollution Control
Field Control and Wardens
Water Resources

Thanks also to R. Hamilton and J. Murray-Bligh for their contributions.

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

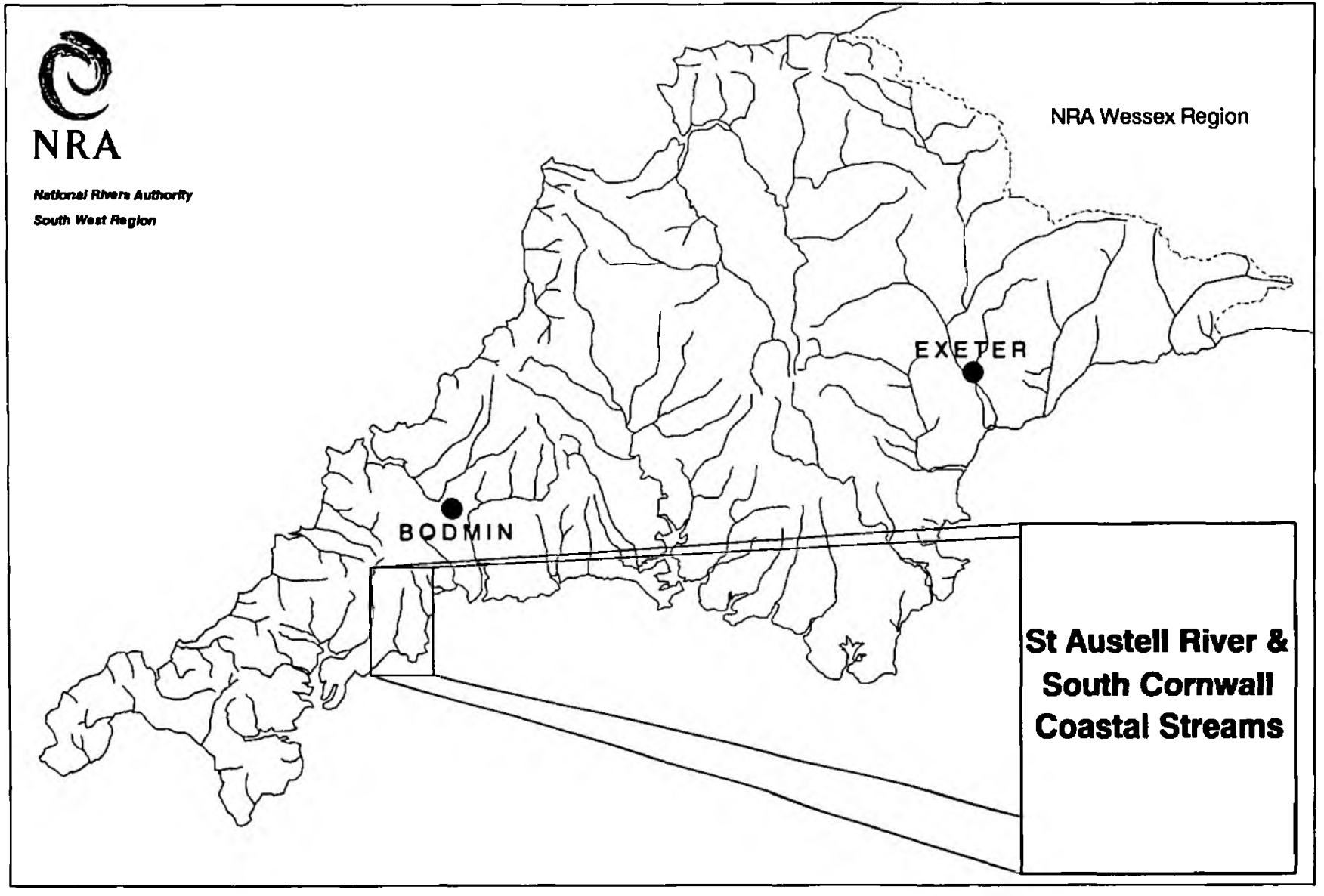
Further enquiries regarding the content of these reports should be addressed to:

Freshwater Scientist,
National Rivers Authority,
Manley House,
Kestrel Way,
EXETER,
Devon EX2 7LQ

RIVER WATER QUALITY IN THE ST. AUSTELL RIVER AND SOUTH CORNWALL STREAMS CATCHMENT

LIST OF CONTENTS

National Rivers Authority
South West Region



St Austell River & South Cornwall Coastal Streams

1. INTRODUCTION

Monitoring to assess the quality of river waters is undertaken in thirty-two 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.

River lengths have been re-measured and variations exist over those recorded previously.

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), (9.1).

This report presents the river water quality classification for 1990 for monitored river reaches in the St. Austell River and South Cornwall Coastal Streams catchment.

2. ST. AUSTELL RIVER AND SOUTH CORNWALL COASTAL STREAMS CATCHMENT

The St. Austell River flows over a distance of 11 km from its source to the tidal limit, (Appendix 10.1). Water quality was monitored at approximately monthly intervals at five locations on the main river.

The Mevagissey Stream flows over a distance of 3.8 km from its source to the tidal limit, (Appendix 10.1) and was monitored at one site at approximately monthly intervals.

The Caerhayes Stream flows over a distance of 13 km from its source to the tidal limit, (Appendix 10.1) and was monitored at three sites at approximately monthly intervals.

Portholland Stream flows over a distance of 6.7 km from its source to the tidal limit, (Appendix 10.1) and was monitored at one site on twenty occasions during 1990 because of no recent water quality data.

The Carne Stream flows over a distance of 5 km from its source to the tidal limit, (Appendix 10.1) and was monitored at two sites at approximately monthly intervals.

Throughout the St. Austell River and South Cornwall Coastal Streams catchment two secondary tributaries and one tertiary tributary of the St. Austell River were monitored.

2.1 SECONDARY TRIBUTARIES

The Polgooth Stream flows over a distance of 4.0 km from its source to the confluence with the St. Austell River, (Appendix 10.1) and was monitored at three locations at approximately monthly intervals. Monitoring points are located in the lower reaches.

The Gover Stream flows over a distance of 3.5 km from its source to the confluence with the St. Austell River, (Appendix 10.1) and was monitored at one location at approximately monthly intervals.

2.2 TERTIARY TRIBUTARY

Hemball Brook flows over a distance of 2.3 km from its source to the confluence with the Polgooth Stream, (Appendix 10.1) and was monitored at one location at approximately monthly intervals. Monitoring points are located in the lower reaches.

Each sample was analysed for a minimum number of determinands (Appendix 10.2) 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 Act Register, (9.2).

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 St. Austell River and South Cornwall Coastal Streams catchment are identified in Appendix 10.1.

3.2 River Quality Classification

River water quality is classified using the National Water Council's (NWC) River Classification System (see Appendix 10.3), 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

Class	Description
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 10.4.1 and 10.4.2.

The quality classification system incorporates some of the European Inland Fisheries Advisory Commission (EIFAC) criteria (Appendix 10.3) recommended for use by the NWC system.

4. 1990 RIVER WATER QUALITY SURVEY

The 1990 regional classification of river water quality also includes the requirements of the Department of the Environment quinquennial national river quality survey. The objectives for the Department of the Environment 1990 River Quality Survey are given below:

1) To carry out a National Classification Survey based on procedures used in the 1985 National Classification Survey, including all regional differences.

2) To classify all rivers and canals included in the 1985 National Classification Survey.

3) To compare the 1990 Classification with those obtained in 1985.

In addition, those watercourses, which were not part of the 1985 Survey and have been monitored since that date, are included in the 1990 regional classification of river water quality.

5. 1990 RIVER WATER QUALITY CLASSIFICATION

Analytical data collected from monitoring during 1988, 1989 and 1990 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 10.5.

The quality class for 1990 can be compared against the appropriate River Quality Objective and previous annual quality classes (1985-1989) also based on three years combined data, for each river reach in Appendix 10.5.

The river water classification system used to classify each river length is identical to the system used in 1985 for the Department of the Environment's 1985 River Quality Survey. The determinand classification criteria used to determine the annual quality classes in 1985, subsequent years and for 1990 are indicated in Appendices 10.4 and 10.4.1.

Improvements to this classification system could have been made, particularly in the use of a different suspended solids standard for Class 2 waters. As the National Rivers Authority will be proposing new classification systems to the Secretary of State in the near future, it was decided to classify river lengths in 1990 with the classification used for the 1985-1989 classification period.

The adoption of the revised criteria for suspended solids in Class 2 waters would have affected the classification of the St. Austell River at all sites and Polgooth Stream prior to its confluence with the St. Austell River.

The river quality classes for 1990 of monitored river reaches in the catchment are shown in map form in Appendix 10.6.

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 10.7.

6. 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 10.8.

Appendix 10.9 indicates the number of samples analysed for each determinand over the period 1988 to 1990 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 relevant quality standard (represented as a percentage), is indicated in Appendix 10.10.

7. CAUSES OF NON-COMPLIANCE

For those river reaches, which did not comply with their assigned RQOs, the cause of non-compliance (where possible to identify) is indicated in Appendix 10.11.

8. 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.

9. REFERENCES

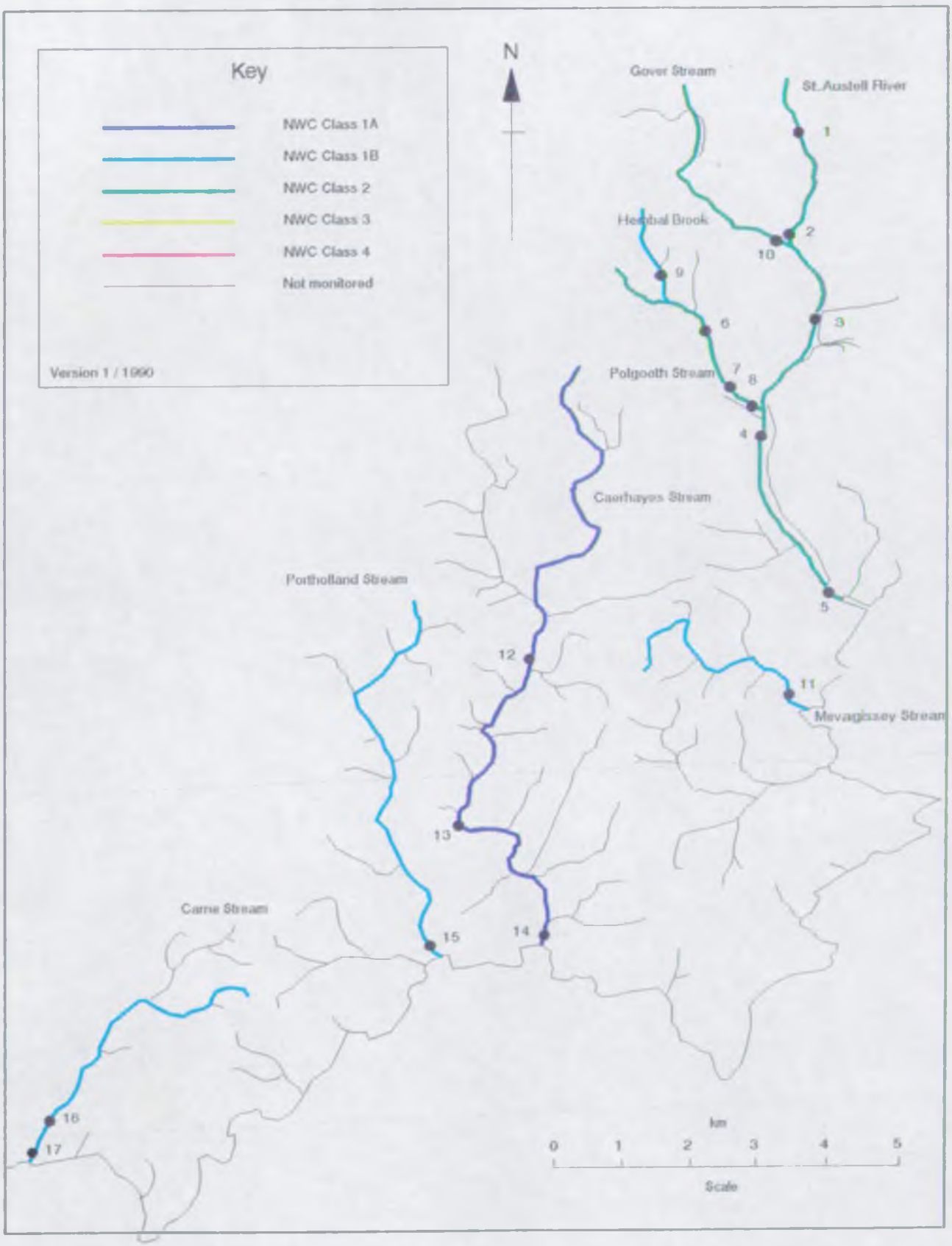
Reference

9.1 National Water Council (1977). River Water Quality: The Next Stage. Review of Discharge Consent Conditions. London.

9.2 Water Act 1989 Section 117

9.3 Alabaster J. S. and Lloyd R. Water Quality Criteria for Freshwater Fish, 2nd edition, 1982. Butterworths.

St. Austell and South Cornwall Coastal Streams
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

NWC 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
4 Bad Quality	Waters which are inferior to Class 3 in terms of dissolved oxygen and likely to be anaerobic at times		Similar to Class 4 of RPS	Waters which are grossly polluted and are likely to cause nuisance
X	DO greater than 10% saturation			Insignificant watercourses and ditches not usable, where the objective is simply to prevent nuisance developing

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 CaCO3	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

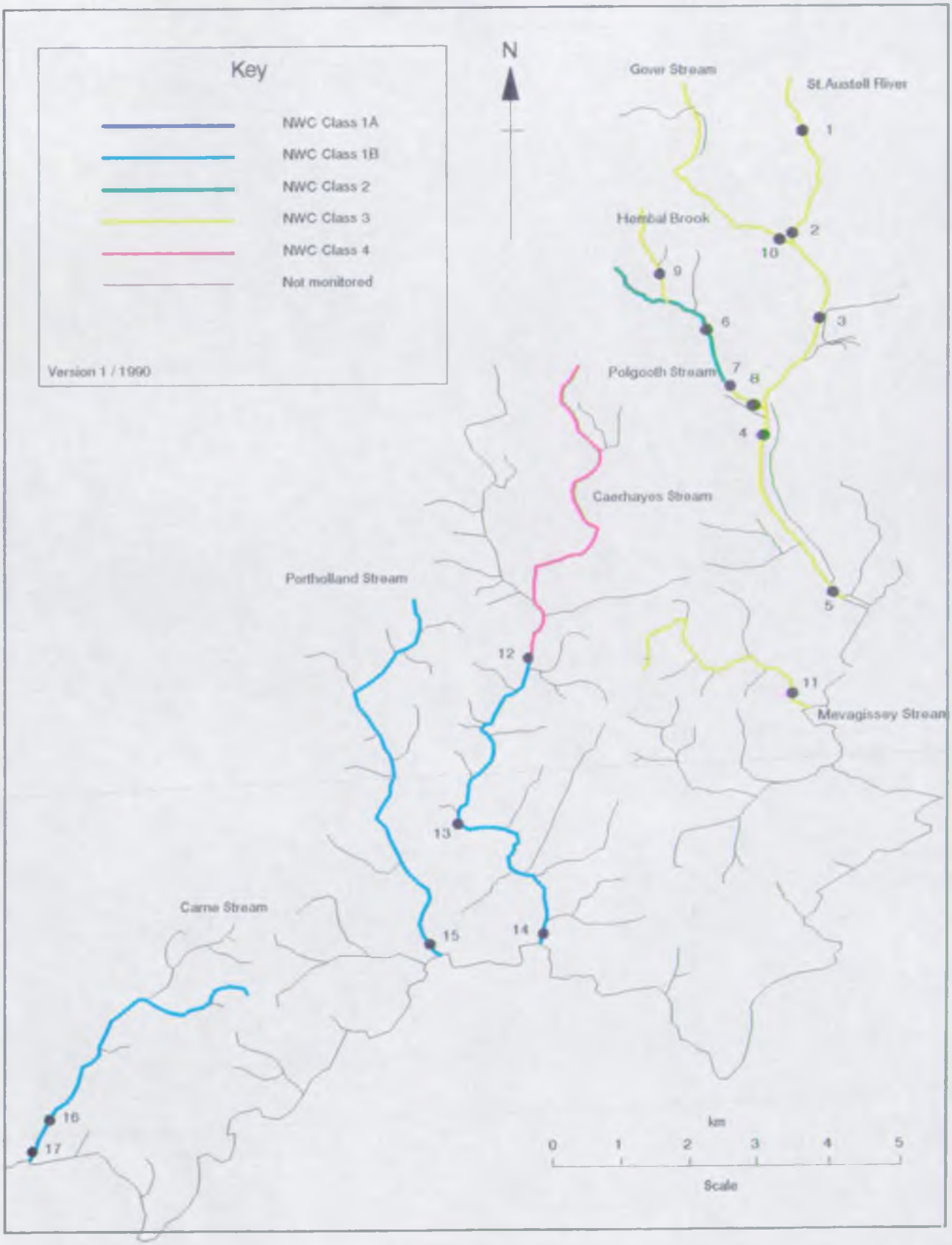
Total Hardness (mean) mg/l CaCO3	Statistic	Total Zinc ug/l Zn		
		Class 1	Class 2	Class 3
0 - 10	95 percentile	< = 30	< = 300	> 300
10 - 50	95 percentile	< = 200	< = 700	> 700
50 - 100	95 percentile	< = 300	< = 1000	> 1000
100 - 300	95 percentile	< = 500	< = 2000	> 2000

NATIONAL RIVERS AUTHORITY - SOUTH WEST REGION
1990 RIVER WATER QUALITY CLASSIFICATION
CATCHMENT: ST. AUSTELL AND SOUTH CORNWALL STREAMS (19)

1990 Map Position Number	River	Reach upstream of	User Reference Number	National Grid Reference	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
1	ST.AUSTELL RIVER	LANSALSON BRIDGE	R18A003	SX 0089 5478	2.0	2.0	2	3	2	2	1B	1B	3
2	ST.AUSTELL RIVER	ABOVE GOVER STREAM	R18A004	SX 0075 5268	2.4	4.4	2	3	2	2	1A	1B	3
3	ST.AUSTELL RIVER	IRON BRIDGE	R18A006	SX 0122 5114	1.8	6.2	2	3	2	2	1A	1B	3
4	ST.AUSTELL RIVER	MOLINGEY GAUGING STATION	R18A007	SX 0071 4945	1.8	8.0	2	3	2	2	2	2	3
5	ST.AUSTELL RIVER	PENTEWAN BRIDGE	R18A008	SX 0175 4725	2.7	10.7	2	3	2	2	1B	2	3
	ST.AUSTELL RIVER	MEAN HIGH WATER (INFERRED STRETCH)			0.3	11.0	2	3	2	2	1B	2	3
6	POLGOOTH STREAM	ST. MARGARETS	R18A013	SW 9975 5078	2.4	2.4	2	3	3	3	3	3	2
7	POLGOOTH STREAM	ABOVE POLGOOTH S T W	R18A014	SX 0001 5023	0.6	3.0	2	3	3	3	3	3	2
8	POLGOOTH STREAM	PRIOR TO ST. AUSTELL RIVER	R18A010	SX 0071 4983	0.9	3.9	2	3	3	3	3	3	3
	POLGOOTH STREAM	ST.AUSTELL R. CONFL. (INFERRED STRETCH)			0.1	4.0	2	3	3	3	3	3	3
9	HEMBAL BROOK	ABOVE BRIDGE AT BOSITHOW	R18A016	SW 9893 5206	1.8	1.8	1B	3					3
	HEMBAL BROOK	POLGOOTH STREAM CONFL. (INF. STRETCH)			0.5	2.3	1B	3					3
10	GOVER STREAM	PRIOR TO ST. AUSTELL RIVER	R18A005	SX 0075 5268	3.4	3.4	2	3	2	2	1B	1B	3
	GOVER STREAM	ST.AUSTELL R. CONFL. (INFERRED STRETCH)			0.1	3.5	2	3	2	2	1B	1B	3
11	MEVAGISSEY STREAM	CAR PARK MEVAGISSEY	R18A009	SX 0130 4500	3.5	3.5	1B	1B					3
	MEVAGISSEY STREAM	NORMAL TIDAL LIMIT (INFERRED STRETCH)			0.3	3.8	1B	1B					3
12	CAERHAYS STREAM	POLMASSICK BRIDGE	R18A001	SW 9718 4560	6.8	6.8	1A	2	3	2	2	2	4
13	CAERHAYS STREAM	TUBBS MILL	R18A015	SW 9609 4329	3.0	9.8	1A	2	3	2	2	2	1B
14	CAERHAYS STREAM	CAERHAYS BEACH BRIDGE	R18A002	SW 9746 4145	3.0	12.8	1A	2	3	2	2	2	1B
	CAERHAYS STREAM	NORMAL TIDAL LIMIT (INFERRED STRETCH)			0.2	13.0	1A	2	3	2	2	2	1B
15	PORTHOLLAND STREAM	PORTHOLLAND	R18A017	SW 9593 4130	6.6	6.6	1B	2					1B
	PORTHOLLAND STREAM	NORMAL TIDAL LIMIT (INFERRED STRETCH)			0.1	6.7	1B	2					1B
16	CARNE STREAM	MELINSEY MILL	R18A011	SW 9056 3928	3.5	3.5	1B	2	3	3	3	1B	1B
17	CARNE STREAM	PENDOWER BEACH	R18A012	SW 8975 3820	1.4	4.9	1B	2	3	3	3	1B	1B
	CARNE STREAM	MEAN HIGH WATER (INFERRED STRETCH)			0.1	5.0	1B	2	3	3	3	1B	1B

Appendix 10.5

St. Austell and South Cornwall Coastal Streams
Water Quality - 1990

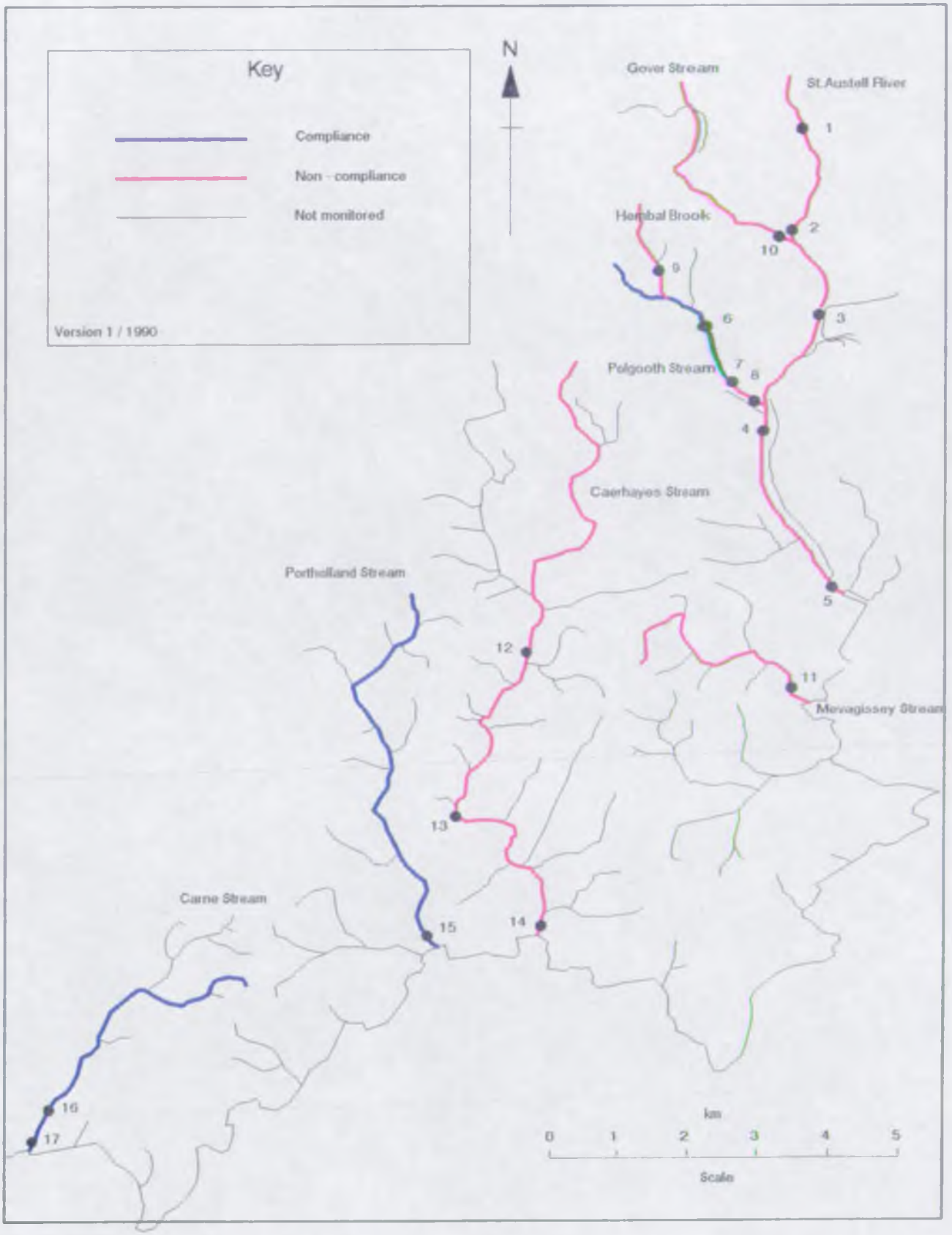


NATIONAL RIVERS AUTHORITY – SOUTH WEST REGION
1990 RIVER WATER QUALITY CLASSIFICATION
CALCULATED DETERMINAND STATISTICS USED FOR QUALITY ASSESSMENT
CATCHMENT: ST. AUSTELL AND SOUTH CORNWALL STREAMS (19)

River	Reach upstream of	User Ref. Number	90 %ile Class	Calculated Determinand Statistics used for Quality Assessment																			
				pH Lower		pH Upper		Temperature		DO (%)		BOD (ATU)		Total Ammonia		Union. Ammonia		S.Solids		Total Copper		Total Zinc	
				Class	%ile	Class	%ile	Class	%ile	Class	%ile	Class	%ile	Class	%ile	Class	%ile	Class	Mean	Class	%ile	Class	%ile
ST AUSTELL RIVER	LANGALSON BRIDGE	R18A003	3	1A	5.7	1A	7.3	1A	15.1	1B	63.8	1B	3.6	1A	0.286	1A	0.010	3	42.4	2	40.0	1A	59.0
ST AUSTELL RIVER	ABOVE COVER STREAM	R18A004	3	1A	6.3	1A	6.9	1A	15.5	1A	90.0	1A	2.3	1A	0.260	1A	0.010	3	76.5	1A	13.0	1A	28.0
ST AUSTELL RIVER	IRON BRIDGE	R18A006	3	1A	5.9	1A	7.5	1A	17.0	1A	81.3	1B	3.5	1A	0.240	1A	0.010	3	68.4	1A	18.0	1A	181.0
ST AUSTELL RIVER	POLKERRY GAUGING STATION	R18A007	3	1A	6.3	1A	7.6	1A	17.2	1B	70.0	2	6.8	2	1.038	1A	0.010	3	49.5	1A	16.0	1A	58.0
ST AUSTELL RIVER	PENSWIN BRIDGE	R18A008	3	1A	6.4	1A	7.7	1A	17.0	1B	65.9	2	5.7	2	0.851	1A	0.010	3	54.8	1A	11.0	1A	100.0
POLGOOTH STREAM	ST. MARGARETS	R18A013	2	1A	6.4	1A	7.8	1A	16.9	1A	84.1	2	5.2	2	1.066	1A	0.010	1A	16.1	1A	29.8	1A	178.3
POLGOOTH STREAM	ABOVE POLGOOTH S T W	R18A014	2	1A	6.4	1A	7.5	1A	16.4	1B	76.3	1B	4.6	2	1.066	1A	0.010	1A	17.9	1A	30.1	1A	174.6
POLGOOTH STREAM	PRIOR TO ST. AUSTELL RIVER	R18A010	3	1A	6.6	1A	7.3	1A	16.1	3	37.0	2	6.9	3	2.236	1A	0.010	3	34.6	1A	16.0	1A	161.0
HENDAL BROOK	ABOVE BRIDGE AT BOSTHOW	R18A016	3	3	4.2	1A	8.0	1A	17.0	1A	85.1	2	6.6	1A	0.200	1A	0.010	3	112.2	2	72.0	1A	200.0
COVER STREAM	PRIOR TO ST. AUSTELL RIVER	R18A005	3	1A	5.9	1A	7.2	1A	14.7	1B	77.0	1A	2.9	1A	0.180	1A	0.010	3	46.5	2	45.0	1A	46.0
MEVAGISSEY STREAM	CAR PARK MEVAGISSEY	R18A009	3	1A	7.0	1A	7.8	1A	16.7	1B	73.5	1B	4.3	2	1.026	1A	0.010	3	30.9	1A	19.0	1A	60.6
CHEHAYS STREAM	POLMASSICK BRIDGE	R16A001	4	1A	6.8	1A	7.8	1A	17.1	1B	72.8	4	20.1	3	1.692	1A	0.010	3	33.0	1A	14.3	1A	146.8
CHEHAYS STREAM	TUBBS MILL	R18A015	1B	1A	7.1	1A	7.9	1A	16.9	1A	83.4	1B	3.4	1B	0.320	1A	0.010	1A	10.7	1A	9.8	1A	56.4
CHEHAYS STREAM	CHEHAYS BEACH BRIDGE	R18A002	1B	1A	7.3	1A	7.9	1A	18.2	1B	61.2	1B	4.4	1A	0.275	1A	0.010	1A	11.0	1A	12.4	1A	33.0
PORTHOLLAND STREAM	PORTHOLLAND	R18A017	1B	1A	6.8	1A	8.5	1A	17.1	1B	79.2	1B	4.1	1B	0.499	1A	0.010	1A	8.9	1A	9.0	1A	80.0
CHINE STREAM	MELINSEY MILL	R18A011	1B	1A	7.6	1A	8.0	1A	17.0	1B	74.0	1A	2.9	1A	0.190	1A	0.010	1A	6.8	1A	5.0	1A	15.0
CHINE STREAM	PENDOMER BEACH	R18A012	1B	1A	7.4	1A	8.1	1A	15.4	1B	75.5	1B	3.8	1A	0.300	1A	0.010	1A	5.7	1A	8.8	1A	13.5

Appendix 10.7

St. Austell and South Cornwall Coastal Streams
Compliance - 1990



NATIONAL RIVERS AUTHORITY – SOUTH WEST REGION
1990 RIVER WATER QUALITY CLASSIFICATION
NUMBER OF SAMPLES (N) AND NUMBER OF SAMPLES EXCEEDING QUALITY STANDARD (F)
CATCHMENT: ST. AUSTELL AND SOUTH CORNWALL STREAMS (19)

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
ST.AUSTELL RIVER	LANSALSON BRIDGE	R18A003	31	–	31	–	31	–	31	–	31	–	31	–	27	–	31	8	18	–	18	–
ST.AUSTELL RIVER	ABOVE COVER STREAM	R18A004	12	–	12	–	12	–	12	–	12	–	12	–	12	–	12	2	12	–	12	–
ST.AUSTELL RIVER	IRON BRIDGE	R18A006	35	–	35	–	34	–	34	–	35	–	35	–	30	–	35	13	18	–	18	–
ST.AUSTELL RIVER	POLINGEY GAUGING STATION	R18A007	34	–	34	–	33	–	33	–	34	–	34	–	30	–	34	11	17	–	17	–
ST.AUSTELL RIVER	PENTEWAN BRIDGE	R18A008	36	–	36	–	36	–	36	–	36	–	36	1	32	–	36	12	19	–	19	–
POLGOOTH STREAM	ST. MARGARETS	R18A013	20	–	20	–	20	–	20	–	20	–	20	–	20	–	20	3	20	–	20	–
POLGOOTH STREAM	ABOVE POLGOOTH S T W	R18A014	22	–	22	–	22	–	22	–	22	–	22	–	22	–	22	4	22	–	22	–
POLGOOTH STREAM	PRIOR TO ST. AUSTELL RIVER	R18A010	31	–	31	–	31	–	31	1	31	–	31	2	31	–	31	9	18	–	18	–
HEMPAL BROOK	ABOVE BRIDGE AT BOSTHOW	R18A016	21	1	21	–	20	–	20	–	21	2	21	–	19	–	21	8	12	1	12	–
COVER STREAM	PRIOR TO ST. AUSTELL RIVER	R18A005	31	–	31	–	30	–	30	–	31	–	31	–	30	–	31	11	18	–	18	–
MEVAGISSEY STREAM	OAR BANK MEVAGISSEY	R18A009	21	–	21	–	21	–	21	–	21	–	21	1	21	–	21	2	21	–	21	–
CAERHAYS STREAM	POLMASSICK BRIDGE	R18A001	24	–	24	–	23	–	23	2	24	1	24	1	23	–	24	1	24	–	24	–
CAERHAYS STREAM	TUBBS MILL	R18A015	24	–	24	–	24	–	23	–	24	1	24	1	23	–	24	1	23	–	23	–
CAERHAYS STREAM	CAERHAYS BEACH BRIDGE	R18A002	30	–	30	–	30	–	30	6	30	4	30	1	29	–	30	1	23	–	23	–
PORTHOLLAND STREAM	PORTHOLLAND	R18A017	21	–	21	–	20	–	20	–	21	–	21	–	19	–	21	–	11	–	11	–
CARNE STREAM	MELINSEY MILL	R18A011	12	–	12	–	12	–	12	–	12	–	12	–	12	–	12	–	11	–	11	–
CARNE STREAM	PENCONER BEACH	R18A012	28	–	28	–	28	–	28	–	28	–	28	–	28	–	28	1	21	–	21	–

Appendix 10.9

NATIONAL RIVERS AUTHORITY - SOUTH WEST REGION
1990 RIVER WATER QUALITY CLASSIFICATION
PERCENTAGE EXCEEDENCE OF DETERMINAND STATISTICS FROM QUALITY STANDARDS
CATCHMENT: ST AUSTELL AND SOUTH CORNWALL STREAMS (19)

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
ST.AUSTELL RIVER	LANSALSON BRIDGE	R18A003	-	-	-	-	-	-	-	69	-	-
ST.AUSTELL RIVER	ABOVE GOVER STREAM	R18A004	-	-	-	-	-	-	-	206	-	-
ST.AUSTELL RIVER	IRON BRIDGE	R18A006	-	-	-	-	-	-	-	174	-	-
ST.AUSTELL RIVER	MOLINGEY GAUGING STATION	R18A007	-	-	-	-	-	-	-	98	-	-
ST.AUSTELL RIVER	PENTEWAN BRIDGE	R18A008	-	-	-	-	-	-	-	119	-	-
POLGOOTH STREAM	ST. MARGARETS	R18A013	-	-	-	-	-	-	-	-	-	-
POLGOOTH STREAM	ABOVE POLGOOTH S T W	R18A014	-	-	-	-	-	-	-	-	-	-
POLGOOTH STREAM	PRIOR TO ST. AUSTELL RIVER	R18A010	-	-	-	8	-	43	-	38	-	-
HEMBAL BROOK	ABOVE BRIDGE AT BOSITHOW	R18A016	16	-	-	-	31	-	-	349	80	-
GOVER STREAM	PRIOR TO ST. AUSTELL RIVER	R18A005	-	-	-	-	-	-	-	86	-	-
MEVAGISSEY STREAM	CAR PARK MEVAGISSEY	R18A009	-	-	-	-	-	47	-	24	-	-
CAERHAYS STREAM	POLMASSICK BRIDGE	R18A001	-	-	-	9	569	446	-	32	-	-
CAERHAYS STREAM	TUBBS MILL	R18A015	-	-	-	-	13	3	-	-	-	-
CAERHAYS STREAM	CAERHAYS BEACH BRIDGE	R18A002	-	-	-	24	45	-	-	-	-	-
PORTHOLLAND STREAM	PORTHOLLAND	R18A017	-	-	-	-	-	-	-	-	-	-
CARNE STREAM	MELINSEY MILL	R18A011	-	-	-	-	-	-	-	-	-	-
CARNE STREAM	PENDOWER BEACH	R18A012	-	-	-	-	-	-	-	-	-	-

NATIONAL RIVERS AUTHORITY - SOUTH WEST REGION
IDENTIFICATION OF POSSIBLE CAUSES OF NON-COMPLIANCE WITH RQO
CATCHMENT: ST. AUSTELL AND SOUTH CORNWALL STREAMS (19)

* = WORK ALREADY IN HAND

1990 Map Position Number	River	Reach upstream of	User Reference Number	Reach Length (km)	Possible causes of non-compliance
1	ST.AUSTELL RIVER	* LANSALSON BRIDGE	R18A003	2.0	CHINA CLAY DISCHARGE
2	ST.AUSTELL RIVER	* ABOVE GOVER STREAM	R18A004	2.4	CHINA CLAY DISCHARGE
3	ST.AUSTELL RIVER	* IRON BRIDGE	R18A006	1.8	CHINA CLAY DISCHARGE, SEWAGE TREATMENT WORKS
4	ST.AUSTELL RIVER	* MOLINGEY GAUGING STATION	R18A007	1.8	CHINA CLAY DISCHARGE, SEWAGE TREATMENT WORKS
5	ST.AUSTELL RIVER	* PENTEWAN BRIDGE	R18A008	2.7	
8	POLGOOTH STREAM	PRIOR TO ST. AUSTELL RIVER	R18A010	0.9	CHINA CLAY DISCHARGE
9	HEMBAL BROOK	ABOVE BRIDGE AT BOSITHOW	R18A016	1.8	CHINA CLAY DISCHARGE, FARMING ACTIVITIES
10	GOVER STREAM	PRIOR TO ST. AUSTELL RIVER	R18A005	3.4	CHINA CLAY DISCHARGE, MINING
11	MEVAGISSEY STREAM	CAR PARK MEVAGISSEY	R18A009	3.5	LAND RUN-OFF, URBANISATION, CANALISATION, SEPTIC TANK
12	CAERHAYS STREAM	* POLMASSICK BRIDGE	R18A001	6.8	LAND RUN-OFF, FARMING ACTIVITIES
13	CAERHAYS STREAM	* TUBBS MILL	R18A015	3.0	LAND RUN-OFF
14	CAERHAYS STREAM	* CAERHAYS BEACH BRIDGE	R18A002	3.0	LAND RUN-OFF, CANALISATION, LAND RUN-OFF

Appendix 10.11