

## Environmental Protection Internal Report

### REGIONAL WATER QUALITY MONITORING AND SURVEILLANCE PROGRAMME FOR 1992

### QUALITY INVESTIGATIONS IN CONTROLLED WATERS

January 1992

WQP/92/037

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**NRA**

*National Rivers Authority  
South West Region*

REGIONAL WATER QUALITY MONITORING SURVEILLANCE PROGRAMME FOR 1992

QUALITY INVESTIGATIONS IN CONTROLLED WATERS.

TECHNICAL REPORT NO WQP/92/037

SUMMARY

The Freshwater and Tidal Waters Investigation Teams carry out non-routine water quality monitoring. Work programmes are targetted at determining the cause of non-compliance with quality standards and assessing the extent of impact of certain discharges on receiving waters.

A total of 5,890 water samples and 990 biological samples are estimated to be collected in 1992. Since it is not possible to estimate the number of determinands to be analysed, the Laboratory Controller has agreed a laboratory workload quota of equivalent to 5.5 analysts (FTE).

The work programme began in 1992. Full details are given in the report.

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January 1992.



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## REGIONAL WATER QUALITY MONITORING AND SURVEILLANCE PROGRAMME FOR 1992

### QUALITY INVESTIGATIONS IN CONTROLLED WATERS.

#### 1. INTRODUCTION TO THE 1992 PROGRAMME.

The quality investigations programme covers the non-routine aspects of water quality monitoring, with the exception of the majority of pollution events which are handled by Pollution Control staff.

The Freshwater Investigations Team (FWIT) was set up to fulfil the following functions:-

- (a) The assessment of the causes of non-compliance with standards relating to EC Directives. For example, the River Yarty investigation in respect of the EC Freshwater Fish Directive.
- (b) The assessment of the causes of non-compliance with standards relating to River Quality Objectives. For example, the Rivers Strat and Neet Investigation.
- (c) Impact assessment studies to assess the extent of impact of certain discharges on the receiving watercourse. For example, impact assessment of Meldon Quarry.
- (d) Impact assessment of storm sewer overflows on water quality and to priority rate their impact for the setting of new consents.
- (e) Performance appraisal of discharges from inland sewage treatment works in SWWS Ltd capital improvement programme.
- (f) Involvement with major regional projects assessing the impact of contaminated land and the disused mines on water quality. For example, impact assessment of Wheal Jane Mine on water courses in the Carnon Valley.
- (g) The development, operating, and maintenance of continuous monitors and telemetry systems in freshwaters. For example, monitors downstream of Roadford Reservoir (see Report No. FWI/92/026).

The requirement for investigational work in Tidal Waters is driven by a number of factors as follows:-

- (a) Non-compliance with the EC Bathing Water Directive as highlighted by routine monitoring programmes. Investigations are undertaken to identify and quantify sources of contamination resulting in non-compliance.
- (b) Non-compliance with other EC Directives, notably the EC Dangerous Substances Directive. For example, the impact of the Wheal Jane mine leachate on tidal water quality.
- (c) Post-commissioning monitoring for major improvement schemes, where

monitoring effort is designed to ensure target Water Quality Standards are being met. For example, Bude Long Sea Outfall Post-Scheme Appraisal.

- (d) Programmes to monitor the environmental impact of construction activities licensed by NRA. For example, Teign Estuary re-sewerage programme.
- (e) Programmes to assist in the determination of consents for significant discharges to tidal waters not covered by the above. For example, toxic waste leachate from Chelson Meadows Waste Disposal Site, Plym Estuary.
- (f) Monitoring programmes to ensure non-deterioration of water quality as a result of flood defence schemes, developments, or any other activity which influences the nature of the water circulation and flushing.
- (g) Monitoring surveys to provide expert support for major pollution incidents affecting tidal waters. For example, potentially toxic algal blooms.
- (h) Other investigations.

The number of samples to be collected in 1992 is estimated as follows:-

	Water and Sediment Chemical/Microbiological	Biology
Freshwater Investigation Team	2,200	850
Tidal Waters Investigation Unit	3,690	140

## 2. WORK PROGRAMME

### 2.1. Freshwater Investigation Team

The work programme for the Freshwater Team is assessed approximately every 4 months. The programmes for January - May 1992 and June to September 1992 are attached.

### 2.2. Tidal Waters Investigation Unit

The provisional 1992 programme for investigations relating to tidal water is as follows:-

#### 2.2.1. Non-Compliance with EC Bathing Water Directive

##### a) Mothecombe

Investigation of the impact of Holbeton STW and Ivybridge STW on water quality at Mothecombe Beach.

b) Porthallow

Investigation to determine suitable location for sewage discharge.

c) Mawgan Porth

Intensive survey of lower catchment of River Menalhyl prior to farm campaign.

d) Ilfracombe

Intensive survey of River Wilder to identify and quantify sources of bacterial pollutant input.

e) Combe Martin

Intensive survey of River Uंबर to identify and quantify sources of bacterial pollution input.

f) Seaton, Cornwall

Intensive survey of River Seaton to identify and quantify sources of bacterial pollutant input.

g) Salcombe South Sands

Stream survey to identify and quantify sources bacterial pollutant input.

h) Pentewan

Survey of St Austell River to identify and quantify sources of bacterial pollutant input.

i) Bigbury/Challaborough

Outfall plume survey to assess impact on bathing waters.

j) Teign Estuary

Weekly sampling of freshwater inputs to the Teign Estuary from January to June, to assess bacterial loadings to the estuary.

k) Camel Estuary

Sampling of freshwater inputs to the Camel Estuary to assess bacterial loadings to the estuary.

l) Exe Estuary

Sampling of freshwater inputs to the Exe Estuary to assess bacterial loadings to the estuary.

m) Plymouth Hoe

Investigation of the impact of sewage discharges to the Plym Estuary on Plymouth Hoe bathing waters.

## **n) Freshwater Inputs**

Sampling over the bathing season at a number of freshwater sites throughout the region to assess the improvements in water quality which will occur when SWW schemes are implemented.

### **2.2.2. Non-Compliance with other EC Directives**

#### **a) EC Dangerous Substance Directive and Wheal Jane tin mine**

Investigations to assess the impact of mine leachate on tidal water and sediment quality.

January - Monitoring following major releases of leachate (two occasions).  
January, April, June/July, October - Major spring tide and neap tide surveys.  
March to May - Continuous monitoring at the mouth of Restronguet Creek.

### **2.2.3. Post-Commissioning Monitoring**

#### **a) Bude**

Monitoring the impact of the newly-commissioned Long Sea Outfall on water contact areas and bathing waters.

### **2.2.4. Environmental Impact of Construction Activities**

#### **a) Teign Estuary**

Monitoring the impact on water quality in the Teign Estuary of the trenching for the sewage pipelines being laid by South West Water.

Surveys in February, May, July, September.

### **2.2.5. Environmental Impact of Other Significant Discharges**

#### **a) Newquay**

Investigation into impact of Towan Head Outfall on Water Contact Sport areas.

#### **b) Plym Estuary**

Investigation into impact of effluent from Chelson Meadows Waste Disposal Site on water and sediment quality in the Plym estuary.

### **2.2.6. Monitoring Related to Pollution Incidents**

a) Investigation of algal blooms in Falmouth Harbour (to date, June 1992).

### **2.2.7. Other Investigations**

a) Investigation of sources of sewage-related jetsam on the North Cornwall Coast.

### 3. SAMPLING BREAKDOWN

#### 3.1. Freshwater Investigation Team

	Chemical Samples	Biology Samples
Impact Assessment of Effluent Discharges.	900	350
Impact Assessment of Water Resource Schemes.	200	-
Non Compliance Investigations		
- EC Directives	450	250
- Other	450	250
Bioaccumulation Investigations	150	-
Sediments	50	-
<b>TOTAL</b>	<u>2,200</u>	<u>850</u>

#### 3.2. Tidal Water Investigation Unit

	Water and Sediment Microbiology and Chemical Samples	Biological Samples
<u>Monitoring of rivers and canals</u>		
Non Compliance Investigations.	1790	
- EC Bathing Water Directive.		
<u>Monitoring of estuaries.</u>		
Impact Assessment of Effluent Discharges.	200	
Impact Assessment of Developments/Activities.	445	
Other Quality Investigations.	120	
Bioaccumulation Investigations.		40
Sediments	100	
<u>Monitoring of Coastal waters</u>		
Impact Assessment of Effluent Discharges.	400	
Bioaccumulation Investigations.		10
<u>Operational investigations</u>		
Estuaries - Carnon Valley Investigations	570	
Coastal Waters - Carnon Valley Investigations	15	
<b>TOTAL</b>	<u>3,690</u>	



Biological Surveys - Estuaries

Pollution Incident Support	25
Algal Investigations	20
Other - Operational Investigations (Carnon Valley)	60

Biological Surveys - Coastal Waters

Impact Assessment of Other Developments/Activities	25
Algal Investigations	10
<b>TOTAL</b>	<u>140</u>

Because of the nature of investigational work, with many sites being sampled only once, and other sites being sampled on a quasi-routine basis, it is not possible to give accurately the number of sites which have been or will be sampled. Of the approximately 3,800 samples which the Tidal Waters Investigation Unit will collect in 1992, it is estimated that there are about 1,000 sites.

Is not possible to estimate the number of determinands to be analysed. Instead the Laboratory Controller has agreed a laboratory workload quota of equivalent to 5.5 analysts (FTE).

**5. ENDORSEMENT**



The contents of this programme have been agreed by the Water Quality Planner and the Laboratory Controller.













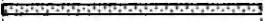












# Freshwater Investigation Team - Work Programme 1992

Planning/Field Work  
 Data Analysis/Report Writing

	January	February	March	April	May
<b>Non-compliance Investigations</b>					
River Yarty	[Planning/Field Work]		[Data Analysis/Report Writing]		
River Kenn			[Planning/Field Work]	[Data Analysis/Report Writing]	
<b>Impact assessment</b>					
Wheal Jane	[Planning/Field Work]				
Roadford Water Resource Scheme	[Planning/Field Work]				
Roadford scour valve release	[Data Analysis/Report Writing]				
Meldon Quarry	[Planning/Field Work]				
SWW capital schemes	[Planning/Field Work]				
Storm sewer overflows	[Planning/Field Work]				
Cullompton STW				[Planning/Field Work]	[Data Analysis/Report Writing]
<b>Instrument development / Installation</b>					
DMP monitors (Cullompton)		[Planning/Field Work]			
pHOX 100 DPM/Dialog Test		[Planning/Field Work]			
Roadford refurbishment			[Planning/Field Work]		
Roadford dialog test			[Planning/Field Work]		
Beam monitor installation				[Planning/Field Work]	
WTW/Newlog		[Planning/Field Work]			

# Freshwater Investigation Team - Work Programme 1992

	Planning/Field work/Data collation
	Data Analysis/Report Writing

	Staff	June	July	August	September
<b>PC 21 + 24: Non-compliance investigations</b>					
River Yarty	TG/LAW				
Aller Brook	TG				
River Cober	TG/LAW/LW/PL				
<b>PC : Impact assessment</b>					
Trade discharges in the River Culm	PR/BM				
River Axe (Whitford Bridge abstraction)	RV/JCB				
Helston STW	RV/JCB				
Hingston Quarry	PR/RV/TG				
Meldon Reservoir (MSc Project)	JF				
Meldon Quarry (monitor report)	JCB				
River Torridge (Sheepwash monitor report)	PR				
<b>PC 14: Storm sewer overflow project</b>	LW/PL				
<b>PC 15: Capital schemes project</b>	TG/LAW/LW/PL				
<b>PC 26: Operational projects</b>					
Carnon River water quality assessment	RV/RW				
Water quality investigations at Nancekuke	LAW/PR				
<b>PC 29: Maintain water quality monitors</b>					
River Wolf/Lyd	JB				
River Torridge	JB				
River Tamar	RV/JB				
<b>PC 29: Develop water quality monitors</b>					
Dialog telemetry	RV/JB				
pHOX 200/900	RV				
Wheat Jane fixed site monitor	RV/RW				
Mobile monitor	RV				
<b>PC 30: Research &amp; Development</b>					
Quality assurance of portable monitors	SW	